

Arboriculture & Horticulture Industry Operation and Support

Specification of Competency Standards

First Edition

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Chapter 1

Preface

In 2016, the Education Bureau assisted the arboriculture and horticulture industry to establish the Industry Training Advisory Committee (ITAC) to implement the Qualifications Framework in the industry. The ITAC then started the work to develop the Specification of Competency Standards (SCS) for the arboriculture and horticulture industry. The Vocational Training Council (VTC) was commissioned to carry out the compilation of the SCS. The ITAC has developed the SCS for the arboriculture and horticulture industry in accordance with the current status and future development trends of the industry. The SCS not only sets out the standards of the competencies required at various levels for the current and future development of the arboriculture and horticulture industry, but also covers the various areas of professional competencies required by the industry. It provides the industry with a more complete and clear training framework to improve the professional level of the practitioners of the industry, with a view to establishing a set of standards with reference value for the industry, and enhancing the acceptance of the industry and its attractiveness to the new generation so that new blood can be injected into the industry.

Introduction of the Industry

According to the Report of the Task Force on Tree Management released by the Government in June 2009, around 67% (or about 74,100 hectares) of the territory's total land area is covered by woodland, shrub land and grassland, most of which concentrates in country parks¹. The Government spent an average of about \$200 million on greening works annually, planting about 10 million new trees, shrubs and seasonal flowers each year¹. In addition, a large number of trees and plants are planted in public and private housing estates, tertiary institutions, schools, shopping malls, commercial buildings, theme parks, and roadsides. This shows that there is a certain demand for talents in the arboriculture and horticulture industry by the Government, public organisations and private organisations.

Arboriculture is closely related to horticulture, but there are distinctive focuses in each of them. Arboriculture focuses on tree management, such as tree pruning, prevention and treatment of pests and diseases, tree risk assessment, prevention of tree collapse, selection and cultivation of plant species, and harmonisation of tree planting with surrounding public facilities. Horticulture focuses on the visual value of plants, the greening effect of plants and turfs, and appropriate plant cultivation and care, with a view to promoting short-, medium- and long-term development.

The local horticulture industry has existed for some time. However, the general public has little knowledge about the industry and only has a deeper impression on traditional posts such as gardener. Compared with the horticulture industry, the arboriculture industry has a relatively short development history in Hong Kong. In general, society only started to pay more attention to tree conservation and tree risk management after the tree collapse incident happening in Stanley in 2008. At present, there still lack clear career ladders in the arboriculture and horticulture industry. In the light of this, the general public basically has no idea about the prospects of the industry and interested parties are therefore hesitant in entering the industry. Nevertheless, in addition to tree preservation and risk management, since new buildings stress green space in recent years, property management has gradually extended to also involve greening and horticultural work to meet people's demand for a green living environment. With society emphasising green space and environmental protection, the arboriculture and horticulture industry has gradually received attention from society. The demand of the industry for practitioners with more experience, and higher

academic qualification and professional qualification has increased. This trend helps lead the arboriculture and horticulture industry to become more professional.

Major Stakeholders

The major stakeholders in the local arboriculture and horticulture industry include relevant government departments, public organisations, professional bodies, arboriculture and horticultural practitioners unions, chambers of commerce, training institutions, property management companies, arboriculture / horticulture contractors, construction engineering companies, theme parks, etc. Arboriculture and horticulture companies undertake projects commissioned by the Government and public and private organisations, while some greening service companies have extended their services in areas such as tree pruning and inspection. It is a major trend for the industry to develop diversified businesses, which is useful for responding to market demand and constantly exploring business opportunities.

Job Overview

With reference to the following three survey reports related to the arboriculture and horticulture industry, as well as the statistics of the Survey of Employment and Vacancies for 2018 by the Census and Statistics Department, this section analyses the general situation and trends of manpower of the industry in recent years:

- (1) The manpower survey report published in February 2018 by the Building, Civil Engineering and Built Environment Training Board of the VTC;
- (2) The Survey on Occupational Safety and Health in the Arboriculture and Horticulture Industry published in April 2017 by the Occupational Safety and Health Council (OSHC); and
- (3) The Human Resources and Competences Survey and Analysis of the Arboriculture, Horticulture and Landscape Management and Maintenance Industry completed in May 2017 by the Greening, Landscape and Tree Management Section (GLTMS) of the Development Bureau of the Government.

Even though the survey objectives, sample subjects, questionnaire design, response rates and quality control of the three reports are different, they all provide a lot of manpower information about the arboriculture and horticulture industry, and the opinions of the employee and employer respondents on manpower training, which help to understand the basic information and manpower needs of the industry.

The firms to which the employer or practitioner respondents of the three surveys belonged are mostly landscape greening, arboriculture services, property and real estate management, and building-related organisations, suggesting that these organisations provide more job opportunities for the industry. The survey conducted by the OSHC divided the practitioners into three categories: (i) frontline personnel, including horticulture assistant, general worker and arboriculture worker, who are responsible for general gardening, transplant and tree pruning work; (ii) supervisory and management personnel, including foreman, horticultural inspector, arborist assistant and tree inspector; (iii) horticulturist, landscape architect and arborist, who provide assistance to handling policy work related to greening, landscape planning, tree transplantation and works supervision, and provide professional consultancy services². The survey conducted by the VTC included four positions, namely arboricultural workers, landscape technicians,

landscape planners and arborists employed at construction sites / by construction institutions³. The survey conducted by the GLTMS categorised practitioners into three areas: arboriculture, horticulture, and landscape management and maintenance, with a total of 14 positions. In addition to the positions mentioned above, positions related to arboriculture and horticulture include tree climber and tree climber assistant⁴.

Overview of the Practitioners

Among the respondents of the two surveys by the OSHC and the GLTMS, males accounted for 66%² and 52%⁴ respectively. This is believed to be related to the nature of work of the arboriculture and horticulture industry, which usually involves manual labour and outdoor work. Regarding the age, more than half of the respondents of the survey by the OSHC were between 50 and 65 years old². The survey by the GLTMS indicated that 58% of the respondents were over 45 years old, who were mostly frontline arboriculture and horticulture workers⁴. The above data show that the employees of the arboriculture and horticulture industry are ageing, especially reflecting that the number of young workers is relatively small.

With regard to the academic qualifications, the majority of respondents were in the groups of "primary or below" and "secondary one to five". Relatively more frontline employees, including horticulture assistants, general workers and arboriculture workers, had primary school education or below; a higher number of supervisors / managers, horticulturists, landscape architects and arborists had tertiary education or above². In addition, relatively more respondents in the arboriculture industry had attained overseas professional qualifications and had received relevant arboricultural training.

The above two surveys had collected respondents' years of experience in the industry. The survey by the OSHC revealed that more than 40% of the respondents had been in the industry for 10 years or more². The survey by the GLTMS showed a similar pattern, with more than 60% of the respondents having more than 6 years of experience in the industry⁴.

Employment and Vacancy Figures

According to the survey completed by the GLTMS in 2017, it was estimated that there were 7,300 employees in the arboriculture, horticulture, and landscape management and maintenance industry, with 67% of them engaged in horticulture-related work, followed by 33% engaged in arboriculture-related work⁴. In the horticulture and arboriculture categories, frontline skilled or unskilled workers accounted for the largest proportion. According to the statistics of the Survey of Employment and Vacancies for 2018 of the Census and Statistics Department, there were 260 establishments in the "Landscape care and greenery services" section, with a total of 3,420 persons engaged⁵. The survey by the OSHC also showed that most of the respondents were frontline employees, including horticulture assistants, general workers and arboriculture workers. They mostly worked in parks, public entertainment facilities or leisure places, as well as private housing estates, reflecting that there were more greening works in the above two types of workplaces. As for the survey by the VTC, among the 2,483 construction sites / institutions surveyed, with a total of 200,554 employees, 548 were employed for doing arboriculture- and horticulture-related work, which included arboriculture workers (341 persons), landscape technicians (52 persons), landscape planners (121 persons) and arborists (34 persons)³.

Although there are no official statistics on the employment distribution of the arboriculture and horticulture industry, the three surveys showed that frontline staff accounted for the largest part of the industry, followed by supervisory and management staff. This may be related to the fact that more manpower is required to handle daily plant care and tree maintenance work in the industry. Daily plant care and tree maintenance work are recurring activities involving many different types of jobs. The industry must have adequate frontline staff to meet daily business needs and maintain sustainable development.

The survey by the VTC listed four positions related to the arboriculture and horticulture industry in construction sites, with the most vacancies for arboriculture workers (a total of 22)³. The Survey of Employment and Vacancies for 2018 of the Census and Statistics Department listed the number of job vacancies in the "Landscape care and greenery services" section as 160⁵. The survey by the GLTMS estimated that there would be a large number of vacancies for frontline positions in the industry in 2018, with 1,370 for technical staff and 1,160 for non-technical staff⁴. Both surveys pointed out that the industry had practical needs to hire more frontline staff, but there lacked a sufficient supply of human resources.

Human Resources and Training

In addition, practitioners of the arboriculture and horticulture industry (particularly the frontline staff) often face many risks, such as working in hot environments, working at height, heavy manual work and operation of heavy-duty machinery, causing various types of work injuries, with "slipping and tripping" and "injuries during transferring" being the most common ones².

In regard to the common causes of work injuries of practitioners and the training needs of frontline staff, the survey of the OSHC suggested to provide employees with more occupational safety training, such as "Occupational Safety and Health for the Horticulture Industry", "Occupational Safety and Health in Arboriculture", "Safe Use of Chainsaws", "Working at Height Safety" and "Prevention of Heat Stroke at Work in a Hot Environment"².

In addition to occupational safety training, respondents of the survey by the GLTMS believed that practitioners should strengthen their professional standards and take specific technical training to support the business development of the organisations, including the effective use of various manual and power tools for tree pruning, diagnosis and treatment of pests and diseases, identification of trees, risk assessment, turf maintenance, selection of plants, and effective management of projects⁴. These training areas are the key jobs of the arboriculture and horticulture industry. If practitioners do not possess these relevant knowledge and skills, the productivity and normal operation of the industry will be severely affected.

The above surveys show that challenges such as ageing staff, inadequate staffing (especially for frontline staff), unsatisfactory working environments, low social image, and unclear promotion opportunities are commonly seen in the arboriculture and horticulture industry. Moreover, practitioners often face a wide range of risks while working, causing difficulty for the industry to inject new blood, in particular young people who are joining the labour market for the first time. In recent years, voices exist in the industry advocating industry training to enhance the professional image of the industry and the standards of practitioners. This reflects that the industry has placed stronger emphasis on manpower training gradually in order to improve the knowledge and professional skills of practitioners, with a view to attracting more young people to join this industry.

The following is an analysis of the current situation of the arboriculture and horticulture industry from the political, economic, social and technological aspects to explore the development opportunities of the industry, so as to ensure its sustainable development.

Scan of Political, Economic, Social and Technological (PEST) Factors

The following analysis adopts a systematic approach known as PEST analysis, in which the political, economic, social and technological factors affecting the macro-environment of the arboriculture and horticulture industry are scanned, so as to understand the challenges faced by the industry, and to explore the development opportunities and trends of the industry.

(A) Political Factors

Tree Management and Relevant Legislation

The Government adopts an "integrated approach" for the management of trees on Government land. Simply put, departments responsible for maintaining the Government facilities or land allocated to them are also responsible for taking care of the trees thereon, in accordance with the directives, requirements and guidelines of the GLTMS. This ensures the relevant departments will pay closer attention to the trees they are responsible for, especially the trees' characteristics, locations and maintenance requirements, so that the trees can be properly maintained on a daily basis ⁵. Currently, the major departments involved in managing trees include the Leisure and Cultural Services Department (LCSD), the Highways Department, the Architectural Services Department, the Housing Department, the Agriculture, Fisheries and Conservation Department, the Civil Engineering and Development Department, the Drainage Services Department, the Water Supplies Department and the Lands Department. For example, the LCSD mainly manages trees in LCSD venues, parks and landscaped areas along public roads, and the Highways Department mainly manages trees within the boundaries of expressways and those on the slopes managed by the department ⁶.

Existing ordinances related to the protection of trees and environment mainly include: Forests and Countryside Ordinance (Cap. 96), Country Parks Ordinance (Cap. 208), Public Health and Municipal Services Ordinance (Cap. 132), Crimes Ordinance (Cap. 200), Theft Ordinance (Cap. 210), Summary Offences Ordinance (Cap. 228), Antiquities and Monuments Ordinance (Cap. 53) and Environmental Impact Assessment Ordinance (Cap. 499) ⁷.

The Government had already included "tree preservation clauses" and "landscape clauses" in land leases since the 1970s and mid-1980s. In the case of redevelopment, there is also an opportunity for the Government to impose new requirements in regard to tree preservation via the planning regime or through the process of lease modification ¹. Private land owners, owners' corporations and property management companies have an overall management responsibility to maintain their land properly, including trees growing on the land, so as to ensure that they will not pose danger to their neighbours and the public. In the event of tree failure causing injury or fatality to a third party, the above parties can be held legally liable for a breach of the Occupiers Liability Ordinance and / or negligence under the common law.

Strengthening Controls by the Government

In the Report of the Task Force on Tree Management released on 29 June 2009, the Task Force reviewed the tree management approach by the Government, institutional framework, tree risk assessment arrangements, expertise and training, legislation applicable to tree management, public education and complaint handling, and provision of resources and equipment, and made recommendations ¹. The Government subsequently adopted the recommendations

of the Task Force, and implemented a new tree management institutional framework as well as a series of new measures to strengthen tree management work and enhance inter-departmental co-ordination on it, so as to raise professional standards.

New Institutional Framework

The Government established the Greening, Landscape and Tree Management Section (GLTMS) under the Works Branch of the Development Bureau in March 2010 to champion a policy on greening, landscaping and tree management by adopting a comprehensive and sustainable approach. The GLTMS plays a central co-ordinating role at the bureau level, taking up the overall policy responsibility for formulating and co-ordinating landscape and tree management strategy and initiatives in Hong Kong. There will be clearer delineation of duties among relevant tree management departments, letting each department implement the "integrated approach" of tree management in a more effective way. Furthermore, the GLTMS is underpinned by the Tree Management Office (TMO) and the Greening and Landscape Office (GLO). The two offices work in close co-operation to promote a holistic approach, embracing adequate space allocation for new planting, proper selection of planting species, as well as quality landscape design and planting practices, and proper vegetation maintenance, with protection of public safety as a priority consideration. The GLO is responsible for central co-ordination of the Government's greening and landscape planning and design efforts, while the TMO for advocating the adoption of a professional approach to tree management among tree management departments and in the community at large ¹.

To achieve the policy targets of the two new offices, the Government will enhance opportunities of quality greening actively during the planning and development of major infrastructure and works projects ⁶. In the planning of works projects, more stringent requirements for greenery area ratio are introduced, and novel greening technology and criteria for landscape design are advocated ¹. To meet the Government's latest greening policy and to expand business opportunities, arboriculture and horticulture institutions need to explore and assess the latest areas in the industry possible of sustainable development.

Tree Risk Assessment and Management

Pursuant to the recommendations of the Task Force, the TMO strengthens the administrative measures related to tree risk assessment, so as to better protect public safety ¹. The new measures mainly improve the quality of risk assessment of Government departments responsible for tree management and promote community involvement in tree risk management.

The GLTMS promulgated the Guidelines for Tree Risk Assessment and Management Arrangement (The Guidelines) for compliance by tree management departments. The Guidelines were formulated in accordance with international best practices and after fully taking the local circumstances into account. Tree risk assessment is conducted step-by-step in two stages. The first stage is "Area Basis" assessment – departments first identify those areas with high pedestrian or vehicular flow under their management. The second stage is "Tree Basis" assessment – departments carry out tree group inspections according to the Guidelines at locations with high pedestrian or vehicular flow to identify trees which may need particular care (such as Old and Valuable Trees and stonewall trees) as well as dead trees and trees with major health or structural problems which may pose hazards to the public. Then, corresponding risk mitigation measures will be arranged. The TMO will carry out desk-top checking of the tree

inspection forms on a selective basis and inspection on-site to ensure that the tree risk assessments and risk mitigation measures are conducted in a professional manner ⁸.

Tree management departments of the Government and the industry can refer to the Guidelines when arranging and conducting tree risk management ⁹. In terms of public education, the Guidelines and relevant tree knowledge have already been uploaded to the GLTMS website to increase public awareness of tree risk assessment. Furthermore, to promote community involvement in tree risk management, the Government has set up the Tree Register since 2012, which presents information about trees that are subject to regular monitoring, problematic trees for which mitigation measures have yet to be completed, and complaint or referral cases received ¹⁰.

Expertise and Training

To enhance the arboriculture expertise of personnel at all levels responsible for tree management in Government departments so that they can acquire the latest information and conduct tree management in a professional and effective manner, the GLTMS will set an annual training plan, which includes the organisation of training courses and topical seminars, and subsidising personnel engaged in tree management and care to take local or overseas professional arboriculture-related courses or participate in international conferences. At the same time, to assist private property owners to manage trees properly, the Government has strengthened publicity and educational work. In addition to organising tree care seminars for the public and related publicity work, the Government has also organised tree care seminars, workshops, field demonstrations and roving exhibitions for private property owners and property management company employees to explain the key points of tree care work and the proper ways to conduct tree risk assessment, as well as to remind them of their responsibilities in tree management and enhance their knowledge of proper tree care. The GLTMS has also strengthened the facilitation of local education and training institutions in organising more professional courses, providing suitable tree management training courses, including tree identification, proper tree pruning techniques, safe use and maintenance of chainsaws and basic tree pruning, pest and disease control, occupational safety and health for tree work, etc. to raise the knowledge and skill level of frontline staff, and to meet the demand of related Government personnel and the industry ¹. With the Government's active promotion, the industry needs to invest more resources for arranging employees to learn new techniques and professional knowledge in order to meet the requirements of the latest works projects, helping the industry become more professional. In addition, to ensure that the training resources of the industry are used appropriately, it is also essential to have effective internal human resource management. Management personnel of the arboriculture and horticulture industry need to review the importance of each job competence to business development, and arrange appropriate training in regard to the training needs of employees, so as to improve their skill performance and level, and achieve sustainable development of the organisation.

The Financial Secretary proposed in the 2019-20 Budget that a \$200 million Urban Forestry Support Fund will be set up to uplift the professional standards of the arboriculture and horticulture industry and encourage more talents to join the industry, as well as to strengthen public education and promotion on proper tree care. The Urban Forestry Support Fund will introduce initiatives including encouraging students to pursue studies related to arboriculture and horticulture, and rolling out arboriculture and horticulture trainee programmes to provide more training and internship opportunities for new recruits ¹¹. Looking ahead, with the support of Government policies,

industry-related professional training courses are expected to grow widely, nurturing a new generation of professionals for the industry and getting prepared for the industry to transition from the old to the new.

Tree Management on Private Land

For a private lot, regardless of whether the lease contains any clause requiring the owner of the private lot to properly maintain the trees within his / her lot, it is the responsibility of the owner to properly manage his / her property including the trees planted on the lot. Private lot owners may be held liable for any casualty or property loss arising from their failure to properly maintain the trees within their properties¹². The GLTMS issues letters to private property owners and property management companies every year to remind them to engage qualified arborists to conduct risk assessment for trees on their properties before the onset of typhoon and rainy season, and carry out necessary mitigation measures to reduce risks as early as possible¹³. The GLTMS introduced the Handbook on Tree Management (the Handbook) in April 2016 to provide private property owners with clear guidelines and standards of good practice on tree management¹⁴, which includes proper tree care and tree pruning methods. With the assistance of the Home Affairs Department, the Handbook was incorporated into the Code of Practice on Building Management and Safety of the Building Management Ordinance (Cap. 344) in September 2018 to let private property owners, property management companies and owners' corporations aware of their respective responsibilities, enhancing their knowledge of tree management and improving the standards of good practice. The GLTMS has also organised a series of professional training courses and seminars for private property owners, property management personnel and the general public to promote the knowledge of tree care. Property management companies must properly and effectively manage and maintain the trees within their lots in accordance with the content and requirements of the Handbook to cope with the revision of the code.

Urban Forestry Policy

The Chief Executive proposed a series of urban forestry strategies and measures in the 2018 Policy Agenda. The key points included: study the introduction of a registration system for tree management personnel, provide more training for private property management companies and frontline staff, promote plant diversity and implement better vegetation maintenance, continue to facilitate the development of the industry, raise public awareness on urban forestry, apply smart technologies in tree management, enhance the quality and efficiency of tree risk assessment, undertake studies on the stability of stonewall trees, collaborate with experts and research institutions to develop a Brown Root Rot Disease Operations Manual, etc.¹⁵

With regard to the above enhanced measures on tree management and care by the Government, the industry needs capable management personnel to carry out administrative and management work for contract management and project management, so as to ensure that the project works fulfil the requirements of the project contracts, the ordinances related to protection of trees and the new administrative measures. In addition, the industry should refer to the Government's risk management guidelines and handbooks to strengthen the staff's training on tree risk assessment, pruning of trees and plants, plant care and management, pest and disease control, plant selection, etc. with a view to equipping them with relevant expertise and operation skills to meet the current needs of the industry and the business development in the future.

(B) Economic Factors

Economic Benefits of Greening

To improve the competitiveness of the city and to attract and retain talents, the city's infrastructure, liveability, and air quality are all important factors. Therefore, whether for improving the quality of life of citizens or for enhancing the competitiveness of the city, society is paying more attention to the greening of the environment, aiming to beautify the environment and improve air quality through active greening.

Many regions around the world, such as Singapore, have actively implemented urban greening. Greening brings a wide range of benefits to society, for example, uplifting the quality of the living environment and citizens' quality of life, promoting social advancement and economic development, and reducing public health expenditure induced by air pollution. The arboriculture and horticulture industry plays an important role in promoting the greening of the environment, carrying out the design, construction, maintenance and care depending on the needs of different projects, so as to allow plants to perform their functions completely.

The willingness of the Government and organisations to inject resources into the arboriculture and horticulture industry can bring a positive impact on the local economy, which will extend to the entire local economy through the ripple effect. Direct economic benefits include increasing employment opportunities of the industry, promoting trade of arboriculture and horticulture tools, encouraging exchanges among arboriculture and horticulture practitioners, and introducing and exporting related skills. At the same time, economic benefits will be brought to some industries indirectly, such as the tourism industry. The attractiveness for overseas talents to work in Hong Kong will also be increased.

Greening the Local Environment

Hong Kong is a densely populated city, with most people living in highly concentrated buildings. Due to the dense population, the planting environment in the urban areas is generally insufficient. Even though the Government has been committed to promoting greening in recent years, the Global Liveability Index 2018, which ranked 140 cities around the world for their urban quality of life published by the Economist Intelligence Unit, a sister company of the Economist headquartered in Britain, ranked Hong Kong at 35th, 10 places up from 45th in 2017, still behind other Asian regions, including Tokyo and Osaka. One of the reasons is air pollution¹⁶. It shows that the Government still needs to step up efforts to improve air quality, for example by planting trees to purify the air and regulate the climate, building a sustainable and liveable city.

Urban development and tree preservation are often controversial. The Government had already included “tree preservation clauses” and “landscape clauses” in private land leases since the 1970s and mid 1980s. The Buildings Department has also promulgated the Introductory Guide on Greening in Buildings, which provides an easy reference for safe provision of greening in buildings, including greening in a building, planning and design, construction and maintenance, repair, etc.¹⁷ The Government is fully committed to protecting trees on government land through a series of administrative means. According to the Development Bureau Technical Circular (Works) No. 7/2015 on Tree Preservation, works departments are required to submit an application for tree felling or transplanting before commencement of the works, together with the related tree survey plan and a tree assessment schedule, clearly listing

information such as the location, species, height, tree crown spread, trunk diameter and health condition of the trees. Moreover, the application should provide a detailed compensatory planting proposal. The Lands Department would only approve the works departments to prune, transplant or fell the affected trees if the applications receive no objection from the relevant departments which provide expert advice to the Lands Department according to the Technical Circular on Tree Preservation. The Development Bureau has incorporated regulatory conditions into public works contracts requiring enhanced protection to the trees to be preserved within the works areas, so as to prevent ineffective tree preservation or illegal tree felling by the contractors.

Permission to remove trees on private land will not normally be granted by the Lands Department unless good cause is shown and fully justified. In case of unauthorised tree felling on private land under lease control, the Lands Department will impose a penalty land premium and requirement for compensatory planting. It may also re-enter a piece of land where lease conditions are breached. For private land leased before the 1970s, the Government may impose new requirements for tree preservation through the planning regime or by way of lease modification should the lot owner apply for redevelopment of the site ¹. Furthermore, an updated Practice Note has been promulgated in August 2007 to strengthen the control on tree felling application in private projects ¹⁸. As a result, in addition to the Government's promotion, urban greening also requires the participation and support of the private sector.

Overview of the Economic Activities of the Industry

According to the Census and Statistics Department, landscape care and greenery services contributed to 0.02 per cent of Hong Kong's Gross Domestic Product (GDP) in recent years. The value added and GDP contribution of landscape care and greenery services from 2014 to 2016 are set out below ¹⁹.

Year	Value added (HK\$ million)	Contribution to GDP
2014	444.3	0.02%
2015	480.0	0.02%
2016	496.0	0.02%

In addition, according to the survey by the GLTMS, most of the companies engaged in arboriculture and horticulture are small and medium organisations. Regardless of the size of the companies, horticultural care and tree risk assessment are their major areas of work. Generally speaking, larger companies tend to undertake works projects in the role of main contractor. As society becomes more concerned about urban greening and tree management, it is believed that the demand for arboriculture and horticulture projects and the amount of money involved will increase. Organisations should diversify their businesses to enhance competitiveness.

(C) Social Factors

Aspirations of the Community

The local community is paying more attention to green space, tree preservation, public safety and environmental protection. Several tree removal incidents and tree failure accidents in recent years have aroused great concern from the community, requesting for ensuring the safety of life and property, in addition to the implementation of greening and conservation.

The Government has actively promoted greening and has invested a lot of resources for planting every year. It has also promoted other greening work, such as installing roof greening facilities on government buildings and implementing roof greening plans on newly-built government buildings. To meet the public's demand for a green living environment and enhance the value of properties, property developers and property management companies also attach great importance to the integration of the horticultural landscape and the buildings.

On the basis of the above reasons, the demand for arboriculture and horticulture talents for large housing estates, shopping malls, schools, theme parks and other private organisations will grow. At the same time, the community also expects more arboriculture and horticulture talents with relevant expertise and skills can be nurtured.

Image of the Industry and Professional Training

The local arboriculture and horticulture industry practitioners generally do not possess an apparent professional image in society due to the lack of professional recognition of the industry from society and the relatively low educational level of many frontline practitioners in the past. Furthermore, the unemployment rate in Hong Kong is relatively low in recent years. The arboriculture and horticulture industry, which involves outdoor and manual labour work, has certain difficulties in injecting new blood to the industry, especially youngsters.

In view of the increasing concern of society about environment greening, tree preservation and tree management, as well as the rising expectations of the professional level of arboriculture and horticulture practitioners, since its establishment, the GLTMS has been in close communication with local training institutions and paid attention to the training needs of the industry. With the active promotion of the Government, a number of educational and training institutions have started to provide pre-employment and on-the-job training programmes in arboriculture and horticulture, and tree management and tree works programmes, most of which have been recognised under the Qualifications Framework to cope with the development of the industry, nurturing professionals for the industry and promoting the professional development of the industry. These programmes cover a range of levels of qualification, including bachelor, advanced diploma, professional diploma and professional certificate, such as the following²⁰.

- Bachelor of Arts (Honours) in Horticulture and Landscape Management
- Professional Diploma in Horticulture and Landscape Management
- Associate Degree in Tree Management
- Advanced Diploma in Tree Management and Conservation
- Professional Certificate in Arboriculture and Tree Work Supervision
- Higher Diploma in Conservation and Tree Management
- Certificate in Basic Arboriculture and Tree Work Practices

- Certificate in Professional Tree Management
- Diploma in Arboriculture
- Certificate in Horticulture Management
- Certificate in Tree Preservation and Risk Assessment
- Certificate in Basic Arboriculture
- Foundation Certificate in Plant Identification and Planting
- Certificate in Integrated Tree Climbing
- Certificate in Petrol Chainsaw Use and Maintenance and Tree Trimming

Local and Overseas Professional Qualifications

To further step up the skill level of frontline practitioners, a new requirement was introduced by the GLTMS to government maintenance contracts to be invited from 1 April 2015 onwards and all other works contracts to be invited from 1 April 2016 onwards. Under the new requirement, all workers undertaking tree pruning works involving the use of chainsaw for those contracts specified above must have passed the "Vocational Assessment in Safety Use and Maintenance of Chainsaw Operation and Basic Tree Pruning for the Arboriculture Industry" organised by the VTC, or possess equivalent qualification from a training institute or professional body recognised by the GLTMS.

In response to the growing concern of the community for tree care, the Hong Kong Institute of Landscape Architects introduced the Accredited Arborists Scheme and established the professional conduct for the arboriculture industry in 2011. Practitioners with three years or more of relevant industry experience and relevant academic qualifications can apply to be vetted as an accredited arborist ²¹.

As for overseas qualifications, many local arboricultural practitioners have obtained the qualification as a registered arborist from the International Society of Arboriculture of the United States. Furthermore, professional qualifications from other countries such as the Arboriculture Association, the United Kingdom ²², Arboriculture Australia ²³ and the European Arboricultural Council ²⁴ are also available for practitioners to pursue.

In addition, there are national qualifications related to arboriculture, horticulture or landscape in Australia ²⁵, Singapore ²⁶ and the United Kingdom ²⁷, where training institutes offer courses at different qualification levels. Some local practitioners have also returned and worked in Hong Kong after obtaining relevant qualifications from these countries.

In response to the increased demand and concerns of the Government, clients and citizens on tree and horticulture care, the industry needs to professionalise the major processes of the industry, establishing a clear career progression path and a local qualification recognition system, and enhancing the professional image of the industry, thereby increasing the public's awareness of the entire industry and respect for practitioners.

(D) Technological Factors

Application of Technology

The Policy Agenda in recent years has mentioned the use of smart technology (such as the application of smart sensing technology to monitor tree stability and the use of infrared thermal imaging technology to realise the degree of decay in trees) and the use of even more advanced equipment to improve the quality and efficiency of tree risk assessment and management work, especially for trees that require particular care, such as Old and Valuable Trees and stonewall trees¹⁵. With the advancement of technology, in addition to visual inspection of the external features of trees, tree inspection also leverages various instruments, such as radiation detectors, underground radar, ultrasonic and stress wave detectors, sonic tomographs and resistance detectors, to examine the internal structure of trees more accurately, so as to step up the protection of public safety. At present, there is a shortage of technical staff in Hong Kong. With the advocacy of the Government, applying new technology and equipment for tree management and risk assessment will become the major trend in the future. The industry should invest more resources exploring and purchasing new equipment, as well as arranging training for staff to apply the technology, in order to cope with the current and future development direction of the industry.

Prevention and Treatments of Pests and Diseases

Recently, the GLTMS has published the Manual on the Management of Brown Root Rot Disease, which sets out clear guidelines for the management of trees infected with brown root rot disease (BRRD), and the fundamental steps and key measures that should be implemented in removing BRRD-infected trees to prevent the spread of BRRD in Hong Kong²⁸. The industry should act in response to Government's measures by providing appropriate training to strengthen employees' knowledge of the causes, diagnosis, and prevention and treatment methods of BRRD and other pests and diseases.

Green Technologies

Land is precious in Hong Kong. New green technologies and concepts such as vertical greening and roof greening are very popular in recent years. Vertical greening is formed by either planting at ground level or planting on elevated planters, aiming at creating greenery mainly on vertical surface of associated structures for lowering indoor temperature, achieving environmental protection purposes. Roof greening is applied on roofs of new or existing buildings. Proper planting on roofs can lower roof temperature and increase green space. In view of the collapse of a green roof happening in a local university in 2016, the Government reminds all stakeholders to carefully consider the loading of the building structures, changes in temperature and rainfall, drainage systems, types of waterproofing layers, and facility maintenance when constructing green buildings, so as to avoid collapse accidents from happening again. The collapse incident reflects the importance of proper planning and professional management of vertical greening and roof greening. The industry can refer to overseas design technologies and explore room for development in this regard.

Summary

The following summarises the article in two approaches, by the SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis, and by understanding the current situation and development prospects of the arboriculture and horticulture industry from the perspective of "trends and development opportunities".

SWOT Analysis

Strengths	Weaknesses
<ul style="list-style-type: none"> • Today, the Government, public or private organisations, and the citizens all agree on the importance of greening and tree preservation and management, in particular about tree risk assessment as a preventive measure. Therefore, the willingness to invest resources on such matter has increased. • As society becomes more prosperous, citizens generally demand improvements in the quality of life, promotion of greening and increased community attractiveness. • The Government has been actively promoting greening and will set up a \$200 million Urban Forestry Support Fund to encourage more people to join the industry, so as to improve the professional standard of arboricultural and horticultural practitioners. It will also strengthen public education and promotion on proper tree care to improve the quality of Hong Kong's urban forest, safeguard public safety and enhance liveability. 	<ul style="list-style-type: none"> • Hong Kong is a small place with a dense population, and has insufficient planting environment. • Hong Kong does not currently have a standard set of training requirements of the industry and competency standards for practitioners.
Opportunities	Threats
<ul style="list-style-type: none"> • Many property developers and property management companies actively participate in the maintenance of the horticultural landscape of the properties to meet the demand of residents for a green living environment. • In response to social demands, more talents with relevant professional knowledge and skills need to be nurtured to promote the professionalisation of the arboriculture and horticulture industry. • The industry has certain manpower requirements. It is not difficult for people to enter the industry after receiving relevant training. 	<ul style="list-style-type: none"> • It is not easy to strike a balance between property development and tree protection, and come to a social consensus on the subject. • Compared with its neighbouring regions, Hong Kong has no apparent advantages in greenery development. • The industry generally believes that the employees are aging, staffing is insufficient, career progression path is unclear, social image is poor and working environment is not ideal. In addition, due to the low unemployment rate at present, it is difficult to attract new entrants to the

<ul style="list-style-type: none">• The public is setting a higher standard for tree care and horticulture. The industry must continue to strive and improve the professional level of practitioners.• The development of new technologies will help to improve the quality of tree management and the effectiveness of risk assessment.	<p>industry, especially young people.</p> <ul style="list-style-type: none">• With insufficient technicians, it is necessary to have professional training and make reference to relevant overseas technological experience to extend the application of technology.
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Trends and Development Opportunities

Trends	Development Opportunities
Political	
<ul style="list-style-type: none"> • The Government is committed to enriching the city’s living environment through greening, providing policy guidance on greening, landscape and tree management to relevant departments. • The GLTMS has set out the Guidelines on Tree Risk Assessment and Management, requiring tree management departments to implement tree risk assessment and management in a professional manner. • To improve the standard of tree management of private property owners and property management companies, the Government has incorporated the Handbook on Tree Management into the Code of Practice on Building Management and Safety of the Building Management Ordinance to secure the safety of residents, owners and the public. • The Government will set up a \$200 million Urban Forestry Support Fund to strengthen public education and promotion on tree care, improve the professional level of the arboriculture and horticulture industry, and encourage more people to join the industry. • The Chief Executive has mentioned in the 2018 Policy Agenda that the Government would study the introduction of a registration system for tree management personnel to enhance the professional standard of the industry and standardise the existing management approach. 	<ul style="list-style-type: none"> • To expand business opportunities, arboriculture and horticulture institutions may actively explore and assess the latest development areas of the industry, and introduce greening technologies to match the Government's greening policy and requirements. • The Government has scaled up the requirements for tree risk assessment and management, setting them as the code of good practice to improve the quality of risk management. Furthermore, the raised requirements for tree risk management have driven the demand for related works projects. Organisations need to equip their staff with the content and technical requirements of the guidelines in areas including tree risk assessment methods, writing of various tree inspection or assessment reports, and tree and plant pruning to meet market demand. • The industry should invest more resources for conducting training on specific subjects and on occupational safety and health, thus establishing teams with high technical skills to increase market competitiveness. In addition, the industry needs to strengthen human resource management to ensure that training resources are used effectively. • Property management companies should review the operations of the management of the common parts of their entrusted buildings, including gardens and trees, in accordance with the content and requirements of the Handbook on Tree Management to respond to the revisions of the Code of Practice on Building Management and Safety of the Building Management Ordinance (Cap. 344), as well as the expectations of the property owners. Moreover, in addition to strengthening the training of employees for tree risk assessment and pruning of trees and plants,

Trends	Development Opportunities
	<p>the industry should refer to the content of the handbook and focus on improving employees' professional knowledge and operation capability in contract management, project management, plant care and management, prevention and treatment of pests and diseases, and plant selection in response to the Government's requirements and business development.</p>
Economical	
<ul style="list-style-type: none"> • To enhance the city's competitiveness, and attract and retain funds and talents, the infrastructure and air quality of the city are important factors. The Government and corporations are willing to inject resources. • The demand of and amount of money involved in arboriculture and horticulture works projects tend to increase as the community has a growing concern on urban greening and tree management. 	<ul style="list-style-type: none"> • The projects undertaken by the industry are mainly about horticultural maintenance and tree risk assessment currently. The industry should expand the diversity of businesses according to the demand.
Social	
<ul style="list-style-type: none"> • The Government, public and private organisations, and the entire society become more concerned about greening and environmental protection. The community also hopes that a greater amount of arboriculture and horticulture professionals with expertise and skills can be nurtured. • Local education and training institutions offer more professional courses to meet the needs of relevant government personnel and the industry. • The industry lacks a clear professional image and has a poor social image, causing many young people to refrain from joining the arboriculture and horticulture industry. 	<ul style="list-style-type: none"> • In response to market demand, local institutions continue to provide pre-employment and on-the-job training courses on arboriculture and horticulture, nurturing professionals in various professional disciplines at different levels for the industry. • Enhance the professional image through the establishment of the qualifications framework and career progression path, with a view to improving the employment prospects and professional qualifications of the practitioners, as well as enhancing the public's knowledge of the entire industry and respect for the practitioners.

Trends	Development Opportunities
Technological	
<ul style="list-style-type: none"> • With the advocacy of the Policy Agenda, application of new technologies and equipment for tree management and risk assessment will become the major trend. • As there are insufficient technicians, professional training and reference to relevant overseas technological experience to promote the application of technology are necessary. • New green technologies such as vertical greening and roof greening are becoming popular, which is another emerging trend. 	<ul style="list-style-type: none"> • Make reference to local and overseas design technologies, application of new technologies, and invest more resources to cope with the current and future challenges and requirements of the industry. New technologies need to be operated by trained personnel. Employers must encourage and arrange employees to receive training on new technologies to ensure the sustainable development of the industry.

Integrating the relevant manpower survey reports, Government policies and measures, the 2018 Policy Agenda and the 2019-20 Budget, this article has presented a comprehensive analysis of the major trends and development opportunities of the arboriculture and horticulture industry. Today, the Government, public or private organisations, and the general public are all attaching greater importance to greening, tree preservation and tree management. Green environment and architecture are becoming closely related to the daily life of the general public. The arboriculture and horticulture industry has certain potential for development in the local market and the demand for relevant talents will increase. Despite the boundless opportunities, the arboriculture and horticulture industry faces challenges, including the aging of frontline staff and the lack of new entrants to the industry. Establishing the Qualifications Framework and Competency Standards will be useful for developing a clear progression path, enhancing the professionalism of the industry and ensuring the quality of training courses. This will also enable young people to better understand the employment opportunities and the latest developments of the industry. With sufficient manpower and professional training, the productivity and service quality of the industry will improve, thereby enabling the arboriculture and horticulture industry to maintain sustainable development and explore new business opportunities.

This article has conducted a scan on the macro-environment of the arboriculture and horticulture industry, and studied the major trends and development opportunities of the industry. It concurs with the recommendation of the ITAC that the SCS of the arboriculture and horticulture industry should consist of the following six major functional areas: Arboriculture and Horticulture Project Administration and Management; Occupational Safety and Health for the Arboriculture and Horticulture Industry; Plant Selection, Cultivation and Propagation; Planting, Caring and Management of Plants; Diagnosis and Treatment of Pests and Diseases; Survey, Inspection and Risk Assessment. The content of each of the major functional areas will be elaborated in Chapter 3.

Chapter 2

Qualifications Framework

Qualifications Framework

The Qualifications Framework (QF) is a voluntary system. It is a seven-level hierarchy that provides benchmarks for determining the level of complexity and difficulty of individual competencies. It is also used to order and support qualifications of different natures and titles. The QF is underpinned by an independent quality assurance (QA) mechanism that would enhance recognition and acceptance of the qualifications in the industry, irrespective of the mode and source of learning.

The QF aims to provide clear learning pathways for individuals to draw up their own road maps to obtain quality assured qualifications. Learners may either pursue a specific learning pathway to upgrade their skills in a particular area of specialisation in a gradual and orderly manner (vertical development), or progress through traversing learning pathways to become multi-skilled (horizontal development). Through the full-scale implementation of the QF, we will foster an environment and culture conducive to lifelong learning and continuing education in the industry. With the active participation of employers and employees, as well as the wide acceptance of the industry, the QF will also encourage the development of quality training programmes by providers to meet the needs of the community and the industry.

Qualifications recognised under the QF are outcome-based and are not confined to academic attainment. In the case of the academic sector, the outcome standard of qualifications is mainly the knowledge and skills a person possesses. Generally, these standards are set by scholars. In the vocational sector, the outcome standards of qualifications are set by individual industries. To identify the specific outcome standards required for different levels of qualifications, these industries need to develop SCSs. A Recognition of Prior Learning (RPL) mechanism developed by individual industries is in place to recognise existing workers' skills, knowledge and work experience. With qualifications so obtained, the employees may pursue further studies at different levels to obtain higher and wider qualifications.

To facilitate lifelong learning, employees require flexibility in the mode and pattern of learning to cater for their work and family responsibilities. A Credit Accumulation and Transfer (CAT) system will provide the flexibility to suit individual circumstances and minimise duplication in training. With a CAT system, learners can systematically accumulate the credits of learning and training gained from various courses with a view to converting the accumulated credits into a recognised qualification. The development of the QF will facilitate CAT arrangement between sectors and training providers by providing a unified platform and common benchmarks.

Generally speaking, the QF has relevance not only to the workplace but also to secondary education. The SCSs developed by industries would support the Applied Learning Courses under the new academic structure for senior secondary education, so as to provide diversified learning experience and choices to students and enable them to master the basic skills required by various industries.

Qualifications Framework Levels

The QF has seven levels, from level 1 to level 7, where level 1 is the lowest and level 7 the highest. The outcome characteristic of each level is depicted by a set of generic level descriptors (GLD) (Appendix 2). The GLD specifies for each QF level its generic complexity, demand and challenges in the four dimensions below:

- a) Knowledge and intellectual skills;
- b) Process;
- c) Application, autonomy and accountability; and
- d) Communications, IT skills and numeracy.

The UoCs are benchmarked to the QF levels in accordance with the GLD. It is worth to note that competency elements in a UoC may fall in some or all of the GLD dimensions as what it naturally should be. The QF level assignment is essentially a holistic judgment on the unit's integrated outcome requirement.

QF levels are discrete. That is, there cannot be assignment of UoC in-between QF levels. Also, a UoC that cannot fully match the competency requirements of one or more dimensions of a level would be assigned to the next lower level.

Chapter 3

Specification of Competency Standards

Application of the Specification of Competency Standards

The development of SCSs is an important step in implementing the QF and its associated quality assurance mechanism. Industries play a pivotal role in the process through participation in the Industry Training Advisory Committees (ITACs), which are tasked to develop, maintain and update the SCSs. To ensure continued relevance of a SCS, the ITAC concerned must review and update the SCS regularly to keep abreast of the latest manpower requirements and to meet the full range of education and training needs of the industry.

The SCS consists of competency standards at different levels. Competency standards are benchmarks for the industry-specific knowledge, professional skills and soft skills required for performing different job functions of the industry. The functional areas and competency standards under the SCS will be practical and competence-based. The SCS not only sets out the professional knowledge and skills required for today, but also takes into account factors such as the development trend of both the industry and society. The assessment guidelines for the outcome standards will also be stipulated in the SCS. The competency standards applicable to an industry are presented as "units of competency (UoCs)" in its SCS. Every "unit of competency" comprises eight basic items:

1. Title: description of the task
2. Code: unique identifier for easy reference
3. Range: specifies the contexts and conditions under which the competencies apply
4. Level: indicates the depth, complexity, and challenges of learning attained
5. Credit: indicates the volume (or effort) of learning required to attain the competency
6. Competency Requirements: sets out in outcome terms the task or function and the competencies required to effectively perform the tasks or functions
7. Assessment Criteria: identifies the methods or activities that can be undertaken by an individual to demonstrate his/her attainment of the competency
8. Remarks: any additional information

Since SCS-based programmes are developed with units of competency, trainees may have their qualifications (including qualifications obtained from formal studies as well as those obtained from the Recognition of Prior Learning (RPL) mechanism) accumulated and move along the ladder of progression without the need to start from scratch. The SCSs also provide clear progression pathways whereby trainees may draw up their own career development plans. As the SCS is drawn up by the industry, the training courses can meet the needs of the employers. An employee who has completed SCS-based courses is believed to achieve the skills standards under objective assessment, which can be used for meaningful reference. Therefore, employers can recruit suitable staff and reduce the loss incurred by wrong decisions and shorten the adaptation period of new recruits and save relevant costs for the enterprises. In addition, employers can provide relevant in-service training for individual staff members based on the SCS, and use it as a reference for recruiting applicants and promoting employees with proper skills and knowledge. In short, the SCS recognised by the industry is the key to enhancing its competitiveness for sustainable development.

After the formulation of the SCS, a training institute can design courses to help trainees reach the specified

competency standards based on their own needs. Trainees can choose to study any UoC recognised under the SCS and accumulate the credits they need to attain a certain level of qualification, including vertical qualifications (qualifications of different levels in the same functional area), horizontal qualifications (qualifications in different functional areas of the same level) and complete qualification (certificate, diploma, etc.).

The SCS assists training providers in curriculum design and supports human resources managers in their staff development efforts. It also lays out the criteria for industry-wide recognition of outstanding performance and for the award of relevant qualifications. Also, it will facilitate ongoing implementation of the Qualifications Framework. The SCS acts as an important reference document for the industry in education, training and human resource management. However, it does not replace existing regulatory laws or codes of the industry. Instead, on the basis of the fundamental legal requirements of the industry, it complements them by providing the directions and motivation of continuing education and improvement in the quality of human resources, hence improving the service quality and facilitating the healthy development of the arboriculture and horticulture industry.

For employers, the SCS provides an objective reference standard for recruitment, performance management and in-house training. For employees, by referring to the SCS, they can have a better understanding of their future career development direction and the required competency requirements, so that they can develop their study plans in a targeted manner to seize promotion opportunities. For education and training institutes, they can provide various "SCS-based" courses for the Hong Kong arboriculture and horticulture industry that meet the needs of the industry with reference to the UoCs stipulated in the SCS to improve the overall competency of practitioners.

Major Functional Areas of the Arboriculture and Horticulture Industry

With the present status, needs and future development of the industry taken into account, the ITAC recommended that the SCS for the Arboriculture and Horticulture Industry should comprise the following six major functional areas: (A) Arboriculture and Horticulture Project Administration and Management; (B) Occupational Safety and Health for the Arboriculture and Horticulture Industry; (C) Plant Selection, Cultivation and Propagation; (D) Planting, Caring and Management of Plants; (E) Diagnosis and Treatment of Pests and Diseases; and (F) Survey, Inspection and Risk Assessment.

Before defining the contents of individual functional areas, a scan on the macro-environment (PEST Scan) of the arboriculture and horticulture industry to investigate the major trends and development opportunities of the industry has been carried out in Chapter 1. In addition to considering the scan of the industry's macro-environment, this article adopts the following principles to define the contents of the functional areas:

- (1) the job functions have a significant impact on the business or operation of the arboriculture and horticulture industry;
- (2) the job functions are regular activities that practitioners of the industry perform; and
- (3) the job functions may be applied to different types of work in the industry.

Moreover, the SCS for the Arboriculture and Horticulture Industry does not cover landscape architecture and design, arboricultural and horticultural activities for personal leisure or interest cultivation, or related retail businesses.

This article will depict the functional map showing the major functional areas of the arboriculture and horticulture industry in the form of a diagram.

Each functional area consists of different units of competency. The credit in each unit of competency is determined according to the number of hours of study required by learners performing this unit of competency, while the level is determined based on the range of application, performance requirements and assessment criteria listed in the unit of competency. Such design provides individual learners with a clear and unified guide for drawing up their own study road maps. Learners can either pursue a specific learning pathway to upgrade their skills in a particular area of specialisation in a gradual and orderly manner (vertical development), or progress through traversing multiple learning pathways to become multi-skilled (horizontal development). The ITAC recommended the major functional areas of the SCS for the Arboriculture and Horticulture Industry as follows:

(A) Arboriculture and Horticulture Project Administration and Management

The administrative and management work of arboriculture and horticulture projects mainly involves contract management, project management, financial management, human resource management and operation management, aiming to assist the organisation to handle administrative matters related to works projects, complete the contract requirements properly, commence projects smoothly and protect the interests of the organisation.

Contract Management

Practitioners need to handle duties related to contract management according to the contract details of the arboriculture and horticulture projects with the use of basic legal knowledge. Job functions of which include entering into a contract with a contractor, entering into a contract with a supplier, drawing up tender documents, planning the execution of contract contents, managing the contractors / suppliers, establishing quality inspection processes, etc.

Project Management

Practitioners need to make use of the knowledge related to project management to perform various project management duties, ensuring projects are completed in a continuous and orderly manner. Job functions of which include establishing project plans, performing quantity surveying, allocating project resources, implementing warehouse management, monitoring project progress, conducting site work processes, carrying out quality inspection, etc.

Financial Management

Practitioners need to make use of accounting and financial knowledge to handle financial matters related to arboriculture and horticulture projects. Job functions of which include preparing project quotations and tender documents, formulating project budgets, monitoring the overall amounts of revenue and expenditure of project budgets, etc.

Human Resource Management

Practitioners need to use the training resources of the organisation effectively to plan the training objectives and contents according to the training needs of the staff and the project scope of the organisation. Job function of which includes developing staff training.

Operation Management

Practitioners need to understand the development trends of the industry and plan the future directions of operation development for the organisation, with a view to leading the organisation to innovate and prosper continuously. Job functions of which include formulating organisational development strategies, and introducing new techniques and technologies.

(B) Occupational Safety and Health for the Arboriculture and Horticulture Industry

The scope of work in the arboriculture and horticulture industry is wide, which includes a number of high-risk work processes, such as performing arboricultural and horticultural work at height, use of machinery and tools, and use of chemicals. Arboricultural and horticultural practitioners need to observe the occupational safety and health

codes to effectively reduce the risks posed by arboricultural and horticultural work to themselves as well as people and property near the work area.

Implementation of Safe Work Procedures

Practitioners must possess occupational safety awareness and perform various duties in accordance with the safe work procedures. Job functions of which include developing the safe systems of work, implementing the safe systems of work, monitoring the safe systems of work, using personal protective equipment, using hand tools in the arboriculture and horticulture industry, enforcing safe work procedures when performing arboricultural and horticultural work at height, operating chainsaws at ground level, etc.

Use of Chemicals

The daily work of the arboriculture and horticulture industry involves the use of chemicals. Proper use of the suitable type and amount of chemicals by practitioners can reduce hazard to the public and themselves. As a result, practitioners need to be careful during the processes of transporting and storing chemicals to prevent accidents. Job functions of which include using chemicals, and transporting and storing chemicals.

(C) Plant Selection, Cultivation and Propagation

Hong Kong is a small and densely populated city. It is important to grow the right plants at the right places. Plant selection needs to look into a range of factors, such as characteristics of plants, types of soil and conditions of planting sites. The processes from selection of good species, assessment of planting sites to the subsequent cultivation and propagation are all indispensable.

Plant Species Identification and Selection of Suitable Plants

Practitioners need to select the right plants for cultivation and make proper use of planting space according to information such as land use, urban development, community environment conditions, planting space, characteristics and functions of plants, and project requirements. Job functions of which include collecting environmental data of planting sites, assessing planting environment, selecting plants and designing horticultural projects.

Cultivation and Propagation

Practitioners need to carry out plant cultivation properly according to the characteristics of plants, their growth at various stages and their life cycle. Practitioners also need to make use of methods such as seed propagation and vegetative propagation to propagate plants. Job functions of which include supervising plant cultivation and propagation processes, carrying out plant cultivation and propagation processes, etc.

Nursery Stock Management

Nurseries play a pivotal role in providing quality nursery stock for the market. Although the size of local nurseries is limited, practitioners still need to possess knowledge of nursery management and relevant technical details. Job functions of which include setting up a nursery, supervising the operation of a nursery, undertaking production duties of a nursery, procuring plants, processing imported plants, arranging nursery stock transportation, etc.

(D) Planting, Caring and Management of Plants

There is a wide range of work involved in the arboriculture and horticulture industry. Arboricultural work includes pruning, tree removal, cabling, guying, staking, planting trees and arranging tree safety structures to be undertaken at ground or elevated level. Horticultural work involves processes such as planting, tilling soil, watering, applying pesticides, pruning and clearing of withered plants. Effective management can ensure that trees and plants are taken care of properly to reduce the risks of tree collapses or plants being infected by pests or diseases.

Tree Planting, Transplantation and Removal

Tree planting, transplantation and removal are generally labour-intensive and require a significant amount of resources. Practitioners need to have a clear understanding of the procedures and technical requirements of each of the related tasks, and complete tree planting, transplantation and removal jobs according to the work requirements. Job functions of which include preparing work plans for tree planting, supervising tree planting operations, planting trees, preparing work plans for tree transplantation, supervising tree transplantation operations, transplanting trees, preparing work plans for tree removal, supervising tree removal operations, removing trees at ground level, preparing work plans for tree stump removal, supervising tree stump removal operations, etc.

Tree Protection and Maintenance

Practitioners need to undertake appropriate protection measures and regular maintenance to maintain the healthy structure and appearance of trees. Job functions of which include preparing work plans for tree pruning, supervising tree pruning operations, pruning trees, pruning trees near overhead lines, preparing work plans for tree protection operations, supervising tree protection operations, performing tree protection operations, etc.

Soil Management

Practitioners need to carry out regular irrigation and soil composition improvement according to the property of water requirements of trees and plants, climate and soil composition, so as to maintain the level of organic substances in the soil. Job functions of which include supervising soil management, implementing soil management, preparing work plans for composting and performing composting operations.

Arboricultural and Horticultural Work at Height

Practitioners need to choose appropriate climbing routes and tree-climbing equipment to perform various kinds of arboricultural and horticultural work at height under a safe condition. Job functions of which include supervising tree climbing, climbing trees, supervising arboricultural and horticultural work at height, performing arboricultural and horticultural work at height, and setting up a rigging system.

Plant Cultivation and Care

There are all kinds of plants. Different plants have their own growth characteristics and require different methods of cultivation and care. Practitioners need to know about the relationship between the environment and the growth of plants in order to develop cultivation and care plans for specific species, so that the plants can grow healthily. Job functions of which include preparing work plans for plant cultivation and care, supervising plant cultivation and care operations, performing plant cultivation and care operations, preparing work plans for lawn cultivation and care, supervising lawn cultivation and care operations, performing lawn cultivation and care operations, etc.

(E) Diagnosis and Treatment of Pests and Diseases

It is common for plants to be attacked by biotic or abiotic factors during their growth. If early precautions are not taken, and without regular monitoring and care, the growth of plants will be severely hindered and the entire plants may die, posing immediate or potential danger to human life and property. With accurate diagnosis and treatment, the risks of spread of pests and diseases will be greatly reduced.

Diagnosis of Plant Problems

Practitioners need to make diagnoses through investigation, testing and comprehensive analysis of various factors according to the symptoms and signs of the plants and the planting environment. Job functions of which include identifying pests and diseases of plants, diagnosing abiotic disorders of plants, monitoring plants affected by pests and diseases and guiding caring work, evaluating the effectiveness of the regular monitoring and caring work, etc.

Control of Pests and Diseases

Practitioners need to apply appropriate control methods according to the diseases and pests appearing on plants to enhance their survival chances. Job functions of which include developing work plans for physical and chemical control of pests and diseases, developing work plans for biological and integrated control of pests and diseases, implementing pest and disease control, evaluating the effectiveness of pest and disease control, etc.

(F) Survey, Inspection and Risk Assessment

Tree risk assessment has aroused wide concern in recent years. Examining tree structures, carefully assessing risk levels and taking appropriate follow-up measures can help prevent accidents caused by trees. In addition, data collected through plant and tree surveys are useful for making appropriate recommendations for environmental planning and conservation.

Plant Surveys

Practitioners need to make use of expertise in plant surveys, various ecological environment and nature conservation to establish the objectives of plant surveys and plan the manpower and resources required for conducting the surveys. Job functions of which include planning the objectives, scope and methods of plant surveys, preparing work plans of plant surveys, conducting plant surveys and identifying plants, analysing the impact of invasive plants on the environment, etc.

Tree Surveys and Impact Assessment

Practitioners need to identify trees and record tree information within the project areas according to the work requirements of the tree survey projects, as well as to assess the basic structure and health conditions of the trees in order to identify hazardous trees as early as possible. Job functions of which include identifying trees and conducting tree surveys, inspecting the basic structure and health conditions of trees, importing data to and updating tree inventories, etc.

Tree Inspection and Risk Assessment

Practitioners need to develop appropriate objectives, implementation procedures and safety measures for tree inspection projects with the use of knowledge of tree risk assessment and management according to the actual circumstances of the projects, so as to mitigate the risks caused by trees. Job functions of which include collecting site environment information, using visual tree assessment and simple assisting tools to perform tree inspection, preparing various mitigation and maintenance plans, etc.

Functional Map Showing the Major Functional Areas of the Arboriculture & Horticulture Industry



Chapter 4 Units of Competency

Overview of the Units of Competency of the Specification of Competency Standards

Functional Area: Arboriculture and Horticulture Project Administration and Management

Contract Management

<u>Level</u>	<u>Title</u>	<u>Code</u>	<u>Credit</u>	<u>Page No.</u>
3	Carry out acceptance inspection of materials	109024L3	3	5-1
	Enter into contracts with suppliers	109025L3	3	5-2
4	Manage contractors / suppliers	109026L4	6	5-3
	Carry out project acceptance	109027L4	6	5-4
5	Handle contractual disputes	109028L5	6	5-5
	Enter into contracts with contractors	109029L5	6	5-6
	Establish quality inspection procedures	109030L5	6	5-7
	Plan the implementation of contract contents	109031L5	6	5-8
6	Develop tender documents	109032L6	6	5-9

Project Management

<u>Level</u>	<u>Title</u>	<u>Code</u>	<u>Credit</u>	<u>Page No.</u>
3	Perform warehouse management	109033L3	4	5-11
	Monitor project progress	109034L3	4	5-12
4	Perform quantity surveying	109035L4	6	5-13
	Allocate project resources	109036L4	3	5-14
	Conduct site work processes and quality assurance inspection	109037L4	6	5-15
5	Establish project plans	109038L5	6	5-16
	Develop risk management plans for projects	109039L5	9	5-17

Financial Management

<u>Level</u>	<u>Title</u>	<u>Code</u>	<u>Credit</u>	<u>Page No.</u>
4	Prepare works quotations and tender documents	109040L4	6	5-18
	Monitor the overall amounts of revenue and expenditure of project budgets	109041L4	4	5-19
5	Formulate budgets for works projects	109042L5	6	5-20

Human Resource Management

<u>Level</u>	<u>Title</u>	<u>Code</u>	<u>Credit</u>	<u>Page No.</u>
5	Develop staff training plans	109043L5	6	5-21

Functional Area: Arboriculture and Horticulture
Project Administration and Management

Operation Management

<u>Level</u>	<u>Title</u>	<u>Code</u>	<u>Credit</u>	<u>Page No.</u>
6	Formulate organisational development strategies	109044L6	6	5-23
6	Introduce new techniques and technologies	109045L6	6	5-25

**Functional Area: Occupational Safety and Health for
the Arboriculture and Horticulture Industry**

Implementation of Safe Work Procedures

<u>Level</u>	<u>Title</u>	<u>Code</u>	<u>Credit</u>	<u>Page No.</u>
1	Use personal protective equipment	109046L1	2	5-26
	Use hand tools in the arboriculture and horticulture industry	109047L1	2	5-27
	Perform manual handling operations	109048L1	2	5-28
2	Use power tools in the arboriculture and horticulture industry	109049L2	3	5-29
	Operate chainsaws at ground level	109050L2	3	5-30
	Operate chainsaws at height	109051L2	3	5-32
3	Implement safe systems of work	109052L3	3	5-34
	Use machinery of the arboriculture and horticulture industry	109053L3	3	5-36
	Implement safe work procedures for arboricultural and horticultural work at height	109054L3	3	5-38
	Operate chainsaws on trees	109055L3	3	5-40
	Handle industrial accidents	109056L3	3	5-42
	Perform aerial tree rescue	109057L3	4	5-43
4	Implement emergency plans	109058L4	3	5-44
	Monitor the safe systems of work	109059L4	6	5-45
5	Develop safe systems of work	109060L5	9	5-47
	Provide tree climbing training	109061L5	6	5-49
	Provide aerial tree rescue training	109062L5	6	5-51

Use of Chemicals

<u>Level</u>	<u>Title</u>	<u>Code</u>	<u>Credit</u>	<u>Page No.</u>
2	Use chemicals	109063L2	3	5-53
	Transport and store chemicals	109064L2	3	5-55

Functional Area: Plant Selection, Cultivation and Propagation

Plant Species Identification and Selection of Suitable Plants

<u>Level</u>	<u>Title</u>	<u>Code</u>	<u>Credit</u>	<u>Page No.</u>
2	Collect environmental data of planting sites	109065L2	2	5-57
3	Design horticultural projects	109066L3	3	5-58
	Perform plant selection	109067L3	3	5-59
4	Evaluate the planting environment	109068L4	4	5-60

Cultivation and Propagation

<u>Level</u>	<u>Title</u>	<u>Code</u>	<u>Credit</u>	<u>Page No.</u>
1	Carry out plant cultivation and propagation	109069L1	2	5-61
3	Monitor plant cultivation and propagation	109070L3	3	5-62

Nursery Stock Management

<u>Level</u>	<u>Title</u>	<u>Code</u>	<u>Credit</u>	<u>Page No.</u>
1	Carry out nursery stock production	109071L1	1	5-63
	Carry out caring work in nurseries	109072L1	1	5-64
2	Purchase plants	109073L2	2	5-65
	Handle imported plants	109074L2	2	5-66
3	Arrange nursery stock transportation	109075L3	3	5-67
4	Supervise the operation of nurseries	109076L4	3	5-69
6	Establish nurseries	109077L6	6	5-71
	Develop industry standards of nursery stock	109078L6	6	5-73

Functional Area: Planting, Caring and Management of Plants

Tree Planting, Transplantation and Removal

<u>Level</u>	<u>Title</u>	<u>Code</u>	<u>Credit</u>	<u>Page No.</u>
1	Plant trees	109079L1	2	5-74
2	Transplant trees	109080L2	2	5-75
	Carry out tree removal at ground level	109081L2	3	5-76
	Remove tree stumps	109082L2	3	5-77
3	Supervise tree planting	109083L3	4	5-78
4	Supervise tree transplanting	109084L4	4	5-80
	Supervise tree removal	109085L4	4	5-82
	Supervise tree stump removal	109086L4	4	5-84
	Prepare work plans for tree planting	109087L4	6	5-86
	Prepare work plans for tree transplanting	109088L4	6	5-88
	Prepare work plans for tree removal	109089L4	4	5-90
	Prepare work plans for tree stump removal	109090L4	4	5-92

Tree Protection and Maintenance

<u>Level</u>	<u>Title</u>	<u>Code</u>	<u>Credit</u>	<u>Page No.</u>
1	Carry out tree protection operations	109091L1	2	5-94
	Carry out tree maintenance operations	109092L1	2	5-95
2	Prune trees	109093L2	3	5-96
3	Prune trees near overhead lines	109094L3	3	5-97
	Supervise tree protection operations	109095L3	4	5-99
	Supervise tree maintenance operations	109096L3	4	5-101
4	Supervise tree pruning operations	109097L4	4	5-103
	Prepare work plans for tree pruning operations	109098L4	6	5-105
	Prepare work plans for tree protection operations	109099L4	6	5-107
	Prepare work plans for tree maintenance operations	109100L4	6	5-109
	Plan tree restoration operations	109101L4	4	5-111

Functional Area: Planting, Caring and Management of Plants

Soil Management

<u>Level</u>	<u>Title</u>	<u>Code</u>	<u>Credit</u>	<u>Page No.</u>
1	Carry out soil management	109102L1	2	5-112
2	Carry out composting operations	109103L2	2	5-113
3	Supervise soil management	109104L3	3	5-114
	Prepare work plans for composting operations	109105L3	3	5-116

Arboricultural and Horticultural Work at Height

<u>Level</u>	<u>Title</u>	<u>Code</u>	<u>Credit</u>	<u>Page No.</u>
2	Carry out arboricultural and horticultural work at height	109106L2	3	5-117
3	Climb trees	109107L3	8	5-118
	Supervise tree climbing operations	109108L3	3	5-119
	Supervise arboricultural and horticultural work at height	109109L3	4	5-120
	Install rigging systems	109110L3	3	5-121

Plant Cultivation and Care

<u>Level</u>	<u>Title</u>	<u>Code</u>	<u>Credit</u>	<u>Page No.</u>
1	Carry out plant cultivation and care operations	109111L1	2	5-123
	Carry out lawn cultivation and care operations	109112L1	2	5-124
	Carry out hydroseeding operations	109113L1	2	5-125
3	Supervise plant cultivation and care operations	109114L3	4	5-126
	Supervise lawn cultivation and care operations	109115L3	4	5-128
	Supervise hydroseeding operations	109116L3	2	5-130
	Set up and maintain automatic irrigation systems	109117L3	3	5-132
	Carry out formative pruning	109118L3	3	5-133
4	Prepare work plans for plant cultivation and care operations	109119L4	6	5-134
	Prepare work plans for lawn cultivation and care operations	109120L4	4	5-136
	Prepare work plans for skyrise greening and maintenance operations	109121L4	4	5-138
	Prepare work plans for hydroseeding operations	109122L4	3	5-139

Functional Area: Diagnosis and Treatment of Pests and Diseases

Diagnosis of Plant Problems

<u>Level</u>	<u>Title</u>	<u>Code</u>	<u>Credit</u>	<u>Page No.</u>
2	Identify pests and diseases of plants	109123L2	2	5-141
3	Diagnose abiotic disorders of plants	109124L3	3	5-142
4	Diagnose biotic disorders of plants	109125L4	3	5-143
	Monitor plants infected by pests and diseases and guide caring procedures	109126L4	4	5-145
5	Evaluate the effectiveness of monitoring and caring operations	109127L5	3	5-146

Control of Pests and Diseases

<u>Level</u>	<u>Title</u>	<u>Code</u>	<u>Credit</u>	<u>Page No.</u>
2	Implement pest and disease control	109128L2	3	5-147
5	Develop work plans for disease control by means of physical and chemical methods	109129L5	4	5-148
	Develop work plans for pest control by means of physical and chemical methods	109130L5	4	5-150
	Evaluate the effectiveness of pest and disease control operations	109131L5	6	5-152
6	Develop work plans for biological and integrated control of pests and diseases	109132L6	6	5-154

Functional Area: Survey, Inspection and Risk Assessment

Plant Surveys

<u>Level</u>	<u>Title</u>	<u>Code</u>	<u>Credit</u>	<u>Page No.</u>
3	Conduct plant surveys and identify plants	109133L3	6	5-156
4	Prepare plant survey reports	109134L4	3	5-157
	Prepare plant survey work plans	109135L4	6	5-158
	Assess the distribution of rare and endangered plants	109136L4	3	5-159
5	Plan the objectives, scope and methods of plant surveys	109137L5	6	5-160
	Analyse the impact of invasive plants on the environment	109138L5	3	5-161
	Develop proposals for plant preservation	109139L5	6	5-162

Tree Surveys and Impact Assessment

<u>Level</u>	<u>Title</u>	<u>Code</u>	<u>Credit</u>	<u>Page No.</u>
2	Input data to and update tree inventories	109140L2	3	5-163
3	Identify trees and conduct tree surveys	109141L3	6	5-164
	Inspect the basic structure and health conditions of trees	109142L3	4	5-165
4	Prepare proposals of compensatory planting after tree removal	109143L4	3	5-166
5	Develop and evaluate proposals of tree protection, preservation, transplantation and removal	109144L5	6	5-168

Tree Inspection and Risk Assessment

<u>Level</u>	<u>Title</u>	<u>Code</u>	<u>Credit</u>	<u>Page No.</u>
3	Carry out tree inspection using visual tree assessment and simple assisting tools	109145L3	6	5-170
	Inspect the structural conditions of trees using instruments	109146L3	3	5-172
	Carry out aerial tree inspection	109147L3	3	5-173
4	Collect site environment information	109148L4	3	5-175
	Analyse the health, structural conditions and hazards of trees	109149L4	3	5-176
	Prepare various mitigation and maintenance plans	109150L4	2	5-177
	Prepare various tree inspection or risk assessment reports	109151L4	6	5-178
	Review tree inspection or risk assessment reports	109152L4	6	5-180
5	Interpret and analyse data obtained with tree inspection instruments	109153L5	6	5-182
	Develop tree risk management plans	109154L5	6	5-184
	Investigate the causes of tree incidents	109155L5	6	5-186

Specification of Competency Standards
for the Arboriculture & Horticulture Industry
Unit of Competency

Functional Area - Arboriculture and Horticulture Project Administration and Management

Title	Carry out acceptance inspection of materials
Code	109024L3
Range	This unit of competency is applicable to line managers who are engaged in administrative work in arboricultural and horticultural organisations. Practitioners should be capable of executing acceptance inspection of materials according to the procurement contracts and the organisations' acceptance inspection procedures, as well as following up with the delayed delivery of suppliers and return processes, so as to ensure that the supplied materials meet the contract requirements.
Level	3
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Comprehend the acceptance inspection of materials</p> <ul style="list-style-type: none"> • Comprehend the contents, delivery dates and acceptance criteria of the procurement contracts with suppliers • Comprehend the organisation's material acceptance inspection procedures, criteria and precautions • Comprehend the performance, inspection methods and related knowledge of the materials <p>2. Carry out acceptance inspection of materials</p> <ul style="list-style-type: none"> • Carry out material acceptance inspection timely according to the procurement contracts and the organisation's material acceptance inspection procedures • Inspect the quality and specifications of the materials provided by the suppliers to ensure that the materials are intact and meet the requirements of the contracts • Inspect materials' certificates of examination provided by the suppliers according to the requirements of the contracts • Report to superiors any delayed delivery or return arrangements due to failure in meeting the required standards, investigate the cause, and require the suppliers to complete the delivery within a specified period • Record and sign relevant acceptance reports or documents <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Accurately record the conditions of how the goods from the suppliers fail to meet the requirements, so that superiors may consider enforcing the related penalties in the contracts • Handle and keep all acceptance inspection reports and documents confidentially
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to carry out material acceptance inspection in a timely and objective manner according to the procurement contracts and the established procedures and standards of acceptance inspection processes; and • Able to report to superiors any delayed delivery or return arrangements due to failure in meeting the required standards where appropriate, and follow up with the suppliers for re-delivery.
Remark	

Specification of Competency Standards
for the Arboriculture & Horticulture Industry
Unit of Competency

Functional Area - Arboriculture and Horticulture Project Administration and Management

Title	Enter into contracts with suppliers
Code	109025L3
Range	This unit of competency is applicable to managers who are engaged in administrative work in arboricultural and horticultural organisations. Practitioners should be capable of carrying out procurement of materials and tools required for the projects according to the organisation's procedures, and the contract requirements and budgets of the works projects. They should also be able to enter into contracts with suppliers for timely supply of relevant materials and tools for carrying out works.
Level	3
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge of entering into contracts with suppliers</p> <ul style="list-style-type: none"> • Comprehend the contract contents and budgets of works projects • Comprehend the organisation's procurement procedures and the contents of procurement contracts • Know about the past service performance and expertise of relevant suppliers, and the market prices of the supplies • Comprehend legal knowledge related to contracts <p>2. Enter into contracts with suppliers</p> <ul style="list-style-type: none"> • Procure materials, tools and equipment that meet the requirements in terms of quantity and quality in accordance with the organisation's procedures, the contract requirements of the projects and the project budgets • Implement co-operation arrangements with suppliers • Reach an agreement on contract terms that are appropriate and safeguard the interests of both parties, for example, specifications of materials and tools, quantities, prices, delivery dates and acceptance inspection standards, penalties for delayed delivery, provisions for return processing, payment arrangements and termination of contracts • After entering into contracts and reviewing the contracts, submit them to superiors for approval <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Refer to the past service performance of suppliers proactively to facilitate the co-operation with the suppliers • Handle and keep the procurement contracts and quotation documents confidentially
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to carry out procurement processes according to the organisation's procedures, contract requirements of the projects and project budgets, as well as to control procurement costs effectively; • Able to enter into procurement contracts with suppliers in accordance with the contract requirements of the projects, and to ensure that the suppliers deliver the materials and tools required by the projects in a timely manner; and • Able to come to an agreement with suppliers on the contractual terms that are appropriate and clear, and protect the interests of both parties.
Remark	

Specification of Competency Standards
for the Arboriculture & Horticulture Industry
Unit of Competency

Functional Area - Arboriculture and Horticulture Project Administration and Management

Title	Manage contractors / suppliers
Code	109026L4
Range	This unit of competency is applicable to managers who are engaged in administrative work in arboricultural and horticultural organisations. Practitioners should be capable of managing the services provided by contractors / suppliers effectively according to the contents of the contracts, and requiring the contractors / suppliers to provide services that meet the standards required by the contracts.
Level	4
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to contractor / supplier management</p> <ul style="list-style-type: none"> • Comprehend the contents of project contracts • Comprehend contract management and contractor / supplier management • Comprehend the management and operation conditions of contractors / suppliers • Comprehend the occupational safety and health laws and guidelines related to the arboriculture and horticulture industry <p>2. Manage contractors / suppliers</p> <ul style="list-style-type: none"> • Set the service scope of the contracts with contractors / suppliers and the criteria for evaluating their performance, and establish a two-way communication mechanism • Check the qualifications of contractors / suppliers, the experience and licence qualifications of their appointed technicians, and the submitted works schedules, and ensure that they meet the contract requirements • Inspect the actual operations of contractors regularly, including the personal protective equipment of the staff of the contractors, first aid kits, occupational safety and health measures, operation of hand or mechanical tools, works progresses, etc., and prepare inspection and photo records • Collect and follow up the opinions and complaints on the contractors / suppliers from various departments of the organisation • Evaluate the service performance of the contractors / suppliers according to the contract requirements and the agreed standards, and provide suitable suggestions when necessary and follow them up <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Evaluate contractors / suppliers in an objective and impartial manner according to the evaluation criteria • Report to superiors on cases which the contractors / suppliers fail to meet the contract requirements and take corrective measures as soon as possible
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to manage contractors / suppliers in accordance with the organisation's procedures and requirements as well as the evaluation criteria, so as to ensure that the contractors / suppliers provide services that meet the contract requirements; and • Able to evaluate the performance of contractors / suppliers according to the actual situation, and provide feedback and take follow-up actions.
Remark	

Specification of Competency Standards
for the Arboriculture & Horticulture Industry
Unit of Competency

Functional Area - Arboriculture and Horticulture Project Administration and Management

Title	Carry out project acceptance
Code	109027L4
Range	This unit of competency is applicable to line managers who are engaged in administrative work in arboricultural and horticultural organisations. Practitioners should be capable of carrying out project acceptance and following up the remedial works in accordance with the contracts and the organisation's acceptance procedures to ensure that the completed projects meet the contract requirements.
Level	4
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to project acceptance</p> <ul style="list-style-type: none"> • Comprehend projects' contracts and clients' requirements • Comprehend projects' quality inspection procedures and the expected results of the inspection processes • Comprehend the organisation's procedures, criteria and remarks regarding project acceptance <p>2. Carry out project acceptance</p> <ul style="list-style-type: none"> • Carry out project acceptance in accordance with projects' contracts, working drawings, quality inspection procedures and clients' requirements to ensure that the projects meet the requirements • Report to superiors any outstanding or unsatisfactory project deliverables, prepare and follow up the list of omitted works, and propose corrective solutions to ensure that the organisation and / or contractors complete the remedial works within a specified period • Prepare relevant acceptance documents according to the contracts and the organisation's overall project acceptance procedures • Record, write and sign the relevant acceptance reports or documents <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Handle and keep all acceptance reports and documents in a confidential way constantly
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to carry out project acceptance objectively in accordance with the contracts and the acceptance procedures and standards; and • Able to prepare acceptance documents or lists of omitted works, and follow up remedial works in accordance with the actual work conditions.
Remark	

Specification of Competency Standards
for the Arboriculture & Horticulture Industry
Unit of Competency

Functional Area - Arboriculture and Horticulture Project Administration and Management

Title	Handle contractual disputes
Code	109028L5
Range	This unit of competency is applicable to managers who are engaged in administrative work in arboricultural and horticultural organisations. Practitioners should be capable of conducting critical analysis and integration of extensive data, as well as using legal knowledge and negotiation skills to handle contractual disputes, with a view to protecting the benefits of the contracting parties.
Level	5
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to contractual dispute handling</p> <ul style="list-style-type: none"> • Comprehend the contents of project contracts • Possess basic legal knowledge related to contracts and contract management skills • Comprehend the methods and procedures for handling contractual claims and disputes <p>2. Handle contractual disputes</p> <ul style="list-style-type: none"> • Analyse the reasons for failure to comply with the contractual terms or complete the works projects, such as factors in respect of technical issues, economic benefits, environmental changes of the works projects and contractors' own problems • Propose all kinds of solutions based on the analysis results, and calculate the costs • Consult professional advice to comprehend the settlement methods (for example, negotiation, mediation, arbitration and litigation), or the possibility and justification of claims • Identify the most effective solution and draw up the details of the solution • Negotiate to reach a mutually acceptable solution • Choose the right professionals or government departments to assist in following up disputes or claims <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Handle disputes or claims fairly and impartially in accordance with the legal basis and the spirit of contract to protect the benefits of both parties
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to analyse the causes of disputes and suggest appropriate solutions; • Able to negotiate with relevant parties about the solutions; and • Able to seek the right professionals to handle contractual disputes or claims when needed.
Remark	

Specification of Competency Standards
for the Arboriculture & Horticulture Industry
Unit of Competency

Functional Area - Arboriculture and Horticulture Project Administration and Management

Title	Enter into contracts with contractors
Code	109029L5
Range	This unit of competency is applicable to managers who are engaged in administrative work in arboricultural and horticultural organisations. Practitioners should be capable of negotiating with contractors and setting appropriate contractual terms in accordance with the contract contents and by making use of critical judgment and legal knowledge, so as to safeguard the interests of the organisation and avoid contractual disputes.
Level	5
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge of entering into contracts</p> <ul style="list-style-type: none"> • Comprehend the contents of project contracts, and each of the terms and restrictions • Comprehend the contents of contracts for similar projects of the organisation • Comprehend contract management and related legal knowledge • Comprehend the coverage of all-risk insurance, public liability insurance and labour insurance, and related knowledge <p>2. Enter into contracts with contractors</p> <ul style="list-style-type: none"> • Review the contents of the project contracts, and the terms and restrictions on sub-contracting • Negotiate co-operation arrangements and conditions with suitable contractors • Draw up appropriate contractual terms that protect the benefits of both parties, such as service scope and details of works, material requirements, prices, insurance requirements, acceptance standards, completion dates, payment arrangements and terms of contract termination • Submit the contracts to superiors for approval after entering into and reviewing the contracts <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • State clearly the terms of the contracts to avoid disputes and seek legal advice if necessary • Handle and keep the documents and the electronic version of the project contracts confidentially
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to identify suitable contractors and negotiate co-operation arrangements in accordance with the requirements of the organisation and the contract contents; and • Able to enter into contracts with contractors with terms that are appropriate, clear and able to protect the benefits of both parties.
Remark	

Specification of Competency Standards
for the Arboriculture & Horticulture Industry
Unit of Competency

Functional Area - Arboriculture and Horticulture Project Administration and Management

Title	Establish quality inspection procedures
Code	109030L5
Range	This unit of competency is applicable to managers who are engaged in administrative work in arboricultural and horticultural organisations. Practitioners should be capable of fully comprehending the contract contents and knowledge of quality management, as well as establishing systematic quality inspection procedures to ensure that the quality of works meets the contract requirements and standards.
Level	5
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge of establishing quality inspection procedures</p> <ul style="list-style-type: none"> • Comprehend the contents of project contracts, method statements and clients' requirements • Comprehend international and local quality management standards commonly adopted in the industry • Comprehend the requirements of laws and guidelines related to quality inspection <p>2. Establish quality inspection procedures</p> <ul style="list-style-type: none"> • Establish quality inspection procedures according to the contents of project contracts, method statements and clients' requirements • Formulate quality management standards for various works, such as inspection methods for processes, inspection tools, inspection time periods, qualifications of implementers, inspection checklists and measures for random checking of inspection results • Explain the requirements and operation methods of work procedures to the project team's implementers and supervisors • Provide handling and improvement plans for abnormal materials or quality of works • Review the quality inspection procedures regularly and revise the inspection procedures in response to changes in circumstances <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Update the current inspection procedures continuously by referring to different international standards • Closely communicate with contractors / suppliers and clients regarding the requirements and standards of quality
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to analyse and integrate information related to quality management, and establish projects' quality inspection procedures and management standards in respect of the contents of project contracts; • Able to explain the requirements of quality inspection procedures to work teams; and • Able to provide appropriate solutions for improvement according to the actual work conditions and review the quality inspection procedures in a timely manner.
Remark	

Specification of Competency Standards
for the Arboriculture & Horticulture Industry
Unit of Competency

Functional Area - Arboriculture and Horticulture Project Administration and Management

Title	Plan the implementation of contract contents
Code	109031L5
Range	This unit of competency is applicable to managers who are engaged in administrative work in arboricultural and horticultural organisations. Practitioners should be capable of comprehending the contract contents and the knowledge of works project management to effectively coordinate the implementation of the contract contents and develop specific implementation plans, so as to ensure the smooth commencement of works projects and the proper compliance of contract requirements.
Level	5
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to the planning of the implementation of contract contents</p> <ul style="list-style-type: none"> • Comprehend the contents of project contracts, the relevant details and the completion dates • Possess knowledge of works project management and contract management • Possess knowledge of resource management in the arboriculture and horticulture industry <p>2. Plan the implementation of contract contents</p> <ul style="list-style-type: none"> • Review the contract contents and relevant details of the projects, such as service scope, specifications, working drawings, terms and completion dates • According to the contractual terms, service scope and specifications, submit the documents required by the contracts to the clients and set out the specific contents of the method statements, including the work methods, materials, technology, machinery specifications, etc. • Coordinate the briefings before the commencement of works to ensure that the project teams understand the contract requirements and method statements correctly <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Fully understand the contents of the contracts when implementing the contract requirements and coordinating internal briefings • Anticipate problems that may affect the progress of the works, report to superiors in a timely manner and be able to suggest preventive or corrective measures
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to fully understand the contents of the contracts and details of implementation; • Able to develop appropriate method statements in accordance with the contents of the contracts; and • Able to explain the contents and requirements of the method statements to work teams accurately to ensure that the works projects are executed as planned.
Remark	

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Unit of Competency

Functional Area - Arboriculture and Horticulture Project Administration and Management

Title	Develop tender documents
Code	109032L6
Range	This unit of competency is applicable to managers who are engaged in administrative work in arboricultural and horticultural organisations. Practitioners should be capable of using expertise in developing tender documents to analyse, assess and integrate information from all aspects of the organisation's outsourced services in order to develop tailor-made tender documents of high quality for the organisation's outsourced services, with a view to ensuring that the tender processes are fair and effective.
Level	6
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge of the development of tender documents</p> <ul style="list-style-type: none"> • Master the entire tender processes of works projects, from invitation of tender submission to award of contracts • Comprehend the specifications and points to note regarding the development of tender notices and related tender documents • Comprehend the objectives and requirements of the organisation's outsourced services • Understand the tender documents of the organisation for similar works projects in the past • Master other contract details, interpretation of contractual terms and commonly used terms of the industry • Understand the laws and guidelines related to tendering <p>2. Develop tender documents</p> <ul style="list-style-type: none"> • Analyse and assess the operational strategies, and the expectations and objectives of the outsourced services of the organisation • Develop tender notices and contents of the projects' tenders after consolidating the objectives and requirements of the outsourced services, such as the outsourced projects' scope, objectives, service contents and requirements, experience requirements and other necessary requirements for tenderers, general and particular specifications, quotation restrictions, contractual terms, anti-collusion clauses, review methods and standards, deadlines for tender submission, methods of tender submission, and related points to note • Review tender requirements and specifications to avoid request for excessive information and restrictions on tenderers, so as to encourage more tenderers to participate in the tender exercise • Review the contents of the tender notices and documents to ensure that the contents are consistent, clear, accurate, reasonable and practically feasible • Manage the entire tender processes, including monitoring the sending of tender notices and documents, hosting tender briefings, etc., to ensure that the tender processes are fair and effective, and that tenderers comprehend the contents of the tender documents and project requirements <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • When reviewing the tender processes, contents and terms, explore the possibility of reducing the tender costs to attract more potential tenderers to participate in the tender exercise

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Functional Area - Arboriculture and Horticulture Project Administration and Management

	<ul style="list-style-type: none"> • Actively refer to the tender documents and related materials of the industry for regular internal review to ensure that the contents of the tender documents are kept up-to-date and that their quality is improved constantly.
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to fully understand and apply the knowledge related to the development of tender documents; • Able to analyse, consolidate and focus on the objectives and requirements of the organisation's outsourced services to develop appropriate, clear, reasonable and consistent tender notices and related tender documents; and • Able to manage the entire tender processes and review the contents of the tender documents timely to ensure that the tender processes are fair and effective.
Remark	

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Unit of Competency

Functional Area - Arboriculture and Horticulture Project Administration and Management

Title	Perform warehouse management
Code	109033L3
Range	This unit of competency is applicable to managers who are engaged in warehouse work in arboricultural and horticultural organisations. Practitioners should be capable of using knowledge of warehouse management and safety codes to effectively manage, store and update the inventories of the organisation's warehouse.
Level	3
Credit	4 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge of warehouse management</p> <ul style="list-style-type: none"> • Possess knowledge of warehouse management, storage, and handling of tools and machinery • Comprehend the relevant statutory requirements for storage of dangerous goods • Comprehend the relevant regulatory requirements, for example, safety codes, and work practices for handling and moving different inventory items <p>2. Perform warehouse management</p> <ul style="list-style-type: none"> • Regularly record and update the inventory of the warehouse and the records of materials, hand tools, power tools and machinery, with details such as category, quantity, label, date of use and unit / person in charge who retrieves the resources • Store and manage all kinds of inventories, such as chemicals, machinery, hand tools, personal protective equipment and first aid equipment, in a categorised way • Label and post warning signs that comply with the safety procedures and related laws • Check the tools and equipment regularly to ensure that they function normally <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Accurately record the consumption of resources and wear and tear of tools, and report to superiors on the need for replenishment in a timely manner
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to store all kinds of inventories in a categorised way and label them according to the organisation's requirements and safety codes; and • Able to accurately record and update inventory data, and regularly check the tools and equipment to ensure that they function normally.
Remark	

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Unit of Competency

Functional Area - Arboriculture and Horticulture Project Administration and Management

Title	Monitor project progress
Code	109034L3
Range	This unit of competency is applicable to managers who are engaged in project management in arboricultural and horticultural organisations. Practitioners should be capable of monitoring the progress and quality of works projects in accordance with the projects' schedules and standards.
Level	3
Credit	4 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to the monitoring of project progress</p> <ul style="list-style-type: none"> • Comprehend the contract requirements of works projects • Comprehend the service scope of the contracts, work plans, working drawings, completion dates and related details of the projects and sub-projects • Comprehend the monitoring standards and application of works projects <p>2. Monitor project progress</p> <ul style="list-style-type: none"> • Check the progress and quality of works projects regularly in accordance with the schedules and the adopted monitoring standards of the works projects • Spot-check the progress reports and related documents of the projects to grasp the work quality and progress of the projects • Consult the responsible participant of the work sites regularly to record the actual operation status of the corresponding projects • Report the project progress in accordance with the set schedules <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Report the problems encountered when the projects are proceeding in a timely manner and be able to make suggestions for improvement
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to monitor the progress and quality of works projects in accordance with the projects' monitoring schedules and standards; and • Able to accurately record the actual operation status of the projects, report according to the set schedules and make suggestions for improvement.
Remark	

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Unit of Competency

Functional Area - Arboriculture and Horticulture Project Administration and Management

Title	Perform quantity surveying
Code	109035L4
Range	This unit of competency is applicable to managers who are engaged in project management in arboricultural and horticultural organisations. Practitioners should be capable of mastering the methods and standards of quantity surveying, calculating the detailed quantities of materials of the projects and drawing up the bills of quantity.
Level	4
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge of quantity surveying</p> <ul style="list-style-type: none"> • Comprehend the projects' method statements and the project plans • Comprehend the methods and standards of quantity surveying • Comprehend the trends of market prices of the materials <p>2. Perform quantity surveying</p> <ul style="list-style-type: none"> • Conduct quantity surveying and calculate the quantities of materials at the work sites according to the projects' method statements and the project plans • Prepare the detailed bills of quantity for works projects based on the quantity surveying and calculation results • Review the bills of quantity to ensure that they meet the contract requirements • Based on the bills of quantity, market prices and market trends, submit the lists of construction costs of the materials to project managers for reference • Re-conduct the quantity surveying and material quantity calculation if there are changes or modifications to the projects <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Provide the work material quantity and related costs to project managers or superiors in a precise and timely manner
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to accurately calculate the quantities of materials and prepare the bills of quantity in accordance with the projects' method statements and the project plans; and • Able to integrate market information and submit the lists of construction costs of materials for superiors' consideration.
Remark	

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Unit of Competency

Functional Area - Arboriculture and Horticulture Project Administration and Management

Title	Allocate project resources
Code	109036L4
Range	This unit of competency is applicable to managers who are engaged in project management in arboricultural and horticultural organisations. Practitioners should be capable of mastering the resource allocation of the organisation, and effectively coordinating and allocating resources such as manpower, materials and machinery according to the needs of different projects of the organisation to ensure that all projects proceed as scheduled.
Level	4
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge of project resource allocation</p> <ul style="list-style-type: none"> • Comprehend the contents of project plans • Comprehend the status and procedures of resource allocation of the organisation • Comprehend the knowledge and application of works project management <p>2. Allocate project resources</p> <ul style="list-style-type: none"> • Plan the manpower, materials, tools, machinery and other resources required for the projects according to the project plans • Allocate resources related to the projects to ensure that the projects proceed as scheduled • Review the different ongoing projects of the organisation to achieve the most effective use and arrangement of resources <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Plan the utilisation of resources in a systematic and well-planned manner according to the needs of different projects to ensure that the organisation's resources are allocated effectively
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to plan the resources required for the projects; and • Able to coordinate resource allocation and deployment between different works projects of the organisation to ensure that all projects proceed as scheduled.
Remark	

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Unit of Competency

Functional Area - Arboriculture and Horticulture Project Administration and Management

Title	Conduct site work processes and quality assurance inspection
Code	109037L4
Range	This unit of competency is applicable to managers who are engaged in quality assurance management in arboricultural and horticultural organisations. Practitioners should be capable of inspecting site work processes according to the contents of project contracts to ensure that the work quality meets the contract requirements.
Level	4
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge of conducting site work processes and quality inspection</p> <ul style="list-style-type: none"> • Comprehend the contract requirements of works projects • Comprehend the work procedures and quality inspection methods of works projects • Comprehend the characteristics and restrictions of sites <p>2. Conduct site work processes and quality inspection</p> <ul style="list-style-type: none"> • Inspect the site work processes regularly according to the work procedures and quality inspection procedures of the projects to ensure that they meet the contract requirements • Identify processes that fail to comply with the requirements • Guide staff to rectify the unsatisfactory work processes and follow up the cases • Record the actual progress and quality of work processes, and report to the superiors as scheduled <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Survey the characteristics and restrictions of the sites, analyse the potential problems and limitations of the adopted inspection methods and suggest solutions to ensure that the projects can be implemented effectively
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to master the contract requirements, and conduct site work processes and quality inspection as required; and • Able to identify processes that fail to comply with the requirements, and provide suitable suggestions for improvement and follow up the cases.
Remark	

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Unit of Competency

Functional Area - Arboriculture and Horticulture Project Administration and Management

Title	Establish project plans
Code	109038L5
Range	This unit of competency is applicable to managers who are engaged in project management in arboricultural and horticultural organisations. Practitioners should be capable of mastering the contents of contracts and knowledge related to works project management, as well as determining projects' specific implementation details and risk management measures to ensure the smooth implementation of works projects.
Level	5
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to establishing project plans</p> <ul style="list-style-type: none"> • Comprehend the contents of project contracts • Comprehend works project management and its application • Comprehend the details of each work process and the work methods of the projects • Comprehend the chain relationship between different work processes of the projects • Comprehend the risk management plans of the projects and contingency measures for handling emergencies • Comprehend the requirements of relevant laws and technical documents <p>2. Establish project plans</p> <ul style="list-style-type: none"> • Establish project plans according to the contents of project contracts, such as the work processes, project teams of the works projects, monitoring schedules and standards • Determine the directions of project management and implementation according to the requirements of relevant laws and technical documents • Arrange suitable personnel for handling different tasks of the projects • State the progress and completion schedule of each work item to meet the expected overall progress of the projects • Establish preventive and emergency measures in accordance with the risk management plans of the projects • Establish feasible and appropriate project plans in accordance with the contents of project contracts • Submit relevant applications or reports required by laws <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Regularly review the effectiveness of the preventive and control measures to reduce the impact of risks on the projects • Manage projects on the basis of laws and the spirit of contract
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to analyse the contents of project contracts, and establish appropriate implementation plans and schedules; • Able to form suitable works project teams; and • Able to establish preventive and emergency measures in regard to the risk management plans of the projects.
Remark	

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Unit of Competency

Functional Area - Arboriculture and Horticulture Project Administration and Management

Title	Develop risk management plans for projects
Code	109039L5
Range	This unit of competency is applicable to managers who are engaged in administrative work in arboricultural and horticultural organisations. Practitioners should be capable of mastering and analysing a wide range of information under the daily operating environment that is subject to uncertainties, so as to develop risk management plans for the organisation's works projects.
Level	5
Credit	9 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to the development of risk management plans for projects</p> <ul style="list-style-type: none"> • Comprehend the project plans and the contract contents • Comprehend project risk assessment and the related knowledge and skills, such as assessing the potential problems, establishing action plans and developing specific implementation plans • Comprehend works project management and its application <p>2. Develop risk management plans for projects</p> <ul style="list-style-type: none"> • Develop comprehensive risk assessment plans according to the project plans and the contract contents, including the site environment, facilities and tools used by the projects, employees, clients and emergencies • Identify the major risk factors of the projects • Analyse the expected loss to the projects caused by the risk factors and the extent to which the organisation can withstand, such as possible delays of the projects or failure to complete the contracts • Develop related plans with respect to the assessment and expected loss of each risk, with contents including preventive and control measures, specific implementation and crisis management methods, follow-up procedures, format of reports and records, etc. • Establish contingency plans for the projects that detail the members and functions of the response teams, and the contingency measures • Explain the risk management plans within the organisation, and ensure that all units and employees implement the relevant measures <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Develop appropriate and adequate risk management plans with respect to the projects and contract contents to minimise the interference of incidents on the progress of the projects, so as to protect the interests of the organisation • Regularly review and update the risk assessment to meet the needs of different projects or site environments
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to integrate all aspects of information under the daily operating environment that is subject to uncertainties to develop risk management plans and contingency measures for the projects of the organisation to reduce risks; and • Able to identify the major risk factors of the projects and make use of resources effectively to develop risk management plans that meet the needs of the projects.
Remark	

Specification of Competency Standards
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Unit of Competency

Functional Area - Arboriculture and Horticulture Project Administration and Management

Title	Prepare works quotations and tender documents
Code	109040L4
Range	This unit of competency is applicable to managers who are engaged in financial management in arboricultural and horticultural organisations. Practitioners should be capable of preparing quotations and tender documents according to the requirements of the tenders.
Level	4
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to the preparation of works quotations and tender documents</p> <ul style="list-style-type: none"> • Comprehend the general tendering processes, terms and points to note of works projects • Comprehend the project scope and internal guidelines of the organisation • Comprehend the requirements of tender contents, technology, materials, etc. • Comprehend the contract details, interpretation of contractual terms and commonly used terms of the industry • Comprehend the tender documents and quotations of the organisation for similar works projects in the past • Comprehend the laws related to fair competition <p>2. Prepare works quotations and tender documents</p> <ul style="list-style-type: none"> • Analyse the contents of tenders, including the project category, service contents, material requirements, margin requirements, assessment criteria, points to note, etc. • Arrange the work distribution and schedules for preparing quotations • Inspect the sites of the tenders and attend the tender briefings • Seek opinions from superiors on the works project quotations • Organise and prepare the tender documents, works quotations and attachments according to the requirements of the superiors and the tender documents <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Abide by the principle of confidentiality to handle all tender and quotation documents in a confidential manner
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to analyse the contents, requirements and points to note of tenders; • Able to arrange the work distribution and schedules for preparing quotations; and • Able to prepare tender documents and works quotations with a competitive edge.
Remark	

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Unit of Competency

Functional Area - Arboriculture and Horticulture Project Administration and Management

Title	Monitor the overall amounts of revenue and expenditure of project budgets
Code	109041L4
Range	This unit of competency is applicable to managers who are engaged in financial duties in arboricultural and horticultural organisations. Practitioners should be capable of monitoring the revenues and expenditures throughout the project period according to the budgets of works projects by making use of relevant accounting knowledge. They should also be able to report any deviations from the budgets in a timely manner to ensure that the projects continue stably within budget and with sufficient funds.
Level	4
Credit	4 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to the monitoring of the overall amounts of revenue and expenditure of project budgets</p> <ul style="list-style-type: none"> • Comprehend the contract contents and terms of service of the projects • Comprehend the works budgets and internal guidelines of the projects • Possess basic accounting knowledge and its application <p>2. Monitor the overall amounts of revenue and expenditure of project budgets</p> <ul style="list-style-type: none"> • Monitor the costs during the project period according to the project budgets and contract prices • Supervise subordinates to pay works projects' expenses such as daily financial expenses, procurement of materials and payment to contractors in accordance with the financial and approval procedures of the organisation • Monitor the receivables of each period of the project, and the execution of cash and cheque deposits • Manage the progress and effectiveness of subordinates in the collection of project payments and project payments subsequently added • Analyse the reasons of deviation from the projects' budget plans and report the related issues to superiors <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Report the latest status of revenue and expenditure of the project budgets to the superiors in a timely and precise manner to assist in the control of financial risks • In the process of monitoring project budgets, ensure that all items are listed clearly without partiality.
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to monitor subordinates to perform various revenue and expenditure procedures properly during the project period in accordance with the procedures and requirements of the organisation and the project budgets; • Able to effectively manage the receivables and progress of each period of the works projects; and • Able to report to superiors any deviations from project budgets in a timely manner, and provide analysis and suggestions.
Remark	

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Functional Area - Arboriculture and Horticulture Project Administration and Management

Title	Formulate budgets for works projects
Code	109042L5
Range	This unit of competency is applicable to managers who are engaged in financial duties in arboricultural and horticultural organisations. Practitioners should be capable of using knowledge of project management and accounting to analyse all kinds of costs according to the contract contents and the established procedures and requirements of the organisation, so as to formulate budgets for works projects with a view to helping the organisation to control costs.
Level	5
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to formulating budgets for works projects</p> <ul style="list-style-type: none"> • Comprehend the contents and terms of project contracts • Possess knowledge of works project management • Possess basic accounting knowledge and its application • Possess knowledge of formulating budgets for works projects <p>2. Formulate budgets for works projects</p> <ul style="list-style-type: none"> • Formulate budgets for works projects with reference to the contents of tender documents and price information of similar past projects • Select suitable contractors and suppliers • Analyse the various types of costs of the projects and use accounting knowledge to review the budgets of the works projects • Submit project budgets to superiors for approval <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Ensure the accuracy and timeliness of the contents and data of works projects' budgets • Formulate project budgets with integrity and in compliance with accounting standards and the guidelines of the organisation to prevent any corrupt conduct
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to analyse all kinds of price information of contractors and suppliers in accordance with the established procedures and requirements of the organisation; and • Able to comply with accounting standards, guidelines of the organisation and contractual terms to formulate appropriate budgets for the organisation's works projects.
Remark	

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Unit of Competency

Functional Area - Arboriculture and Horticulture Project Administration and Management

Title	Develop staff training plans
Code	109043L5
Range	This unit of competency is applicable to managers who are engaged in human resource duties in arboricultural and horticultural organisations. Practitioners should be capable of analysing and consolidating relevant data critically, determining the training and development needs of staff, and analysing the resources that the organisation can allocate, so as to develop relevant staff training plans to improve staff's knowledge and skills.
Level	5
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to developing staff training plans</p> <ul style="list-style-type: none"> • Comprehend the functions, job requirements and project scope of each department • Understand the qualification requirements of the industry and regulatory bodies for practitioners with different functions • Comprehend work arrangements and training needs of staff • Comprehend the training resources that the organisation can provide • Comprehend the relevant information about training needs and the ways to collect it, such as through job performance assessment and feedback of staff • Comprehend the planning and assessment methods of vocational education and training • Know about the institutions that offer training and their course information <p>2. Develop staff training plans</p> <ul style="list-style-type: none"> • Collect and assess staff's academic qualifications, knowledge and skill level, and analyse the expectations and opinions on training of management, supervisors and staff • Analyse staff's level of competence according to the project scope of the organisation, future development and training needs collected to identify the training needs of staff, and establish specific training solutions, candidates and priorities • Select the appropriate training modes and time according to the needs of the organisation • Discuss with relevant department heads and arrange staff to attend the training • Develop indicators to evaluate the effectiveness of staff training to ensure that the training programmes are effective in improving the skill level of staff • Establish a review mechanism to review the overall training plan to ensure that the training is effective and achieves the objectives • Update the training records of the organisation and staff timely <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Actively acquire the latest developments in the skills of the industry and related training courses, so as to be always prepared to introduce quality training to the organisation • Ensure that the training arrangements do not affect the normal operation of the organisation • Actively encourage staff (provide incentives) to participate in the training, so as to improve personal capabilities as well as the professional level of the organisation
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to develop staff training plans in accordance with the training needs of staff, and the service scope and future development of the organisation;

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	<ul style="list-style-type: none">• Able to arrange staff to participate in recognised professional knowledge and technical training to improve their skill level; and• Able to regularly review and evaluate the effectiveness of the training plans, and make improvements.
Remark	

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Unit of Competency**

Functional Area - Arboriculture and Horticulture Project Administration and Management

Title	Formulate organisational development strategies
Code	109044L6
Range	This unit of competency is applicable to managers who are engaged in administrative work in arboricultural and horticultural organisations. Practitioners should be capable of grasping the latest market and social dynamics as well as the development directions of the industry, so as to formulate forward-looking and sustainable development strategies for the organisation, leading the organisation to innovate and develop constantly.
Level	6
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to formulating organisational development strategies</p> <ul style="list-style-type: none"> • Grasp the development trends and market competition of the industry • Understand the social conditions and data on the economic environment • Master the current business conditions and operating strategies of the organisation • Understand the potential needs of existing markets and new markets • Understand the importance of new technology to market development • Comprehend the laws and guidelines related to the development of the industry <p>2. Formulate organisational development strategies</p> <ul style="list-style-type: none"> • Review the current mode of business operation and development strategies of the organisation • Analyse the development potential and potential areas for optimisation within the organisation • Master the development prospects and future opportunities of the industry by analysing the business environment and the market needs • Based on the analysis results, formulate the development directions, goals and operating strategies of the organisation • Formulate forward-looking optimisation measures and operation mode in respect of the development goals • Explore new markets with development potential and draw up innovative development plans • Develop a systematic review mechanism to review and optimise the organisational development strategies in a timely manner <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Make use of management knowledge and market research skills to analyse the potential market opportunities and risks comprehensively, so as to draw up reports on development strategies for the organisation
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to review the business operation and development potential of the organisation through internal analysis and investigation to explore the potential optimisation areas of the organisation; and • Able to formulate forward-looking development strategies and approaches for the organisation in response to social changes and market needs, leading the organisation to innovate continuously and develop in an orderly manner.

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Remark	
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Functional Area - Arboriculture and Horticulture Project Administration and Management

Title	Introduce new techniques and technologies
Code	109045L6
Range	This unit of competency is applicable to managers who are engaged in technical development duties in arboricultural and horticultural organisations. Practitioners should be capable of grasping the latest technical and technological development of the industry to introduce new techniques and technologies to the organisation that meet its operational needs and development goals, with a view to improving the business quality.
Level	6
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to introducing new techniques and technologies</p> <ul style="list-style-type: none"> • Grasp the latest technical and technological development of the industry • Understand the market demand and development trends of the industry • Understand the development potential of the new techniques or technologies • Master marketing channels and promotion methods • Comprehend the operational needs and affordability of the organisation • Comprehend the laws and guidelines related to patents <p>2. Introduce new techniques and technologies</p> <ul style="list-style-type: none"> • Look for various new techniques and technologies of the industry around the world • Analyse the research reports of the relevant techniques and technologies to estimate their potential for development • Introduce new techniques and technologies of the industry to the organisation in accordance with the operational needs of the organisation to promote business development • Formulate development plans for the introduction of new techniques and technologies by computing the affordability of the organisation • Plan for the marketing and promotion measures of the new techniques and technologies • Assess the actual returns that will be brought to the organisation by the new techniques and technologies <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Popularise new high-quality techniques and technologies to enhance the overall development level of the industry
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to look for new techniques and technologies that meet the development needs of the organisation to support its business development; • Able to assess the affordability of the organisation and room for development of the new techniques, so as to compute the potential returns that will be brought to the organisation by the new techniques; and • Able to plan for the promotion of the new techniques and technologies to increase their acceptance and market share.
Remark	

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Unit of Competency

Functional Area - Occupational Safety and Health for the Arboriculture and Horticulture Industry

Title	Use personal protective equipment
Code	109046L1
Range	This unit of competency is applicable to frontline staff working in the arboriculture and horticulture industry. Practitioners should be capable of donning personal protective equipment properly as required by the superiors, and mastering its use and maintenance methods to protect their personal safety.
Level	1
Credit	2 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to using personal protective equipment</p> <ul style="list-style-type: none"> • Know about the types of personal protective equipment required for different tasks, such as protective clothing (chainsaw pants), helmets, goggles and safety shoes • Know how to properly don and check personal protective equipment • Comprehend the use of different types of personal protective equipment and their limitations • Possess knowledge of the maintenance and storage of personal protective equipment • Comprehend the legal requirements related to the use of personal protective equipment <p>2. Use personal protective equipment</p> <ul style="list-style-type: none"> • Don the required personal protective equipment properly as required by the superiors • Adjust the personal protective equipment until it fits, and check the structure of the equipment to ensure that it meets safety requirements • Follow manufacturers' guidelines to conduct regular maintenance for the personal protective equipment • Report to superiors any signs of damage to the protective equipment and contact suppliers to arrange replacement or repair <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Check all personal protective equipment regularly to ensure that it is in optimal conditions and ready for use • Check with superiors or colleagues to ensure that the donned personal protective equipment meets safety requirements
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to don adequate and suitable personal protective equipment as required by the superiors to protect personal safety; and • Able to check the safety of the structure of the personal protective equipment according to the relevant safety guidelines, and don the relevant equipment properly.
Remark	

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Functional Area - Occupational Safety and Health for the Arboriculture and Horticulture Industry

Title	Use hand tools in the arboriculture and horticulture industry
Code	109047L1
Range	This unit of competency is applicable to frontline staff who are engaged in the operation of hand tools in the arboriculture and horticulture industry. Practitioners should be capable of using hand tools properly to perform duties according to the instructions of superiors, and mastering the skills for inspecting and maintaining hand tools.
Level	1
Credit	2 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to using hand tools in the arboriculture and horticulture industry</p> <ul style="list-style-type: none"> • Comprehend the types of hand tools commonly used in the arboriculture and horticulture industry • Comprehend the correct postures, skills and steps for using hand tools safely • Comprehend the working principles and precautions of hand tools • Comprehend the inspection methods and daily maintenance procedures of hand tools • Comprehend the potential risks and hazards of using hand tools <p>2. Use hand tools in the arboriculture and horticulture industry</p> <ul style="list-style-type: none"> • Use hand tools properly to perform duties according to the instructions of superiors • Check to ensure that the structure of hand tools is safe • Don suitable personal protective equipment before using hand tools • Clean used hand tools and store them properly
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to use hand tools properly to perform duties according to the requirements of superiors; and • Able to inspect and maintain related hand tools according to the instructions of superiors.
Remark	

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Functional Area - Occupational Safety and Health for the Arboriculture and Horticulture Industry

Title	Perform manual handling operations
Code	109048L1
Range	This unit of competency is applicable to frontline staff who are engaged in manual labour work in the arboriculture and horticulture industry. Practitioners should be capable of carrying out tasks involving manual handling operations with correct methods and postures according to the instructions of superiors and related guidelines, so as to protect their personal safety.
Level	1
Credit	2 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to performing manual handling operations</p> <ul style="list-style-type: none"> • Comprehend the correct methods and postures for performing manual handling operations, such as the correct methods and postures for manual lifting, lowering, pushing, pulling and carrying • Realise the risk factors and causes of injuries when performing manual handling operations • Comprehend the preventive and protective measures for performing manual handling operations • Comprehend the guidelines related to manual handling operations <p>2. Perform manual handling operations</p> <ul style="list-style-type: none"> • Use correct methods and postures to perform tasks involving manual handling operations, such as carrying large tools or tree trunks or branches • Undertake the preventive and protective measures for performing manual handling operations according to the instructions of superiors • Use suitable handling aids to assist in carrying loads <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • If the load to be carried is beyond one's capability, seek support from superiors or colleagues proactively
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to use proper manual lifting and carrying methods to perform tasks related to the industry that involve manual handling operations; and • Able to undertake the preventive and protective measures for performing manual handling operations according to the instructions of superiors to reduce the chance of strain and injury.
Remark	

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Functional Area - Occupational Safety and Health for the Arboriculture and Horticulture Industry

Title	Use power tools in the arboriculture and horticulture industry
Code	109049L2
Range	This unit of competency is applicable to frontline staff who are engaged in the operation of power tools in the arboriculture and horticulture industry. Practitioners should be capable of using power tools properly to perform duties according to the instructions of superiors, and mastering the skills for inspecting and maintaining power tools.
Level	2
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to using power tools in the arboriculture and horticulture industry</p> <ul style="list-style-type: none"> • Comprehend the types of power tools commonly used in the arboriculture and horticulture industry • Comprehend the correct postures, skills and steps for using power tools safely • Comprehend the working principles, working loads and precautions of power tools • Comprehend the inspection methods and daily maintenance procedures of power tools • Comprehend the potential risks and hazards of using power tools • Comprehend the safety guidelines and related legal requirements for operating power tools <p>2. Use power tools in the arboriculture and horticulture industry</p> <ul style="list-style-type: none"> • Operate power tools properly to perform duties according to the instructions of superiors • Inspect the mechanical parts and structure of power tools, including safety guards • Don suitable personal protective equipment according to the power tools used • Inform other staff working in the same venue and ensure they are in a safe area before turning on the power tools • Implement corresponding safety protection measures to protect the safety of staff and passers-by, for example, using appropriate barriers to fence the work areas and erecting warning signs • Renew the operation permits regularly for power tools that are subject to licensing control • Clean used power tools and store them properly according to the established procedures <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Show adequate awareness of safety and a high degree of vigilance when using power tools
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to operate power tools properly to perform duties according to the requirements of superiors; • Able to implement corresponding safety protection measures to protect the safety of staff and passers-by according to the instructions of superiors; and • Able to inspect and maintain related power tools according to the instructions of superiors.
Remark	

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Functional Area - Occupational Safety and Health for the Arboriculture and Horticulture Industry

Title	Operate chainsaws at ground level
Code	109050L2
Range	This unit of competency is applicable to frontline staff who are engaged in the operation of chainsaws at ground level in the arboriculture and horticulture industry. Practitioners should master the skills of operating chainsaws at ground level, and the inspection and maintenance procedures of chainsaws, so as to use chainsaws properly to perform duties at ground level according to the established safety rules.
Level	2
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to operating chainsaws at ground level</p> <ul style="list-style-type: none"> • Comprehend the techniques, procedures and safety rules for using different types of chainsaws properly • Comprehend the working principles, assembly and disassembly methods, and inspection procedures of chainsaws • Comprehend the mechanical structure and safety devices of chainsaws • Comprehend the methods and techniques for starting and stopping chainsaws • Comprehend the potential hazards of operating chainsaws to the operators and the surrounding people • Comprehend the rebound force at the pressure points and tension points of a saw blade • Comprehend the types of personal protective equipment for operating chainsaws, their protection principles and donning methods • Comprehend the methods and techniques for maintaining chainsaws <p>2. Operate chainsaws at ground level</p> <ul style="list-style-type: none"> • Choose the right types and sizes of chainsaws according to the job requirements • Use suitable personal protective equipment and check it before donning • Inspect every part and safety device of the chainsaws to ensure the chainsaws are functioning normally • Mix fuel suitable for the chainsaws according to manufacturers' instructions • Set up fuel refilling areas to carry out the procedures of refuelling and application of lubricating oil • Set up work areas and safety areas for operating chainsaws at ground level • Establish an effective communication system with support staff to ensure that messages can be delivered accurately • Start and stop chainsaws at ground level by following the correct procedures • Hold chainsaws with the correct postures and apply proper operation techniques to carry out work • Perform cleaning and maintenance procedures, and contact suppliers to replace worn parts when necessary <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Show the necessary awareness of safety when operating chainsaws
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to operate chainsaw at ground level in accordance with the correct procedures, operation techniques and safety rules to ensure the safety of the operators and others;

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	<ul style="list-style-type: none">• Able to inspect the mechanical parts and safety devices of chainsaws to ensure that the chainsaws are functioning normally before starting them; and• Able to establish an effective communication system with support staff to ensure that messages can be delivered accurately.
Remark	

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Functional Area - Occupational Safety and Health for the Arboriculture and Horticulture Industry

Title	Operate chainsaws at height
Code	109051L2
Range	This unit of competency is applicable to frontline staff who are engaged in the operation of chainsaws at height in the arboriculture and horticulture industry. Practitioners should master the skills of operating chainsaws on elevated working platforms, and the inspection and maintenance procedures of chainsaws, so as to use chainsaws properly to perform duties on elevated working platforms according to the established safety rules.
Level	2
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to operating chainsaws at height</p> <ul style="list-style-type: none"> • Comprehend the techniques, procedures and safety rules for using chainsaws on elevated working platforms • Comprehend the working principles, assembly and disassembly methods, and inspection procedures of chainsaws • Comprehend the mechanical structure and safety devices of chainsaws • Comprehend the methods and techniques for starting and stopping chainsaws on elevated working platforms • Comprehend the techniques of operating chainsaws on elevated working platforms and the potential hazards to the operators • Comprehend the rebound force at the pressure points and tension points of a saw blade • Comprehend the types of personal protective equipment for operating chainsaws at height, their protection principles and donning methods • Comprehend the methods and techniques for maintaining chainsaws • Comprehend the relevant safety guidelines for working on elevating work platforms, podium steps and ladders <p>2. Operate chainsaws at height</p> <ul style="list-style-type: none"> • Choose the right chainsaws for working on elevated working platforms according to the job requirements • Use suitable personal protective equipment and check it before donning • Inspect every part and safety device of the chainsaw to ensure that the chainsaw is functioning normally • Mix fuel suitable for the chainsaws according to manufacturers' instructions • Set up fuel refilling areas to carry out the procedures of refuelling and application of lubricating oil • Set up work areas and safety areas for operating chainsaws on elevated working platforms • Establish an effective communication system with ground support staff to ensure that messages can be delivered accurately • Start and stop chainsaws on elevated working platforms by following the correct procedures • Hold chainsaws with the correct postures and apply proper operation techniques to carry out work on elevated working platforms • Perform cleaning and maintenance procedures, and contact suppliers to replace worn parts when necessary

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Assessment Criteria	The integrated outcome requirements of this unit of competency are: <ul style="list-style-type: none">• Able to operate chainsaw on elevated working platforms in accordance with the correct procedures, operation techniques and safety rules to ensure the safety of the operators and others;• Able to inspect the mechanical parts and safety devices of chainsaws to ensure that the chainsaws are functioning normally before starting them; and• Able to establish an effective communication system with ground support staff to ensure that messages can be delivered accurately.
Remark	

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Functional Area - Occupational Safety and Health for the Arboriculture and Horticulture Industry

Title	Implement safe systems of work
Code	109052L3
Range	This unit of competency is applicable to line managers who are engaged in work related to occupational safety and health in the arboriculture and horticulture industry. Practitioners should master the implementation methods of safe systems of work, and put in place a safe system of work in the working environment through implementation of various measures, so as to ensure the safety of staff and raise their safety awareness.
Level	3
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to safe systems of work</p> <ul style="list-style-type: none"> • Comprehend the design of safe systems of work • Comprehend the methods and procedures for implementing safe systems of work • Comprehend the factors of the workplace and the environment • Comprehend the staff combinations, work distribution and staff's relevant work experience of the projects • Comprehend the safety guidelines of the machinery and tools required for the projects • Comprehend the safety rules of the work sites and the relevant safety requirements of the principal contractors • Comprehend the occupational safety and health legislation related to safe systems of work <p>2. Implement safe systems of work</p> <ul style="list-style-type: none"> • Explain the safe work procedures and related precautions to staff • Arrange suitable jobs according to staff members' physical conditions and work experience • Arrange adequate rest breaks and drinking water to staff depending on the weather conditions • Assess the personal protective equipment, machinery and tools required for the projects • Arrange staff to conduct safety inspection for the tools, working platforms, safety devices (such as the anchorage of independent lifelines) and protective equipment • Plan or arrange staff to participate in safety training as appropriate, and submit relevant training information as required by the principal contractors • Arrange suppliers to explain the correct use of tools and machinery on-site • Guide staff to implement temporary traffic measures and corresponding ground surface protection arrangements to protect the safety of passers-by and staff • Release work safety notices to raise staff's awareness of work safety <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Promote the concept of safe systems of work within the organisation to let staff understand the reasons and importance of implementing safe systems of work
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to implement safe systems of work at the work sites to protect the safety of staff in accordance with factors such as the working environment of the project, machinery and tools, and staff arrangements; and

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	<ul style="list-style-type: none">• Able to promote safe systems of work within the organisation and raise staff's awareness of safety.
Remark	

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Title	Use machinery of the arboriculture and horticulture industry
Code	109053L3
Range	This unit of competency is applicable to frontline personnel who are engaged in the operation of machines in the arboriculture and horticulture industry. Practitioners should be capable of using machinery to carry out work properly according to the safe use guidelines of the machinery and the instructions of the superiors, as well as mastering the skills for inspecting and maintaining machinery.
Level	3
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to the use of machinery of the arboriculture and horticulture industry</p> <ul style="list-style-type: none"> • Comprehend the types of machinery commonly used in the arboriculture and horticulture industry • Comprehend the correct postures, operation techniques and procedures for using machinery safely • Comprehend the working principles, working loads and precautions of machinery • Comprehend the inspection methods and daily maintenance procedures of machinery • Comprehend the potential risks and hazards of using machinery • Comprehend the safety guidelines and related legal requirements for operating machinery <p>2. Use machinery of the arboriculture and horticulture industry</p> <ul style="list-style-type: none"> • Operate machinery properly to perform duties according to the safe use guidelines of the machinery and the instructions of the superiors • Inspect the mechanical parts and structure of machinery, including safety guards • Don suitable personal protective equipment according to the machinery used • Inform other staff working in the same venue and ensure they are in a safe area before turning on the machinery • Implement corresponding safety protection measures to protect the safety of staff and passers-by, for example, using appropriate barriers to fence the work areas and erecting warning signs • Renew the operation permits regularly for machinery that is subject to licensing control • Clean used machinery and store it properly according to the established procedures <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Get updated with the safety knowledge for using the relevant machinery from time to time
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to operate machinery properly to perform duties according to the safe use guidelines of the machinery and the instructions of the superiors; • Able to implement corresponding safety protection measures to protect the safety of staff and passers-by according to the instructions of the superiors; and • Able to inspect and maintain related machinery according to the instructions of the superiors.

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Functional Area - Occupational Safety and Health for the Arboriculture and Horticulture Industry

Title	Implement safe work procedures for arboricultural and horticultural work at height
Code	109054L3
Range	This unit of competency is applicable to frontline personnel who are engaged in work at height in the arboriculture and horticulture industry. Practitioners should be capable of using appropriate elevating methods, tools and personal protective equipment to implement safety protection measures related to work at height in accordance with the requirements of the work plans for work at height, so as to protect personal safety.
Level	3
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to the implementation of safe work procedures for arboricultural and horticultural work at height</p> <ul style="list-style-type: none"> • Comprehend the relevant safety standards for performing arboricultural and horticultural work at height • Comprehend the safe means of access of elevating work platforms, podium steps and ladders • Comprehend the procedures and methods for using fall-arresting devices and rigging systems • Comprehend the methods for safely using the assisting tools and machinery related to work at height • Comprehend the safety requirements, measures and guidelines for performing arboricultural and horticultural work at height • Comprehend the safety protection procedures on the ground when performing arboricultural and horticultural work at height • Comprehend the potential risks and sources of hazards from performing work at height <p>2. Implement safe work procedures for arboricultural and horticultural work at height</p> <ul style="list-style-type: none"> • Select suitable elevating methods, work tools and personal protective equipment according to the established work plans for work at height, and consult superiors if necessary • Form an aerial work team to provide support according to the requirements of the work plans • Inspect the elevating work platforms, podium steps and ladders to ensure their stability before access • Inspect the personal fall-arresting device to ensure it is properly fixed before starting the work at height • Arrange the support staff at the venue to implement safety protection measures on the ground • Inspect the safety of the rigging systems and use the rigging systems properly to move tools or large branches • Set up work areas and safety areas, and implement corresponding safety protection measures to protect the safety of staff and passers-by, for example, using appropriate barriers to fence the work areas and erecting warning signs <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Comply with the relevant safety guidelines and laws of the government to ensure that employees can carry out work processes safely

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Assessment Criteria	The integrated outcome requirements of this unit of competency are: <ul style="list-style-type: none">• Able to use suitable elevating methods, tools and personal protective equipment to carry out arboricultural and horticultural work at height in accordance with the requirements of the work plans for work at height; and• Able to inspect the safety of the elevating equipment and rigging systems to ensure their stability before starting the work at height.
Remark	

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Functional Area - Occupational Safety and Health for the Arboriculture and Horticulture Industry

Title	Operate chainsaws on trees
Code	109055L3
Range	This unit of competency is applicable to frontline staff who are engaged in the operation of chainsaws on trees in the arboriculture and horticulture industry. Practitioners should master the skills of operating chainsaws on trees, and the inspection and maintenance procedures of chainsaws. Coupled with suitable tree climbing skills and equipment, they should also be able to use chainsaws properly to perform relevant duties on tree trunks or branches.
Level	3
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to operating chainsaws on trees</p> <ul style="list-style-type: none"> • Comprehend the techniques, procedures and safety rules for using chainsaws on trees • Comprehend the working principles, assembly and disassembly methods, inspection procedures and maintenance methods of chainsaws • Comprehend the mechanical structure and safety devices of chainsaws • Comprehend the methods and techniques for starting and stopping chainsaws on tree trunks or branches • Comprehend the techniques of operating chainsaws on tree trunks or branches and the potential hazards to the operators • Comprehend the rebound force at the pressure points and tension points of a saw blade • Comprehend the types of personal protective equipment for operating chainsaws on trees, their protection principles and donning methods • Comprehend the methods and techniques for maintaining chainsaws • Comprehend techniques related to tree climbing and application of rigging systems <p>2. Operate chainsaws on trees</p> <ul style="list-style-type: none"> • Choose the right chainsaws for working on trees according to the job requirements • Use suitable personal protective equipment and check it before donning • Inspect every part and safety device of the chainsaw to ensure that the chainsaw is functioning normally before climbing up a tree • Mix fuel suitable for the chainsaws according to manufacturers' instructions • Set up fuel refilling areas to carry out the procedures of refuelling and application of lubricating oil • Set up work areas and safety areas for operating chainsaws on trees • Establish an effective communication system with ground support staff to ensure that messages can be delivered accurately • Use rigging systems to transfer chainsaws safely • Look for suitable positions on tree trunks or branches for standing firmly to start and stop chainsaws in a safe way • Coupled with tree climbing techniques, cut trees on tree branches by holding the chainsaw with a correct posture and applying proper operation techniques • Perform cleaning and maintenance procedures, and contact suppliers to replace worn parts when necessary
Assessment Criteria	The integrated outcome requirements of this unit of competency are:

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	<ul style="list-style-type: none">• Able to apply suitable tree climbing techniques and equipment to stand on tree trunks or branches, so as to operate, start and stop chainsaws safely for carrying out relevant work;• Able to use rigging systems to transfer chainsaws to and from the ground safely to facilitate the work on trees;• Able to inspect the mechanical parts and safety devices of chainsaws to ensure that the chainsaws are functioning normally before starting them; and• Able to establish an effective communication system with ground support staff to ensure that messages can be delivered accurately.
Remark	

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Functional Area - Occupational Safety and Health for the Arboriculture and Horticulture Industry

Title	Handle industrial accidents
Code	109056L3
Range	This unit of competency is applicable to line managers who are engaged in accident handling in the arboriculture and horticulture industry. Practitioners should be capable of properly handling and recording industrial accidents related to the arboriculture and horticulture industry in accordance with the situations of the accidents and the established procedures of the organisation.
Level	3
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to handling industrial accidents</p> <ul style="list-style-type: none"> • Know about the causes of common industrial accidents in the arboriculture and horticulture industry, such as fall of objects and people, cuts, electric shock and injuries from manual handling operations • Realise the severity and immediate risks of common industrial accidents • Comprehend the methods and established procedures for handling common industrial accidents • Possess basic first aid knowledge and comprehend the emergency measures set by the organisation <p>2. Handle industrial accidents</p> <ul style="list-style-type: none"> • Collect relevant information about the scene of the accidents, such as the conditions of the injured persons, the number of injured persons, the location of the accidents and the area affected by the accidents • Assess the severity and immediate risks of the accidents based on the conditions at the scene • Handle the industrial accidents at the scene in accordance with the established procedures of the organisation, such as administering first aid treatment, sending the injured persons to hospital for treatment, calling the police and conducting emergency evacuation • Record the causes and handling methods of the industrial accidents and report them factually <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Assist in referring emotionally unstable colleagues to professionals to follow up, and stay calm
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to record the causes and handling methods of the industrial accidents based on the information collected at the scene of the accidents; and • Able to make appropriate treatment and arrangements based on the severity and immediate risks of the accidents according to the established procedures of the organisation.
Remark	

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Functional Area - Occupational Safety and Health for the Arboriculture and Horticulture Industry

Title	Perform aerial tree rescue
Code	109057L3
Range	This unit of competency is applicable to rescue personnel who are engaged in aerial tree rescue work in the arboriculture and horticulture industry. Practitioners should be capable of assessing the circumstances at the scene and the conditions of the persons to be rescued, so as to perform aerial tree rescue according to the established procedures and methods.
Level	3
Credit	4 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to performing aerial tree rescue</p> <ul style="list-style-type: none"> • Comprehend the criteria and guidelines for aerial tree rescue • Comprehend the objectives and importance of aerial tree rescue • Master the skills of aerial tree rescue, such as the use of ropes and knots, and climbing techniques • Possess basic first aid knowledge • Comprehend the procedures, risk assessment and methods of aerial tree rescue • Know how to use the tools for performing aerial tree rescue <p>2. Perform aerial tree rescue</p> <ul style="list-style-type: none"> • Assess the conditions of the persons to be rescued from the ground • Choose the right rescue methods according to the established procedures for performing aerial tree rescue • Set up rope rescue systems • Assess the degree of criticality of the injured persons and be able to provide basic first aid treatment • Arrange ground staff to assist in the rescue • Use rope rescue systems to transport the rescued persons to a safe location • Arrange suitable medical services according to the conditions of the rescued persons <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Stay calm, pay attention to the emotions of the injured persons, give them comfort and show support
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to assess the circumstances at the scene and the conditions of the persons to be rescued, so as to choose the right rescue methods; and • Able to properly handle the situation of the persons to be rescued according to the established procedures for performing aerial tree rescue and use rope rescue systems to transport the rescued persons to a safe location.
Remark	

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Unit of Competency

Functional Area - Occupational Safety and Health for the Arboriculture and Horticulture Industry

Title	Implement emergency plans
Code	109058L4
Range	This unit of competency is applicable to line managers who are engaged in handling emergencies in the arboriculture and horticulture industry. Practitioners should be capable of mastering the emergency plans of works projects, assessing the circumstances at the scene and arranging staff to implement various contingency measures to respond to emergency situations / work in a timely manner.
Level	4
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to implementing emergency plans</p> <ul style="list-style-type: none"> • Comprehend the emergency measures the organisation has in place for inclement weather or emergency situations • Comprehend the allocation of existing resources of the organisation, such as the number of frontline staff, the number of existing tools and machinery, and the inventory of materials and fuel • Comprehend the emergency plans specified in the project contracts • Comprehend the road and traffic arrangements during inclement weather or when emergency situations occur <p>2. Implement emergency plans</p> <ul style="list-style-type: none"> • Collect the latest road and traffic conditions to plan the driving routes • Allocate appropriate manpower and resources to cope with work during inclement weather or emergency situations in accordance with the contingency procedures • Develop the temporary contingency plans according to the established procedures with regard to the existing resources of the organisation • Arrange staff to inspect tools and machinery to ensure that the equipment is in good standby condition • Assess the circumstances at the scene and guide staff to implement emergency plans • Report to superiors the implementation of the plans according to the contingency procedures
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to allocate the various existing resources of the organisation appropriately to plan the contingency solutions and driving routes; and • Able to assess the circumstances at the scene and guide staff to implement emergency plans in accordance with the contingency procedures.
Remark	

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Unit of Competency

Functional Area - Occupational Safety and Health for the Arboriculture and Horticulture Industry

Title	Monitor the safe systems of work
Code	109059L4
Range	This unit of competency is applicable to supervisors who are engaged in work related to occupational safety and health in the arboriculture and horticulture industry. Practitioners should be capable of monitoring the implementation of the established safe systems of work and making timely reviews to ensure site and staff safety.
Level	4
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to monitoring the safe systems of work</p> <ul style="list-style-type: none"> • Comprehend the design and implementation of the present safe systems of work • Comprehend the operating procedures and details of work items • Comprehend the methods and procedures for monitoring the safe systems of work • Comprehend the internal reporting mechanisms and established procedures of the organisation for handling violations of the safe systems of work • Comprehend the occupational safety and health legislation related to the safe systems of work <p>2. Monitor the safe systems of work</p> <ul style="list-style-type: none"> • Compile a checklist for items to be monitored and establish a set of systematic monitoring procedures according to the project or contract requirements • Perform pre-work safety checks of the work sites to ensure that the established safe systems of work can be implemented effectively • Meet staff and supervisors to gather information and opinions on the implementation of the safe systems of work • Monitor and record staff's implementation of the safe systems of work on-site • Evaluate the effectiveness of the implementation of the safe systems of work based on the collected information and monitoring results • Conduct regular and surprise inspections at work sites to identify safety loopholes of the work items • Check the validity of the safety permits of staff • Arrange qualified personnel to conduct safety audit for the projects and follow up on the subsequent work • Report to superiors any cases of violations of the safe systems of work according to the internal reporting mechanisms of the organisation and keep relevant records for follow-up in the future <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Make suggestions for improvement for the safe systems of work timely to optimise the current safe systems of work
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to compile checklists for items to be monitored and perform pre-work safety checks of the work sites; • Able to monitor the implementation of the safe systems of work and review the safety loopholes of the work items; and

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	<ul style="list-style-type: none">• Able to evaluate the effectiveness of the implementation of the safe systems of work based on the information collected on-site.
Remark	

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Functional Area - Occupational Safety and Health for the Arboriculture and Horticulture Industry

Title	Develop safe systems of work
Code	109060L5
Range	This unit of competency is applicable to managers who are engaged in work related to occupational safety and health in the arboriculture and horticulture industry. Practitioners should be capable of mastering the design methods of safe systems of work to formulate corresponding safe work procedures by assessing the risks of work items, with a view to protecting the safety of staff.
Level	5
Credit	9 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to developing safe systems of work</p> <ul style="list-style-type: none"> • Comprehend the design concepts of safe systems of work • Possess knowledge related to risk assessment of work • Comprehend the contents of project contracts • Comprehend the factors of the workplace and the environment • Comprehend the staff combinations, work distribution and staff's relevant work experience of the projects • Comprehend the safety guidelines of the machinery and tools, methods for inspection and maintenance details • Comprehend the requirements of the safety plans and the related writing skills • Comprehend the occupational safety and health legislation related to safe systems of work and risk assessment of work <p>2. Develop safe systems of work</p> <ul style="list-style-type: none"> • Assess work risks of the projects and identify potential hazards, such as high-risk site environments • Select operation methods with relatively lower risks and / or adopt corresponding safety measures in regard to the degree of risk • Develop safe work procedures and guidelines for the projects based on the analysis results of the work risk assessment • Prepare safety plans according to the tender or contract requirements • Plan the allocation of personnel and the required machinery to provide a safe working environment for staff • Formulate emergency procedures to deal with unexpected situations or inclement weather • Develop temporary traffic measures and safety protection measures • Develop a mechanism for reporting violations of the safe systems of work for review and follow-up <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Review the effectiveness of the safe systems of work timely and optimise the original design to improve the overall safety
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to analyse and assess the risks of work items and formulate appropriate safe work procedures and guidelines in accordance with the degree of risk to protect the safety of staff; and

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	<ul style="list-style-type: none">• Able to prepare safety plans that comply with the requirements of the tenders or contracts.
Remark	

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Functional Area - Occupational Safety and Health for the Arboriculture and Horticulture Industry

Title	Provide tree climbing training
Code	109061L5
Range	This unit of competency is applicable to coaching staff who are engaged in tree climbing training in the arboriculture and horticulture industry. Practitioners should master the professional skills and safety knowledge of tree climbing. They should also be able to develop appropriate tree climbing training plans and teaching materials, and provide relevant training in respect of the skill levels and training needs of trainees.
Level	5
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to providing tree climbing training</p> <ul style="list-style-type: none"> • Comprehend the technical requirements, related professional knowledge and safety guidelines of tree climbing training • Comprehend the objectives of the provision of tree climbing training and the assessment indicators • Comprehend the content and scope of tree climbing training, such as the use of ropes and knots, climbing techniques, techniques for walking on branches and emergency procedures • Comprehend trainees' understanding and skill levels of tree climbing • Comprehend the venues, training facilities and tree climbing equipment required for conducting tree climbing training • Comprehend the assessment methods and criteria for tree climbing training <p>2. Provide tree climbing training</p> <ul style="list-style-type: none"> • Formulate tree climbing training plans and training modes (for example, the proportion of practical classes to theory classes) in accordance with the training needs of the organisation and the skill levels of trainees • Choose suitable training venues, facilities and equipment according to the number of trainees and training objectives • Check the safety of the tree structure for demonstration, tree climbing equipment, venues and training facilities • Demonstrate various tree climbing techniques to trainees, such as the use of ropes and knots, climbing techniques and techniques for walking on branches • Instruct trainees to carry out various tree climbing technique training and explain the relevant safety issues • Assess trainees' performance and give suggestions for improvement <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Review the effectiveness of the tree climbing training courses based on the feedback and performance assessment of the trainees • Introduce the latest tree climbing techniques regularly to meet the training needs of different organisations to ensure that the training courses can effectively improve the quality of staff
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to formulate appropriate tree climbing training plans and teaching materials in accordance with the training needs and trainees' skill levels;

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	<ul style="list-style-type: none">• Able to instruct trainees to perform tree climbing training, and impart various professional skills and safety knowledge to them; and• Able to assess trainees' performance, make relevant remarks and give suggestions for improvement.
Remark	

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Functional Area - Occupational Safety and Health for the Arboriculture and Horticulture Industry

Title	Provide aerial tree rescue training
Code	109062L5
Range	This unit of competency is applicable to coaching staff who are engaged in aerial tree rescue training in the arboriculture and horticulture industry. Practitioners should master the professional skills and safety knowledge of aerial tree rescue. They should also be able to develop appropriate aerial tree rescue training plans and teaching materials, and provide relevant training in respect of the skill levels and training needs of trainees.
Level	5
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to providing aerial tree rescue training</p> <ul style="list-style-type: none"> • Comprehend the technical requirements, related professional knowledge and safety guidelines of aerial tree rescue training • Comprehend the objectives of the provision of aerial tree rescue training and the assessment indicators • Comprehend the content and scope of aerial tree rescue training, such as the use of ropes and knots, first aid, rescue techniques and emergency procedures • Comprehend trainees' understanding and skill levels of aerial tree rescue processes • Comprehend the training venues, facilities and equipment required for conducting aerial tree rescue training • Comprehend the assessment methods and criteria for aerial tree rescue training <p>2. Provide aerial tree rescue training</p> <ul style="list-style-type: none"> • Formulate aerial tree rescue training plans and training modes (for example, the proportion of practical classes to theory classes) in accordance with the professional knowledge of aerial tree rescue training techniques, the training needs of the organisation and the skill levels of trainees • Choose suitable training venues, facilities and equipment according to the number of trainees and training objectives • Check the safety of the aerial tree rescue equipment, venues and training facilities • Guide trainees to assess the rescue processes to cope with different rescue situations • Demonstrate various aerial tree rescue techniques to trainees, such as aerial rescue procedures, aerial tree rescue techniques and first aid • Instruct trainees to carry out various aerial tree rescue technique training, arrange different kinds of simulated rescue scenarios and explain the relevant safety issues • Assess trainees' performance and give suggestions for improvement <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Teach trainees to control the emotions of the injured persons during rescue to increase the chance of successful rescue
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to formulate appropriate aerial tree rescue training plans and teaching materials in accordance with the training needs and trainees' skill levels; • Able to instruct trainees to perform aerial tree rescue training, and impart various professional skills and safety knowledge to them; and

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	<ul style="list-style-type: none">• Able to assess trainees' performance, make relevant remarks and give suggestions for improvement.
Remark	

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Functional Area - Occupational Safety and Health for the Arboriculture and Horticulture Industry

Title	Use chemicals
Code	109063L2
Range	This unit of competency is applicable to frontline personnel who are engaged in chemical processing in the arboriculture and horticulture industry. Practitioners should be capable of using, diluting and mixing chemicals safely according to the application plans, as well as implementing corresponding safety protection measures to protect the safety of staff and passers-by.
Level	2
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to using chemicals</p> <ul style="list-style-type: none"> • Comprehend the types, formulations and ingredients of chemicals used in arboriculture and horticulture • Comprehend the content and warning system listed on the labels of chemicals, such as hazard classifications and symbols, chemical names, potential hazards, and safety measures • Comprehend the hazards of chemicals posed to health and the environment • Comprehend the procedures, techniques and methods for using, diluting and mixing chemicals in a safe way • Comprehend the types, operation, inspection methods and maintenance of chemical equipment • Comprehend the personal protective equipment that needs to be donned when using chemicals • Comprehend the contingency measures in the event of a chemical accident • Comprehend the safety guidelines and relevant legislation on the use of chemicals • Comprehend the content of the application plans <p>2. Use chemicals</p> <ul style="list-style-type: none"> • Select suitable types and dosages of chemicals and chemical application tools according to the application plans; consult superiors if necessary • Dilute or mix chemicals in a safe environment according to the established guidelines of the organisation • Inspect every part of the chemical equipment to ensure smooth operation and that there is no damage • Inspect the application sites and the surrounding environment to ensure good circulation of air • Select appropriate personal protective equipment according to the toxicity of the chemicals and the types of equipment used • Implement corresponding safety protection measures to protect the safety of staff and passers-by, such as using appropriate barriers to fence the work areas, preventing chemicals from dispersing by wind, erecting warning signs and informing passers-by to stay away from the application areas • Clean all tools, equipment, clothing and other public facilities within the application areas thoroughly <p>3. Exhibit professionalism</p>

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Functional Area - Occupational Safety and Health for the Arboriculture and Horticulture Industry

	<ul style="list-style-type: none"> • Conduct application safely and cautiously to avoid causing profound impact on health and the environment
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to select suitable types and dosages of chemicals, and make use of chemical application tools properly in accordance with the application plans; and • Able to dilute and mix chemicals safely in accordance with the established procedures to meet the requirements of the application plans.
Remark	

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Unit of Competency

Functional Area - Occupational Safety and Health for the Arboriculture and Horticulture Industry

Title	Transport and store chemicals
Code	109064L2
Range	This unit of competency is applicable to frontline personnel who are engaged in chemical transportation and storage in the arboriculture and horticulture industry. Practitioners should be capable of storing, transporting and disposing of chemicals appropriately, and managing chemical warehouses properly in accordance with the safe operation procedures for the transportation and storage of chemicals.
Level	2
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to transporting and storing chemicals</p> <ul style="list-style-type: none"> • Comprehend the storage guidelines of chemical warehouses • Comprehend the procedures for handling chemical leakage • Comprehend the procedures for disposing of chemicals • Comprehend the procedures for transporting chemicals • Comprehend the stock lists, inventories and registration records of chemicals • Comprehend the content and warning system listed on the labels of chemicals, such as hazard classifications and symbols, chemical names, potential hazards, and safety measures • Comprehend the safety guidelines and relevant legislation on the transportation and storage of chemicals <p>2. Transport and store chemicals</p> <ul style="list-style-type: none"> • Following the instructions of superiors, fill in the chemical usage records and safely transport the required chemicals and chemical application tools to the work sites • Arrange the storage locations of different chemicals appropriately and put labels on the storage racks in accordance with the chemical warehouse storage guidelines of the organisation • Put chemical labels that comply with the statutory requirements or government guidelines on containers used to store chemicals • Conduct regular and surprise inspections of the stocks and expiry dates of chemicals, and record relevant information for future reference for replacement or replenishment of chemicals • Check the containers used to store chemicals regularly and handle them if leakage is found according to the established procedures • Dispose of expired or unsuitable chemicals and update the relevant inventory records • Check the temperature, humidity and ventilation measures of warehouses regularly to ensure that the chemicals are stored in a safe environment • Don suitable personal protective equipment before transporting, inspecting or handling chemicals <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Properly manage warehouses in accordance with the relevant safety guidelines of the chemical warehouses to ensure the safety of the warehouses and staff
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to read and comprehend the labels, stocks and expiry dates of chemicals;

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	<ul style="list-style-type: none">• Able to transport chemicals and chemical application tools to the work sites safely; and• Able to manage the chemicals in warehouses properly to ensure that the stored chemicals are in optimum condition.
Remark	

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Unit of Competency

Functional Area - Plant Selection, Cultivation and Propagation

Title	Collect environmental data of planting sites
Code	109065L2
Range	This unit of competency is applicable to frontline personnel who are engaged in planting work in the arboriculture and horticulture industry. Practitioners should be capable of mastering the use of testing tools and instruments, and using them to collect the environmental data of planting sites.
Level	2
Credit	2 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to collecting environmental data of planting sites</p> <ul style="list-style-type: none"> • Comprehend the working procedures for collecting the environmental data of planting sites • Comprehend the use of relevant testing tools and instruments • Comprehend the ways to collect and transport soil samples • Possess basic knowledge of the environmental data of planting sites <p>2. Collect environmental data of planting sites</p> <ul style="list-style-type: none"> • Conduct site investigations at planting sites to record relevant environmental data • Operate relevant testing tools and instruments to collect the environmental data of planting sites • Collect soil samples and transport them to laboratories properly for analysis if necessary <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Report to superiors any abnormalities at the planting sites proactively.
Assessment Criteria	<p>The integrated outcome requirement of this unit of competency is:</p> <ul style="list-style-type: none"> • Able to collect the environmental data of planting sites using relevant testing tools and instruments.
Remark	

**Specification of Competency Standards
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Unit of Competency**

Functional Area - Plant Selection, Cultivation and Propagation

Title	Design horticultural projects
Code	109066L3
Range	This unit of competency is applicable to technical personnel who are engaged in designing horticultural projects in the arboriculture and horticulture industry. Practitioners should be capable of designing small gardens according to the job requirements, the growth characteristics of plants and the environmental factors of planting.
Level	3
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to designing horticultural projects</p> <ul style="list-style-type: none"> • Comprehend the elements and concepts of designing small gardens • Comprehend the ways to arrange different plants • Comprehend the growth characteristics of plants and their compatibility with the landscape • Comprehend the mutually beneficial factors between plants and the planting environment • Comprehend the requirements of the related design works • Comprehend the actual conditions of the planting sites <p>2. Design horticultural projects</p> <ul style="list-style-type: none"> • Choose plant species that meet the landscape requirements according to the job requirements and the environmental factors of planting • Find matching plant species that are suitable for planting together based on the selection list • Design the planting locations of the plants in the small gardens to match the overall landscape • Draw design sketches of the small gardens and submit them, together with the planting lists, to project leaders • Work with clients to develop plans and schedules for the design of horticultural projects <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Use appropriate decorations to match the design of the small gardens to upgrade the overall landscape
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to select suitable plants for the design works according to the job requirements and the environmental factors of planting to enhance the small gardens; and • Able to draw design sketches of the small gardens, and find matching plants and decorations to upgrade the overall landscape.
Remark	

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Functional Area - Plant Selection, Cultivation and Propagation

Title	Perform plant selection
Code	109067L3
Range	This unit of competency is applicable to technical personnel who are engaged in plant selection work in the arboriculture and horticulture industry. Practitioners should master the knowledge of plant cultivation, and be capable of analysing the compatibility of the selected plants with the planting sites according to the needs of the design, as well as collecting information on the plant supply market to carry out plant selection processes.
Level	3
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to performing plant selection</p> <ul style="list-style-type: none"> • Possess the skills and knowledge of identifying plants • Comprehend the characteristics and environmental requirements of different plant species and their mutually beneficial factors • Comprehend the impact of different environments on plant growth, such as soil structure and characteristics, growth space above and below ground, drainage capacity, prevailing wind, microclimate and sunlight • Keep up to date with the plant supply market • Comprehend the planting solutions of the organisation and the related job requirements • Comprehend the roles and functions of trees in the wild or urban forest <p>2. Perform plant selection</p> <ul style="list-style-type: none"> • Review the job requirements, planting solutions (for example, design plans), planting sites and functions • Work with project leaders and stakeholders to set the direction of plant selection • Analyse the compatibility of the selected plants with the planting sites, and the restrictions • Collect relevant information on the plant supply market and identify suitable plants in the market for cultivation • Prepare the specifications of the suitable plants or preparation plans of the nursery stock according to the collected and analysis results • Report on the implementation of the plant selection plans to the project leaders <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Make suggestions to the project leaders on growing alternative plants when necessary (for example, in case of insufficient supply)
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to analyse the plant species suitable for cultivation in accordance with the job requirements and the environment of the planting sites to assist in the plant selection processes; and • Able to collect the latest information on the plant supply market and identify suitable plants in the market for cultivation, so as to prepare the specifications of the suitable plants or preparation plans of the nursery stock.
Remark	

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Functional Area - Plant Selection, Cultivation and Propagation

Title	Evaluate the planting environment
Code	109068L4
Range	This unit of competency is applicable to managers who are engaged in planting work in the arboriculture and horticulture industry. Practitioners should be capable of mastering the techniques for analysing the data of the planting environment, integrating various environmental data and evaluating the planting sites.
Level	4
Credit	4 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to evaluating the planting environment</p> <ul style="list-style-type: none"> • Comprehend the working procedures for evaluating the planting environment • Comprehend the growth conditions required by different plant species • Master the skills for analysing various environmental data • Comprehend the environmental factors that affect the planting plans, such as the type of soil, thickness of soil, humus content, pH value, lighting duration, water source and nutrients <p>2. Evaluate the planting environment</p> <ul style="list-style-type: none"> • Inspect the types and maturity of existing vegetation on-site • Analyse the collected environmental data and existing vegetation information, such as soil structure and characteristics, growth space above and below ground, drainage capacity, prevailing wind, microclimate and sunlight • Assess the plant species that are suitable for growing in the planting areas according to the analysis results • Provide suggestions and measures to improve the planting environment • Write evaluation reports on the planting sites and report to the project leaders
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to analyse the environmental data of the planting sites, so as to assess the plant species that are suitable for growing on the sites; and • Able to suggest measures to improve the planting environment and write evaluation reports on the planting sites, so as to improve the relevant environmental factors to meet the planting needs.
Remark	

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Functional Area - Plant Selection, Cultivation and Propagation

Title	Carry out plant cultivation and propagation
Code	109069L1
Range	This unit of competency is applicable to frontline personnel who are engaged in plant cultivation and propagation in the arboriculture and horticulture industry. Practitioners should be capable of mastering the practical skills of cultivating and propagating plants, and carrying out plant cultivation and propagation according to the instructions of superiors.
Level	1
Credit	1 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to carrying out plant cultivation and propagation</p> <ul style="list-style-type: none"> • Comprehend the techniques and procedures for carrying out plant cultivation and propagation • Comprehend the use and maintenance methods of cultivation and propagation tools • Comprehend the methods of storing nursery stock, planting materials and related tools <p>2. Carry out plant cultivation and propagation</p> <ul style="list-style-type: none"> • Use suitable tools to carry out cultivation and propagation according to the instructions of superiors • Record plant cultivation or propagation processes, such as production time and techniques used • Prepare labels for the cultivated and propagated plants according to the instructions of superiors, and put them on the corresponding plants • Store nursery stock, planting materials and related tools properly • Clean and maintain used tools
Assessment Criteria	<p>The integrated outcome requirement of this unit of competency is:</p> <ul style="list-style-type: none"> • Able to operate suitable tools according to the instructions of superiors to carry out plant cultivation or propagation properly.
Remark	

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Functional Area - Plant Selection, Cultivation and Propagation

Title	Monitor plant cultivation and propagation
Code	109070L3
Range	This unit of competency is applicable to supervisors who are engaged in plant cultivation and propagation in the arboriculture and horticulture industry. Practitioners should be capable of mastering the methods and techniques of plant cultivation and propagation, and supervising staff to carry out plant cultivation and propagation according to the requirements of the work plans.
Level	3
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to monitoring plant cultivation and propagation</p> <ul style="list-style-type: none"> • Comprehend the types, characteristics and propagation methods of plants that need to be cultivated and propagated • Comprehend the work plans of plant cultivation and propagation of the organisation • Comprehend the tools and equipment required for carrying out plant cultivation and propagation • Comprehend the quality objectives of plant cultivation and propagation, and the related safety measures • Comprehend the techniques and procedures for carrying out plant cultivation and propagation <p>2. Monitor plant cultivation and propagation</p> <ul style="list-style-type: none"> • Explain to staff the objectives, workflow and points to note of the cultivation and propagation work plans • Arrange staff's posts and allocate relevant tools for conducting plant cultivation and propagation • Adopt suitable propagation methods according to the types and growth characteristics of plants, such as cutting method, layering method, division method, grafting method and tissue culture • Select the right cultivation media and containers • Supervise staff to carry out plant cultivation or propagation and ensure that each procedure meets the quality objectives and safety standards • Guide staff to prepare labels for the cultivated and propagated plants, and put them on the corresponding plants
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to supervise staff to carry out plant cultivation and propagation according to the requirements of the work plans; • Able to arrange staff's posts and allocate necessary tools suitably for conducting plant cultivation and propagation; and • Able to guide staff to complete every procedure and safety measure of plant cultivation and propagation properly, ensuring that the work meets the quality objectives and safety standards.
Remark	

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for the Arboriculture & Horticulture Industry
Unit of Competency

Functional Area - Plant Selection, Cultivation and Propagation

Title	Carry out nursery stock production
Code	109071L1
Range	This unit of competency is applicable to frontline personnel who are engaged in production work in nurseries in the arboriculture and horticulture industry. Practitioners should master the skills of planting, transplanting and extraction of nursery stock, and be capable of carrying out various kinds of production work in nurseries according to the instructions of superiors.
Level	1
Credit	1 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Posses knowledge related to carrying out nursery stock production</p> <ul style="list-style-type: none"> • Possess the skills and knowledge related to nursery stock production, such as collection, processing and storage of seeds, soil management, nursery stock extraction techniques, and control of pests and diseases • Comprehend the workflow of nursery stock production • Comprehend the various codes of practice and safety guidelines established by the organisation on nursery stock production • Know how to operate the tools for nursery stock production • Comprehend the operation modes and relevant safety guidelines of the warehouses <p>2. Carry out nursery stock production</p> <ul style="list-style-type: none"> • Plant various seedlings or seeds in the designated areas of nurseries according to the instructions of superiors • Operate suitable tools to carry out propagation, transplanting or extraction of nursery stock according to the instructions of superiors • Prune nursery stock to ensure that their appearance meets the contract requirements • Carry out preparatory work for the extraction of nursery stock, for example, after the nursery stock are extracted, use root control devices to wrap the root balls and provide good support • Pack the nursery stock and put labels on them, listing their species, age, quantity, grade, name of nursery, etc. according to the instructions of superiors <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Report to superiors any quality problems of the nursery stock to ensure that all nursery stock produced meet the acceptance standards
Assessment Criteria	<p>The integrated outcome requirement of this unit of competency is:</p> <ul style="list-style-type: none"> • Able to operate related tools according to the instructions of superiors to carry out various nursery stock production work properly.
Remark	

Specification of Competency Standards
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Functional Area - Plant Selection, Cultivation and Propagation

Title	Carry out caring work in nurseries
Code	109072L1
Range	This unit of competency is applicable to frontline personnel who are engaged in caring work in nurseries in the arboriculture and horticulture industry. Practitioners should master the skills related to the general caring work for nursery stock and the maintenance of the basic facilities of nurseries, and be capable of carrying out various caring work in nurseries according to the instructions of superiors.
Level	1
Credit	1 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to carrying out caring work in nurseries</p> <ul style="list-style-type: none"> • Comprehend the skills, processes and workflow for caring for nursery stock • Comprehend the various codes of practice and safety guidelines established by the organisation for the caring of nursery stock • Possess knowledge of the maintenance of the basic facilities of nurseries • Know how to operate and maintain plant caring tools • Comprehend the operation modes and relevant safety guidelines of nursery warehouses <p>2. Carry out caring work in nurseries</p> <ul style="list-style-type: none"> • Carry out fertilisation and irrigation to provide sufficient nutrients, water and sunlight for the growth of nursery stock according to the instructions of superiors • Carry out pest and disease control such as physical control, chemical control and biological control according to the instructions of superiors • Implement nursery stock management measures such as seasonal care measures according to the instructions of superiors and with respect to weather changes • Maintain the facilities and tools within the nurseries • Operate suitable tools to assist in caring for nursery stock • Categorise and store the chemicals, nursery stock, tools, planting materials, etc. according to the storage guides of the organisation <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Pay attention to the growth of nursery stock, so as to report to superiors any abnormalities of the plants in the nurseries as early as possible and propose remedial measures
Assessment Criteria	<p>The integrated outcome requirement of this unit of competency is:</p> <ul style="list-style-type: none"> • Able to operate related tools according to the instructions of superiors to carry out various caring work for the nursery stock and maintain the basic facilities within the nurseries properly.
Remark	

Specification of Competency Standards
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Functional Area - Plant Selection, Cultivation and Propagation

Title	Purchase plants
Code	109073L2
Range	This unit of competency is applicable to administrative personnel who are engaged in plant procurement in the arboriculture and horticulture industry. Practitioners should be capable of grasping the information on the plant supply market and mastering the procurement processes, so as to purchase suitable and healthy nursery stock for the organisation.
Level	2
Credit	2 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to purchasing plants</p> <ul style="list-style-type: none"> • Comprehend the workflow for purchasing plants • Comprehend the assessment criteria when purchasing plants, such as size, health, structure, shape and appearance of plants • Know how to check the quality of plants • Comprehend the recommended standards for the size of nursery stock by the government and the industry, including seedling tree, whip, light standard tree, standard tree, heavy standard tree and mature tree <p>2. Purchase plants</p> <ul style="list-style-type: none"> • Identify nursery that provide the required plants and select suitable suppliers based on price and product quality • Visit the nursery on-site and inspect the quality of plants to ensure that it complies with the contract requirements • Inspect and accept the plants using relevant tools in accordance with the procurement standards to ensure that the plants are in a healthy state • Record the information of the purchased plants and store the relevant records in the database of the organisation • Plan appropriate transportation methods with respect to the size, number and type of plants <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Optimise the acceptance inspection process of the organisation with reference to the acceptance inspection criteria of the industry for plant purchase
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to select suitable nursery stock suppliers based on price and product quality to procure nursery stock that meet the quality standards; and • Able to inspect the quality of plants carefully in accordance with the procurement standards to ensure that the plants are in a healthy state.
Remark	

Specification of Competency Standards
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Unit of Competency

Functional Area - Plant Selection, Cultivation and Propagation

Title	Handle imported plants
Code	109074L2
Range	This unit of competency is applicable to frontline personnel who are engaged in plant procurement in the arboriculture and horticulture industry. Practitioners should be capable of handling the procedures for importing plants and arranging transportation service providers to deliver nursery stock to Hong Kong.
Level	2
Credit	2 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to handling imported plants</p> <ul style="list-style-type: none"> • Comprehend the workflow for handling imported plants • Know about local suppliers that provide nursery stock transportation services • Comprehend the information about local transit nurseries • Comprehend the quarantine, customs declaration and customs clearance procedures for the importation of plants • Comprehend the related laws on importing foreign plants <p>2. Handle imported plants</p> <ul style="list-style-type: none"> • Communicate with suppliers to arrange the importation of plants • Handle the quarantine, customs declaration and customs clearance procedures for imported plants, for example, applying for the Plant Import Licence and Phytosanitary Certificate • Contact suppliers that provide nursery stock transportation services to handle the transportation arrangements after the plants arrive in Hong Kong • Arrange for the imported plants to be temporarily stored in a transit nursery if necessary and wait for the actual delivery arrangements • Handle all administrative arrangements in the importation process as required by law <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Handle the imported plants cautiously and conduct stringent reviews to prevent the introduction of pests and diseases that may lead to serious ecological disasters, endangering the local species
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to handle the relevant procedures for the importation of plants in accordance with the legal requirements; and • Able to arrange transportation service providers to undertake the related transportation arrangements.
Remark	

Specification of Competency Standards
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Unit of Competency

Functional Area - Plant Selection, Cultivation and Propagation

Title	Arrange nursery stock transportation
Code	109075L3
Range	This unit of competency is applicable to line managers who are engaged in nursery stock transportation in the arboriculture and horticulture industry. Practitioners should be capable of inspecting and properly handling the nursery stock to be transported, as well as arranging suitable means and routes of transportation, ensuring that the nursery stock are delivered in a timely manner and that their quality meets the acceptance standards.
Level	3
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to arranging nursery stock transportation</p> <ul style="list-style-type: none"> • Comprehend the processes and knowledge of arranging nursery stock transportation, such as techniques for lifting and lowering nursery stock, and remedial measures for handling injured nursery stock • Comprehend the skills and knowledge of nursery stock inspection • Comprehend the established code of practice and safety guidelines of the organisation for transporting nursery stock • Comprehend the packaging specifications, placement methods and protective measures when transporting nursery stock • Know about the different means of transportation for nursery stock • Comprehend the contingency measures for transporting nursery stock in inclement weather • Comprehend the laws related to transportation and road use <p>2. Arrange nursery stock transportation</p> <ul style="list-style-type: none"> • Check the health conditions and overall appearance of the nursery stock to ensure that they meet the acceptance specifications and standards • Arrange suitable means and routes of transportation • Count and record the quantity of nursery stock to be transported • Instruct porters to lift and lower nursery stock, and implement corresponding protective measures • Check that labels are put on the package surface of nursery stock, listing their age, quantity, grade, name of nursery, etc. • Check that the packaging specifications, placement methods and protective measures of the nursery stock meet the standards, avoiding damage during transportation <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Pay attention to sudden weather changes or other situations and adopt suitable contingency measures in a flexible manner
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to check the health conditions and overall appearance of the nursery stock to ensure that they meet the acceptance standards; • Able to check that the packaging specifications, placement methods and protective measures of the nursery stock meet the standards; and • Able to arrange suitable means and routes of transportation, and instruct workers to lift and lower nursery stock properly.

Specification of Competency Standards
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Unit of Competency

Functional Area - Plant Selection, Cultivation and Propagation

Remark	
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Specification of Competency Standards
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Unit of Competency

Functional Area - Plant Selection, Cultivation and Propagation

Title	Supervise the operation of nurseries
Code	109076L4
Range	This unit of competency is applicable to technicians who are engaged in supervising the operation of nurseries in the arboriculture and horticulture industry. Practitioners should be capable of supervising the production and caring work in nurseries according to their daily operation mechanisms, and handling matters related to the administrative and technical management of nurseries.
Level	4
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to supervising the operation of nurseries</p> <ul style="list-style-type: none"> • Possess knowledge of the technical management of nurseries, such as irrigation and fertilisation management, soil management, temperature regulation, sunlight and lighting control, pest and disease management, and seed treatment • Possess knowledge of the administrative management of nurseries, such as cost control and staff management • Comprehend the methods for monitoring the production and caring of nursery stock • Know about the production quantity and quality requirements of nursery stock • Comprehend the code of practice and safety guidelines of the daily work in nurseries • Comprehend the various contingency plans of nurseries <p>2. Supervise the operation of nurseries</p> <ul style="list-style-type: none"> • Supervise the production and caring work in nurseries to ensure the quality of nursery stock and maintain their production speed, so as to meet the delivery dates specified in the contracts • Supervise staff to implement the code of practice and safety guidelines • Deploy staff to implement corresponding nursery stock management and contingency measures in response to the production status of nursery stock and weather changes • Manage the operation and safety of warehouses, and store chemicals, nursery stock, machinery, tools and other planting materials separately • Handle the administrative matters of nurseries, such as staff recruitment, management of nursery operation and production records, and development of inventory lists • Handle technical management of nurseries, such as irrigation and fertilisation management, soil management, and pest and disease management • Report to superiors regularly on the operation of the nurseries, such as nursery stock production, staff performance and financial status <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Review the current management mechanism in a timely manner and suggest ways to optimise the operation mode, so as to improve the overall efficiency • Arrange staff to receive training in planting and caring techniques to improve the overall work efficiency
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to supervise staff to carry out various production and caring work in nurseries in accordance with the code of practice and safety guidelines to ensure that the quality of nursery stock meets the requirements;

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Functional Area - Plant Selection, Cultivation and Propagation

	<ul style="list-style-type: none">• Able to supervise the overall daily operation of nurseries and report to superiors regularly; and• Able to handle matters related to the administrative and technical management of nurseries.
Remark	

Specification of Competency Standards
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Unit of Competency

Functional Area - Plant Selection, Cultivation and Propagation

Title	Establish nurseries
Code	109077L6
Range	This unit of competency is applicable to managers who are engaged in the establishment of nurseries in the arboriculture and horticulture industry. Practitioners should be capable of establishing suitable nurseries and making site plans for the nurseries in accordance with the job requirements or the development needs of the organisation, as well as formulating the daily operation mechanisms and various codes of practice for the nurseries.
Level	6
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to establishing nurseries</p> <ul style="list-style-type: none"> • Comprehend the goals and purposes of the establishment of the nurseries, and the procedures involved and resources required • Master the knowledge of developing plans for nursery establishment • Master the principles and methods of planning the land use of nurseries • Comprehend the types of plants suitable for cultivating in the nurseries and their propagation methods • Master the knowledge of choosing nursery locations, such as climate, soil type, traffic, location and topography • Comprehend the facilities, tools and machinery needed for the daily operation of nurseries • Comprehend the government regulations and contract requirements related to the establishment of nurseries <p>2. Establish nurseries</p> <ul style="list-style-type: none"> • Develop nursery establishment plans, such as manpower, facilities, tools, machinery, construction costs, working capital and land use planning of the nurseries • Choose nursery locations that meet the requirements of the organisation • Make site plans for the nurseries, setting up nursery stock production areas, various warehouses, staff resting areas, etc. • Devise the propagation methods of the plants of the nurseries and the workflow • Select suitable plant species for production • Manage the administrative matters of the nurseries, such as staff employment, purchasing, repairing and replacing equipment • Formulate the quality requirements of the plants of the nurseries and the monitoring mechanism for the production processes • Formulate the codes of practice, safety guidelines and contingency plans for the daily operation of the nurseries <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Set clear directions and work targets for the establishment of the nurseries, leading the team to complete the construction work effectively
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to choose suitable nursery locations and formulate budget plans according to the development needs of the organisation;

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Functional Area - Plant Selection, Cultivation and Propagation

	<ul style="list-style-type: none">• Able to make site plans of the nurseries effectively to facilitate the production and caring work of the nurseries; and• Able to formulate the daily operation mechanisms of the nurseries and handle administrative matters related to the establishment of nurseries.
Remark	

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Unit of Competency

Functional Area - Plant Selection, Cultivation and Propagation

Title	Develop industry standards of nursery stock
Code	109078L6
Range	This unit of competency is applicable to managers who are engaged in developing industry standards of nursery stock in the arboriculture and horticulture industry. Practitioners should be capable of mastering the current nursery stock specifications and contract requirements, collating views of trade, and setting objective criteria and indicators for developing industry standards of nursery stock.
Level	6
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to developing industry standards of nursery stock</p> <ul style="list-style-type: none"> • Comprehend the objective criteria for classifying nursery stock standards • Master the market requirements on the quality of nursery stock • Master the existing specifications and quality objectives of nursery stock • Comprehend the acceptance standards of nursery stock specified in the current tender documents and contracts • Comprehend the laws and guidelines related to nursery stock standards <p>2. Develop industry standards of nursery stock</p> <ul style="list-style-type: none"> • Analyse the current specifications of nursery stock standards and the quality objectives specified in the contracts • Analyse the industry expectations for the nursery stock standards based on the market requirements on nursery stock quality • Prepare the objective criteria for determining nursery stock standards based on the analysis results • Organise industry advisory committees and working groups to discuss the objective criteria of nursery stock standards • Coordinate the opinions of stakeholders in the industry and revise the draft nursery stock standards • Plan public consultation on the draft nursery stock standards to gather views from the industry • Optimise and adjust the content of the draft based on the consultation results
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to analyse the current specifications of nursery stock standards, contract requirements and industry expectations to draw up the initial framework and determination criteria of nursery stock standards; • Able to prepare the objective criteria for determining nursery stock standards for discussion by relevant committees and working groups in detail; and • Able to optimise and adjust the content of the draft based on the opinions from the industry consultation, so as to meet the needs of the industry.
Remark	

Specification of Competency Standards
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Unit of Competency

Functional Area - Planting, Caring and Management of Plants

Title	Plant trees
Code	109079L1
Range	This unit of competency is applicable to frontline personnel who are engaged in tree planting in the arboriculture and horticulture industry. Practitioners should be capable of mastering the practical work skills for planting trees and operating related tools to carry out caring operations after planting the trees according to the instructions of superiors.
Level	1
Credit	2 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to planting trees</p> <ul style="list-style-type: none"> • Comprehend the working procedures for planting trees • Comprehend the technical guidelines and requirements for planting trees • Comprehend the proper use and maintenance of tree planting tools • Comprehend the techniques and procedures for digging tree pits • Comprehend the procedures for supporting and securing trees • Comprehend the relevant command signals for lifting trees • Comprehend the transportation arrangements for planting trees • Comprehend the working guidelines and safety codes of the organisation <p>2. Plant trees</p> <ul style="list-style-type: none"> • Fence off the work areas and assist in implementing temporary traffic measures according to the instructions of superiors • Operate related tools to dig tree pits that meet the requirements of the planting plans • Assist in lifting and moving the trees that need to be planted to the pits • Carry out caring operations after planting the trees, such as setting up guy support systems to secure the trees, mulching and irrigating • Clean up the work sites and maintain the related tools
Assessment Criteria	<p>The integrated outcome requirement of this unit of competency is:</p> <ul style="list-style-type: none"> • Able to operate related tools to carry out tree planting operations as well as caring operations after planting according to the instructions of superiors.
Remark	

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Functional Area - Planting, Caring and Management of Plants

Title	Transplant trees
Code	109080L2
Range	This unit of competency is applicable to frontline personnel who are engaged in tree transplanting in the arboriculture and horticulture industry. Practitioners should be capable of mastering the practical work skills for transplanting trees and operating related tools to carry out caring operations after transplanting the trees according to the instructions of superiors.
Level	2
Credit	2 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to transplanting trees</p> <ul style="list-style-type: none"> • Comprehend the working procedures for transplanting trees • Comprehend the technical guidelines and requirements for transplanting trees • Comprehend the proper use and maintenance of tree transplanting tools • Comprehend the caring procedures after transplanting the trees • Comprehend the relevant command signals for lifting trees • Comprehend the transportation arrangements for transplanting trees • Comprehend the working guidelines and safety codes of the organisation <p>2. Transplant trees</p> <ul style="list-style-type: none"> • Fence off the work areas and assist in implementing temporary traffic measures according to the instructions of superiors • Operate related tools to carry out excavation and root cutting in stages at the transplanting sites • Prune roots to form root balls of proper sizes according to the instructions of superiors • Carry out root ball protection operations after completing the excavation and wrap the root balls with protective materials properly • Assist in lifting and moving the trees that need to be transplanted to the transport equipment or the tree pits • Prepare suitable tree pits for transplanting the trees • Carry out caring operations after transplanting the trees, such as setting up guy support systems to secure the trees, mulching and irrigating • Clean up the work sites and maintain the related machinery and tools <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • When cutting the roots, ensure that the cuts are clean to avoid tearing or breaking the roots
Assessment Criteria	<p>The integrated outcome requirement of this unit of competency is:</p> <ul style="list-style-type: none"> • Able to operate related tools to carry out tree transplanting operations as well as caring operations after transplanting according to the instructions of superiors.
Remark	

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Unit of Competency

Functional Area - Planting, Caring and Management of Plants

Title	Carry out tree removal at ground level
Code	109081L2
Range	This unit of competency is applicable to frontline personnel who are engaged in tree removal in the arboriculture and horticulture industry. Practitioners should be capable of mastering the practical work skills for removing trees, and operating suitable tools and machinery to carry out tree removal operations at ground level according to the instructions of superiors.
Level	2
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to carrying out tree removal at ground level</p> <ul style="list-style-type: none"> • Comprehend the working procedures for removing trees and the preset escape routes • Comprehend the proper use and maintenance of related machinery and tools • Comprehend the techniques and knowledge of removing trees • Comprehend the transportation arrangements after tree removal • Comprehend the skills for handling the branches and trunks of removed trees • Comprehend the practical work skills for using cables at ground level • Comprehend the methods and skills for communicating with support staff • Comprehend the working guidelines and safety codes of the organisation <p>2. Carry out tree removal at ground level</p> <ul style="list-style-type: none"> • Fence off the work areas and assist in implementing temporary traffic measures according to the instructions of superiors • Clear the debris within the area of the escape routes to ensure that the escape routes are free from obstruction • Operate related tools and machinery to remove trees in accordance with the procedures stated in the work plans • Use cables to control the descending direction and speed of removed trunks • Clear large branches removed and clean up the work sites • Maintain the related machinery and tools <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Maintain safety awareness at all times and strictly enforce the safety precautionary measures related to tree removal
Assessment Criteria	<p>The integrated outcome requirement of this unit of competency is:</p> <ul style="list-style-type: none"> • Able to operate related tools and machinery in accordance with the instructions of superiors to remove trees at ground level and carry out subsequent operations after tree removal.
Remark	

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Functional Area - Planting, Caring and Management of Plants

Title	Remove tree stumps
Code	109082L2
Range	This unit of competency is applicable to frontline personnel who are engaged in tree stump removal in the arboriculture and horticulture industry. Practitioners should be capable of mastering the practical work skills for removing tree stumps, and operating suitable tools and machinery to remove tree stumps according to the instructions of superiors.
Level	2
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Posses knowledge related to removing tree stumps</p> <ul style="list-style-type: none"> • Comprehend the working procedures for removing tree stumps • Comprehend the proper use and maintenance of machinery and tools for tree stump removal • Comprehend the techniques and knowledge of removing tree stumps • Comprehend the relevant command signals for lifting tree stumps • Comprehend the transportation arrangements after tree stump removal • Comprehend the skills for handling removed tree stumps • Comprehend the working guidelines and safety codes of the organisation <p>2. Remove tree stumps</p> <ul style="list-style-type: none"> • Fence off the work areas and assist in implementing temporary traffic measures according to the instructions of superiors • Operate related machinery to remove the part of tree stump that is above ground according to the instructions of superiors • Carry out excavation manually or with machinery to remove tree stumps completely according to the instructions of superiors • Assist in lifting the removed tree stumps to the transport equipment • Handle infected tree stumps properly and disinfect the surrounding areas according to the instructions of superiors • Clear the removed tree stumps and clean up the work sites • Fill the holes left after tree stumps are removed with soil • Maintain the related machinery and tools
Assessment Criteria	<p>The integrated outcome requirement of this unit of competency is:</p> <ul style="list-style-type: none"> • Able to operate related tools and machinery according to the instructions of superiors to remove tree stumps and carry out subsequent operations after tree stump removal.
Remark	

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Functional Area - Planting, Caring and Management of Plants

Title	Supervise tree planting
Code	109083L3
Range	This unit of competency is applicable to supervisors who are engaged in tree planting in the arboriculture and horticulture industry. Practitioners should be capable of supervising and guiding staff to carry out tree planting according to the requirements of the work plans, as well as adjusting the work schedule in a timely manner, ensuring that the planting operations meet the quality objectives and safety standards.
Level	3
Credit	4 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to supervising tree planting</p> <ul style="list-style-type: none"> • Comprehend the tree planting work plans • Comprehend the working procedures for planting trees and the related technical guidelines and requirements • Possess knowledge of the planting depth of trees and the space required for root growth • Comprehend the techniques and procedures for planting trees • Comprehend the methods and guidelines for digging tree pits • Comprehend the working procedures, safety requirements and related command signals for lifting trees • Comprehend the quality objectives of tree planting and the related safety measures • Comprehend the qualification requirements of the staff, and the use and safety specifications of the personal protective equipment • Comprehend the practical arrangements for implementing temporary traffic measures <p>2. Supervise tree planting</p> <ul style="list-style-type: none"> • Explain the objectives, working procedures and points to note of the planting plans to the staff • Arrange the jobs of the staff and allocate relevant tools to facilitate the tree planting operations • Guide staff to put on suitable personal protective equipment and conduct pre-work safety checks • Arrange staff to fence off the work areas and assist in implementing temporary traffic measures • Supervise staff to carry out tree planting operations, ensuring that each process meets the quality objectives and safety standards • Guide staff to dig tree pits as required • Guide staff to assist in lifting operations and follow signallers' commands to lift trees to the pits for planting • Arrange staff to perform caring operations after planting, such as setting up guy support systems to secure the trees, mulching and irrigating • Inspect the work sites regularly and record the work progress, as well as adjust the work schedule and report to superiors in a timely manner
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to supervise staff to carry out tree planting in accordance with the established codes of practice and safety guidelines;

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Functional Area - Planting, Caring and Management of Plants

	<ul style="list-style-type: none">• Able to arrange the jobs of staff appropriately and allocate the required tools for them to carry out the planting operations;• Able to supervise staff to properly complete the various processes and safety measures of the tree planting operations in accordance with the requirements of the work plans, so as to ensure that the operations meet the quality objectives and safety standards; and• Able to adjust the work schedule in a timely manner to ensure that the tree planting operations can be completed on schedule.
Remark	

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Functional Area - Planting, Caring and Management of Plants

Title	Supervise tree transplanting
Code	109084L4
Range	This unit of competency is applicable to supervisors who are engaged in tree transplanting in the arboriculture and horticulture industry. Practitioners should be capable of supervising and guiding staff to carry out tree transplanting according to the requirements of the work plans and the actual circumstances, as well as adjusting the work schedule in a timely manner, ensuring that the transplanting operations meet the quality objectives and safety standards.
Level	4
Credit	4 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to supervising tree transplanting</p> <ul style="list-style-type: none"> • Comprehend the tree transplanting work plans of the organisation • Comprehend the working procedures for transplanting trees and the related technical guidelines and requirements, such as the types of support • Comprehend the various stages of excavation and the proper procedures for handling root balls • Comprehend the transportation arrangements for transplanting trees • Possess knowledge related to the checking of the structure and health conditions of trees • Comprehend the working procedures, safety requirements and related command signals for lifting trees • Comprehend the quality objectives of tree transplanting and the related safety measures • Comprehend the qualification requirements of the staff, and the use and safety specifications of the personal protective equipment • Comprehend the practical arrangements for implementing temporary traffic measures <p>2. Supervise tree removal</p> <ul style="list-style-type: none"> • Explain the objectives, working procedures and points to note of the work plans to the staff • Arrange the jobs of the staff and allocate relevant tools to facilitate the tree transplanting operations • Guide staff to put on suitable personal protective equipment and conduct pre-work safety checks • Arrange staff to fence off the work areas and assist in implementing temporary traffic measures • Supervise staff to carry out tree transplanting operations, ensuring that each process meets the quality objectives and safety standards • Guide staff to assist in lifting operations and follow signallers' commands to lift trees that need to be transplanted to the transport equipment or tree pits • Check the health conditions of the trees after transplanting and adopt suitable remedial measures if necessary • Arrange staff to perform caring operations after transplanting, such as setting up guy support systems to secure the trees, mulching and irrigating • Inspect the work sites regularly and record the work progress, as well as adjust the work schedule and report to superiors in a timely manner <p>3. Exhibit professionalism</p>

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	<ul style="list-style-type: none"> • Impose a stringent control over the various procedures of the tree transplanting operations to ensure their quality • Make suitable adjustments to the arrangement of the tree transplanting operations according to the actual circumstances and report the changes to superiors
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to supervise staff to carry out tree transplanting in accordance with the established work plans; • Able to arrange the jobs of staff appropriately and allocate the required tools for them to carry out the transplanting operations; • Able to supervise staff to properly complete the various processes and safety measures of the tree transplanting operations according to the actual circumstances, so as to ensure that the operations meet the quality objectives and safety standards; and • Able to adjust the work schedule in a timely manner to ensure that the tree transplanting operations can be completed on schedule.
Remark	

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Functional Area - Planting, Caring and Management of Plants

Title	Supervise tree removal
Code	109085L4
Range	This unit of competency is applicable to supervisors who are engaged in tree removal in the arboriculture and horticulture industry. Practitioners should be capable of supervising and guiding staff to carry out tree removal according to the requirements of the work plans and the actual circumstances, as well as adjusting the work schedule in a timely manner, ensuring that the tree removal operations meet the quality objectives and safety standards.
Level	4
Credit	4 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to supervising tree removal</p> <ul style="list-style-type: none"> • Comprehend the tree removal work plans of the organisation • Comprehend the working principles, proper use and maintenance methods of related tools and machinery • Comprehend the working procedures for removing trees and the related technical guidelines and requirements • Comprehend the precautions for setting up safe escape routes • Comprehend the methods and skills for communicating with operators • Comprehend the quality objectives, site safety measures and emergency procedures for tree removal operations • Comprehend the actual operation for implementing temporary traffic measures and the transportation arrangements after removing the trees • Comprehend the qualification requirements of the staff, and the use and safety specifications of the personal protective equipment • Comprehend the working principles and application methods of rigging systems and the use of cables at ground level <p>2. Supervise tree removal</p> <ul style="list-style-type: none"> • Explain the objectives, working procedures and points to note of the work plans to the staff • Arrange the jobs of the staff and allocate relevant tools to facilitate the tree removal operations • Guide staff to put on suitable personal protective equipment and conduct pre-work safety checks • Arrange staff to fence off the work areas and assist in implementing temporary traffic measures • Arrange staff to set up safe escape routes according to the requirements of the work plans • Supervise staff to remove trees, ensuring that each process meets the quality objectives and safety standards • Guide staff to install and use rigging systems to transport tools and removed trunks or branches • Guide staff to control the descending direction and speed of removed trunks or branches using cables • Guide staff to properly handle the clearing and transportation of infected trunks or branches • Inspect the work sites regularly and record the work progress, as well as adjust the work schedule and report to superiors in a timely manner

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	<p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Inspect the internal structure of the trees in advance and take corresponding preventive measures before removing the trees • Handle unexpected accidents that happen during tree removal properly and guide staff to implement emergency measures
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to supervise staff to carry out tree removal in accordance with the established work plans; • Able to arrange the jobs of staff appropriately and allocate the required tools for them to carry out tree removal safely; • Able to supervise staff to properly complete the various processes and safety measures of the tree removal operations according to the actual circumstances, so as to ensure that the operations meet the quality objectives and safety standards; and • Able to adjust the work schedule in a timely manner to ensure that the tree removal operations can be completed on schedule.
Remark	

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Functional Area - Planting, Caring and Management of Plants

Title	Supervise tree stump removal
Code	109086L4
Range	This unit of competency is applicable to supervisors who are engaged in tree stump removal in the arboriculture and horticulture industry. Practitioners should be capable of supervising and guiding staff to carry out tree stump removal according to the requirements of the work plans and the actual circumstances, as well as adjusting the work schedule in a timely manner, ensuring that the tree stump removal operations meet the quality objectives and safety standards.
Level	4
Credit	4 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Posses knowledge related to supervising tree stump removal</p> <ul style="list-style-type: none"> • Comprehend the tree stump removal work plans of the organisation • Comprehend the working principles, proper use and maintenance methods of related tools and machinery • Comprehend the working procedures for removing tree stumps and the related technical guidelines and requirements • Comprehend the basic structure of tree stumps • Comprehend various methods for removing tree stumps • Comprehend the working procedures, safety requirements and related command signals for lifting tree stumps • Comprehend the measures for handling infected tree stumps and the transportation arrangements after tree stump removal • Comprehend the quality objectives, site safety measures and emergency procedures for tree stump removal operations • Comprehend the actual operation for implementing temporary traffic measures • Comprehend the qualification requirements of the staff, and the use and safety specifications of the personal protective equipment <p>2. Supervise tree stump removal</p> <ul style="list-style-type: none"> • Explain the objectives, working procedures and points to note of the work plans to the staff • Arrange the jobs of the staff and allocate relevant tools to facilitate the tree stump removal operations • Guide staff to put on suitable personal protective equipment and conduct pre-work safety checks • Arrange staff to fence off the work areas and assist in implementing temporary traffic measures • Adjust the methods for removing tree stumps suitably according to the actual circumstances • Supervise staff to remove tree stumps, ensuring that each process meets the quality objectives and safety standards • Guide staff to assist in lifting operations and follow signallers' commands to lift removed tree stumps to the transport equipment • Guide staff to properly handle the infected tree stumps and disinfect the surrounding areas • Inspect the work sites regularly and record the work progress, as well as adjust the work schedule and report to superiors in a timely manner

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Assessment Criteria	The integrated outcome requirements of this unit of competency are: <ul style="list-style-type: none">• Able to supervise staff to carry out tree stump removal in accordance with the established work plans;• Able to arrange the jobs of staff appropriately and allocate the required tools for them to carry out tree stump removal safely;• Able to supervise staff to properly complete the various processes and safety measures of the tree stump removal operations according to the actual circumstances, so as to ensure that the operations meet the quality objectives and safety standards; and• Able to adjust the work schedule in a timely manner to ensure that the tree stump removal operations can be completed on schedule.
Remark	

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Functional Area - Planting, Caring and Management of Plants

Title	Prepare work plans for tree planting
Code	109087L4
Range	This unit of competency is applicable to managers or technical personnel who are engaged in tree planting in the arboriculture and horticulture industry. Practitioners should be capable of mastering the methods of tree planting and the job requirements of related operations. They should also be able to prepare the corresponding work plans for tree planting and plan the caring measures after planting the trees in accordance with the characteristics of the planting environment and the types of tree seedlings.
Level	4
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to preparing work plans for tree planting</p> <ul style="list-style-type: none"> • Comprehend the working procedures, standards, relevant technical knowledge and requirements of relevant guidelines for tree planting • Comprehend the methods and points to note for planting different types of trees, such as the types of support and the ways to use them • Comprehend the requirements of the tree planting operations • Possess knowledge of tree biology • Comprehend the methods of planting tree seedlings and the caring measures after planting • Comprehend the types of prefabricated underground planting components and the key points in using them • Comprehend the requirements and constraints of different environment on tree planting, such as nearby public facilities • Comprehend the personnel arrangement of tree planting operations, relevant qualification requirements, and allocation of tools and resources • Comprehend the relevant procedures for arranging temporary traffic measures and protection measures on the ground • Comprehend the relevant legislation on road use and guidelines for lifting operations <p>2. Prepare work plans for tree planting</p> <ul style="list-style-type: none"> • Discuss with various stakeholders to confirm the species of trees to be planted and their functional requirements • Conduct field surveys on the work sites to assess the planting environment, such as the topography, soil quality, soil thickness, soil type, and nearby high-rise and underground public facilities • Plan corresponding measures in response to the environmental constraints on the tree planting operations, such as notifying the relevant organisations of the public facilities being affected and communicating with other professionals to determine the underground supporting facilities required for the planting operations • Analyse the suitability of the planting environment and adopt measures to improve the planting environment if necessary • Plan the planting operations according to the job requirements and the planting environment • Plan related transportation arrangements and protection measures on the ground according to the working space of the planting environment and nearby road conditions, such as arranging lifting routes, transport equipment, temporary traffic measures and fencing off work areas

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Functional Area - Planting, Caring and Management of Plants

	<ul style="list-style-type: none"> • Develop the working procedures, working guidelines and safety codes for tree planting • Develop the work schedules, work objectives and quality objectives of work processes for tree planting operations • Plan corresponding manpower and resource allocation with regard to the sizes of the trees and the environmental constraints • Develop monitoring and assessment mechanisms for tree planting projects • Plan the caring arrangements and protection measures after planting the trees <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Adopt new techniques in the work plans in regard to the development of the industry to enhance the tree planting standard
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to prepare the corresponding tree planting work plans in accordance with the job requirements, stakeholders' opinions and analysis results of the planting environment; • Able to assess the environmental constraints on the tree planting operations and plan appropriate measures accordingly to ensure that the planting operations can be undertaken in a safe manner; • Able to develop monitoring and assessment mechanisms for tree planting projects to ensure that the work progress and quality meet the specified requirements; and • Able to plan the caring arrangements and protection measures after planting the trees to ensure the structural safety of the trees.
Remark	

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Functional Area - Planting, Caring and Management of Plants

Title	Prepare work plans for tree transplanting
Code	109088L4
Range	This unit of competency is applicable to managers or technical personnel who are engaged in tree transplanting in the arboriculture and horticulture industry. Practitioners should be capable of mastering the methods of tree transplanting and the job requirements of related operations. They should also be able to prepare the corresponding work plans for tree transplanting and plan the caring measures after transplanting the trees in accordance with the health conditions of the trees and the constraints of the transplanting environment.
Level	4
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to preparing work plans for tree transplanting</p> <ul style="list-style-type: none"> • Comprehend the working procedures, standards, relevant technical knowledge and requirements of relevant guidelines for tree transplanting • Comprehend the methods and points to note for transplanting different types of trees, such as the types of support and the ways to use them • Comprehend the requirements of the tree transplanting operations • Possess knowledge of tree biology and the techniques for caring for trees • Comprehend the constraints of different environment on tree transplanting, such as nearby public facilities • Comprehend the personnel arrangement of tree transplanting operations, relevant qualification requirements, and allocation of tools and resources • Comprehend the relevant procedures for arranging temporary traffic measures and protection measures on the ground • Comprehend the relevant legislation on road use and guidelines for lifting operations <p>2. Prepare work plans for tree transplanting</p> <ul style="list-style-type: none"> • Conduct field surveys on the work sites to assess the structure of the trees to be transplanted and the surrounding environment, such as the topography, and nearby high-rise and underground public facilities • Plan corresponding measures in response to the environmental constraints on the tree transplanting operations, such as notifying the relevant organisations of the public facilities being affected and arranging professionals to help detect underground public facilities • Inspect the structure and health conditions of the trees to verify the suitability of transplanting the trees • Develop appropriate tree transplanting plans and caring measures after transplantation in respect of the characteristics of the tree species and the planting locations • Estimate the weights of the trees to be transplanted so as to arrange suitable lifting tools • Plan suitable transportation arrangements and protection measures on the ground according to the working space of the transplanting environment and nearby road conditions, such as arranging lifting routes, transport equipment, temporary traffic measures and fencing off work areas • Develop the working procedures, working guidelines and safety codes for tree transplanting • Develop the work schedules, work objectives and quality objectives of work processes for tree transplanting operations

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Functional Area - Planting, Caring and Management of Plants

	<ul style="list-style-type: none"> • Plan corresponding manpower and resource allocation with regard to the sizes of the trees and the environmental constraints • Develop monitoring and assessment mechanisms for tree transplanting projects • Plan the caring arrangements and protection measures after transplanting the trees
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to prepare the corresponding tree transplanting work plans in accordance with the job requirements, types of trees and environmental constraints; • Able to assess the environmental constraints on the tree transplanting operations and plan appropriate measures accordingly to ensure that the transplanting operations can be undertaken in a safe manner; • Able to develop monitoring and assessment mechanisms for tree transplanting projects to ensure that the work progress and quality meet the specified requirements; and • Able to plan the caring arrangements and protection measures after transplanting the trees to ensure the structural safety of the trees.
Remark	

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Functional Area - Planting, Caring and Management of Plants

Title	Prepare work plans for tree removal
Code	109089L4
Range	This unit of competency is applicable to managers or technical personnel who are engaged in tree removal in the arboriculture and horticulture industry. Practitioners should be capable of mastering the methods of tree removal and the job requirements of related operations. They should also be able to prepare the corresponding work plans for tree removal in accordance with the environmental constraints, and the structure and health conditions of the trees.
Level	4
Credit	4 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to preparing work plans for tree removal</p> <ul style="list-style-type: none"> • Comprehend the working procedures, standards, relevant technical knowledge and requirements of relevant guidelines for tree removal • Comprehend the treatment methods for removing different types of trees and the corresponding disposal methods • Comprehend the requirements of the tree removal operations • Possess knowledge of tree biology and the techniques for inspecting the health and structure of trees • Comprehend the requirements and constraints of different environment on tree removal, such as nearby wildlife habitat • Comprehend the personnel arrangement of tree removal operations, relevant qualification requirements, and allocation of tools and resources • Comprehend the relevant procedures for arranging temporary traffic measures and protection measures on the ground • Comprehend the hazard assessment, site safety measures and emergency procedures for tree removal operations • Comprehend the legislation and guidelines related to tree removal <p>2. Prepare work plans for tree removal</p> <ul style="list-style-type: none"> • Conduct field surveys on the work sites to assess the tree structure and the surrounding environment, such as the topography, nearby high-rise and underground public facilities, nearby wildlife habitat and protected plants on the trees • Plan corresponding measures in response to the environmental constraints on the tree removal operations, such as notifying the relevant organisations of the public facilities being affected and arranging professionals to help monitor the tree removal operations • Plan the felling direction of the trees and the safe escape routes • Select appropriate tree removal methods in regard to the environmental constraints and the tree structure • Develop the approaches for handling and disposing of wood chips • Develop the working procedures, working guidelines and safety codes for tree removal • Develop the work schedules, work objectives and quality objectives of work processes for tree removal operations • Plan appropriate transportation arrangements and protection measures on the ground according to the working space and the nearby road conditions, such as arranging transport equipment, temporary traffic measures and fencing off work areas • Plan corresponding manpower and resource allocation with regard to the sizes of the trees and the environmental constraints • Develop monitoring and assessment mechanisms for tree removal projects

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	<p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Inspect the structure and health conditions of the trees and assess the necessity of removing the related trees to ensure public safety and control the spread of pests and diseases
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to prepare the corresponding tree removal work plans in accordance with the job requirements, tree structure and environmental constraints; • Able to assess the environmental constraints on the tree removal operations and plan appropriate measures accordingly to ensure that the tree removal operations can be undertaken in a safe manner; and • Able to develop monitoring and assessment mechanisms for tree removal projects to ensure that the work progress and quality meet the specified requirements.
Remark	

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Functional Area - Planting, Caring and Management of Plants

Title	Prepare work plans for tree stump removal
Code	109090L4
Range	This unit of competency is applicable to managers or technical personnel who are engaged in tree stump removal in the arboriculture and horticulture industry. Practitioners should be capable of mastering the methods of tree stump removal and the job requirements of related operations. They should also be able to prepare the corresponding work plans for tree stump removal in accordance with the environmental constraints and the sizes of the tree stumps.
Level	4
Credit	4 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to preparing work plans for tree stump removal</p> <ul style="list-style-type: none"> • Comprehend the working procedures, standards, relevant technical knowledge and requirements of relevant government guidelines for tree stump removal • Comprehend the various treatment and disposal methods for tree stump removal • Comprehend the requirements of the tree stump removal operations • Comprehend the basis structure of tree stumps, for example, a tree stump is composed of three parts: tree base, root collar and structural root • Comprehend the requirements and constraints of different environment on tree stump removal, such as nearby public facilities • Comprehend the personnel arrangement of tree stump removal operations, relevant qualification requirements, and allocation of tools and resources • Comprehend the relevant procedures for arranging temporary traffic measures and protection measures on the ground <p>2. Prepare work plans for tree stump removal</p> <ul style="list-style-type: none"> • Conduct field surveys on the work sites to assess the tree stump structure and the surrounding environment, such as the topography, stability of slopes, nearby underground public facilities and infection conditions of tree stumps • Plan corresponding measures in response to the environmental constraints on the tree stump removal operations, such as notifying the relevant organisations of the public facilities being affected and arranging professionals to help detect underground public facilities • Plan suitable treatment methods for tree stump removal based on the infection conditions, sizes and locations of the stumps, such as hand or machine digging, using grinders to smooth the stumps and disinfection arrangements • Plan appropriate transportation arrangements and protection measures on the ground according to the working space, sizes of stumps and the nearby road conditions, such as arranging lifting routes, transport equipment, temporary traffic measures and fencing off work areas • Develop the working procedures, working guidelines and safety codes for tree stump removal • Develop the work schedules, work objectives and quality objectives of work processes for tree stump removal operations • Plan corresponding manpower and resource allocation with regard to the sizes of the tree stumps and the environmental constraints • Develop monitoring and assessment mechanisms for tree stump removal projects

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	<p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Carefully consider the impact of various treatment methods on public safety before carrying out tree stump removal and control the spread of pests and diseases
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to prepare the corresponding tree stump removal work plans in accordance with the job requirements, sizes of tree stumps and environmental constraints; • Able to assess the environmental constraints on the tree stump removal operations and plan appropriate measures accordingly to ensure that the tree stump removal operations can be undertaken in a safe manner; and • Able to develop monitoring and assessment mechanisms for tree stump removal projects to ensure that the work progress and quality meet the specified requirements.
Remark	

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Functional Area - Planting, Caring and Management of Plants

Title	Carry out tree protection operations
Code	109091L1
Range	This unit of competency is applicable to frontline personnel who are engaged in tree protection operations in the arboriculture and horticulture industry. Practitioners should be capable of mastering the practical work skills for implementing tree protection and carrying out tree protection operations according to the instructions of superiors.
Level	1
Credit	2 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to carrying out tree protection operations</p> <ul style="list-style-type: none"> • Comprehend the working procedures for undertaking tree protection measures and the relevant technical requirements • Comprehend the proper use and maintenance of relevant tools • Comprehend the methods and techniques for measuring tree protection zones • Comprehend the practical work of various tree protection measures • Comprehend the working guidelines and safety codes of the organisation <p>2. Carry out tree protection operations</p> <ul style="list-style-type: none"> • Fence off the work areas according to the instructions of superiors • Apply suitable methods to measure the tree protection zones according to the instructions of superiors • Operate related tools to implement various tree protection measures, such as erecting sturdy cordon hoarding around the tree protection zones and building "tree islands" or "tree wells" to accommodate grade changes • Clean up the work sites and maintain the related tools
Assessment Criteria	<p>The integrated outcome requirement of this unit of competency is:</p> <ul style="list-style-type: none"> • Able to operate related tools to carry out tree protection operations according to the instructions of superiors.
Remark	

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Functional Area - Planting, Caring and Management of Plants

Title	Carry out tree maintenance operations
Code	109092L1
Range	This unit of competency is applicable to frontline personnel who are engaged in tree maintenance operations in the arboriculture and horticulture industry. Practitioners should be capable of mastering the practical work skills for implementing tree maintenance and carrying out tree maintenance operations according to the instructions of superiors.
Level	1
Credit	2 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to carrying out tree maintenance operations</p> <ul style="list-style-type: none"> • Comprehend the working procedures for undertaking tree maintenance measures and the relevant technical requirements • Comprehend the proper use and maintenance of relevant tools • Comprehend the practical work of various tree maintenance measures • Comprehend the working guidelines and safety codes of the organisation <p>2. Carry out tree maintenance operations</p> <ul style="list-style-type: none"> • Fence off the work areas and assist in implementing temporary traffic measures according to the instructions of superiors • Operate related tools to carry out tree maintenance operations, such as irrigation, fertilisation, providing support by staking and weeding • Install tree support systems according to the instructions of superiors, and check their stability and safety • Clean up the work sites and maintain the related tools <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Note any abnormalities appearing on trees carefully and report to superiors in a timely manner
Assessment Criteria	<p>The integrated outcome requirement of this unit of competency is:</p> <ul style="list-style-type: none"> • Able to operate related tools to carry out tree maintenance operations according to the instructions of superiors.
Remark	

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Functional Area - Planting, Caring and Management of Plants

Title	Prune trees
Code	109093L2
Range	This unit of competency is applicable to frontline personnel who are engaged in tree pruning operations in the arboriculture and horticulture industry. Practitioners should be capable of mastering the practical work skills for pruning trees, and operating suitable tools and machinery to prune trees according to the instructions of superiors.
Level	2
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to pruning trees</p> <ul style="list-style-type: none"> • Comprehend the purposes, methods and working procedures of different tree pruning operations • Possess knowledge of using elevating work platforms, podium steps and ladders to carry out tree pruning operations • Comprehend the proper use and maintenance methods of related machinery and tools • Comprehend the techniques, standards and requirements of related guidelines for tree pruning • Comprehend the handling and transportation arrangements of broken branches • Comprehend the methods and techniques for communicating with support staff • Comprehend the working guidelines and safety codes of the organisation • Comprehend the installation methods and actual operation of rigging systems <p>2. Prune trees</p> <ul style="list-style-type: none"> • Fence off the work areas and assist in implementing temporary traffic measures according to the instructions of superiors • Apply appropriate pruning methods to trim defective branches and control the volume of tree crowns according to the instructions of superiors • Use an elevating work platform, podium step or ladder to ascend to a certain height, and operate related tools and machinery to carry out pruning operations • Use rigging systems to transport tools and removed trunks or branches with cables • Clean up the work sites and maintain the related machinery and tools • Carry out remedial pruning to damaged trees • Carry out structural pruning to various trees <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Comply with the requirements of the pruning plans strictly to prune trees in a suitable way, avoiding unnecessary or excessive pruning
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to operate related tools and machinery to carry out tree pruning operations according to the instructions of superiors; and • Able to use rigging systems to transport tools and removed trunks or branches, and clean up the work sites according to the instructions of superiors.
Remark	

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Functional Area - Planting, Caring and Management of Plants

Title	Prune trees near overhead lines
Code	109094L3
Range	This unit of competency is applicable to technical personnel who are engaged in tree pruning operations near overhead lines in the arboriculture and horticulture industry. Practitioners should be capable of mastering the operation of the electric power system and the types of overhead lines. They should also be able to use appropriate methods to prune trees near overhead lines according to the locations of the power facilities and trees.
Level	3
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to pruning trees near overhead lines</p> <ul style="list-style-type: none"> • Comprehend the working principles, system structure and basic power safety knowledge of the electric power system • Comprehend the methods of reading electrical wiring diagrams and distribution maps of power supply equipment • Possess knowledge of distinguishing overhead lines with different voltages • Comprehend the working procedures for pruning trees near overhead lines and the safety measures that need to be taken • Possess knowledge of the safe distances between tree pruning operations and power facilities • Comprehend the potential risks and sources of hazards of tree pruning near overhead lines • Comprehend the use of non-conductive tools and protective equipment <p>2. Prune trees near overhead lines</p> <ul style="list-style-type: none"> • Identify the types of overhead lines, such as low voltage cables, high voltage cables and ultra high voltage cables • Use professional instruments to measure the distances between power facilities and trees to determine the extent of pruning • Study the electrical wiring diagrams and distribution maps of power supply equipment to identify the locations of the power facilities • Establish the safe working zones and fence off the work areas according to the locations of the power facilities and trees • Assess the level of risk of the tree pruning operations near the overhead lines with respect to the types of the overhead lines and the environmental constraints, so as to apply appropriate methods for the tree pruning operations • Use suitable non-conductive tools and personal protective equipment according to the needs of the operations <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Update the techniques and safety knowledge related to tree pruning near overhead lines regularly
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to accurately identify the types of overhead lines to assess the level of risk of the tree pruning operations; and

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	<ul style="list-style-type: none">• Able to undertake the safety measures before carrying out tree pruning operations near overhead lines and use appropriate methods to prunes trees in accordance with the types of overhead lines and the environmental constraints.
Remark	

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Functional Area - Planting, Caring and Management of Plants

Title	Supervise tree protection operations
Code	109095L3
Range	This unit of competency is applicable to supervisors who are engaged in tree protection operations in the arboriculture and horticulture industry. Practitioners should be capable of supervising and guiding staff to carry out tree protection operations according to the requirements of the work plans, as well as adjusting the work schedule in a timely manner, ensuring that the tree protection operations meet the quality objectives and safety standards.
Level	3
Credit	4 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to supervising tree protection operations</p> <ul style="list-style-type: none"> • Comprehend the tree protection work plans of the organisation • Comprehend the working principles, proper use and maintenance methods of related tools and machinery • Comprehend the established procedures of tree protection operations and the related technical requirements • Comprehend the techniques and knowledge of inspecting the conditions of the health and structure of trees • Comprehend various tree protection measures, such as erecting cordon hoarding, and building "tree islands" or "tree wells" to accommodate grade changes • Comprehend the quality objectives of tree protection operations and the related safety measures • Comprehend the qualification requirements of the staff, and the use and safety specifications of the personal protective equipment <p>2. Supervise tree protection operations</p> <ul style="list-style-type: none"> • Explain the objectives, working procedures and points to note of the tree protection work plans to the staff • Arrange the jobs of the staff and allocate relevant tools to facilitate the tree protection operations • Guide staff to put on suitable personal protective equipment and conduct pre-work safety checks • Supervise staff to carry out tree protection operations, ensuring that each process meets the quality objectives and safety standards • Guide staff to implement various tree protection measures, such as erecting cordon hoarding, and building "tree islands" or "tree wells" to accommodate grade changes • Adjust the related tree protection measures according to the work plans with regard to the work conditions, and the health and structure of the trees • Inspect the work sites and record the work progress, as well as adjust the work schedule and report to superiors in a timely manner <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Report to superiors proactively on any work activities violating the rules within the protected tree zones and plan the corresponding measures
Assessment Criteria	The integrated outcome requirements of this unit of competency are:

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	<ul style="list-style-type: none">• Able to supervise staff to carry out tree protection operations in accordance with the established codes of practice and safety guidelines;• Able to arrange the jobs of staff appropriately and allocate the required tools for them to carry out the tree protection operations;• Able to supervise staff to properly complete the various processes and safety measures of the tree protection operations in accordance with the requirements of the work plans, so as to ensure that the operations meet the quality objectives and safety standards; and• Able to adjust the work schedule in a timely manner to ensure that the tree protection operations can be completed on schedule.
Remark	

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Functional Area - Planting, Caring and Management of Plants

Title	Supervise tree maintenance operations
Code	109096L3
Range	This unit of competency is applicable to supervisors who are engaged in tree maintenance operations in the arboriculture and horticulture industry. Practitioners should be capable of supervising and guiding staff to carry out tree maintenance operations according to the requirements of the work plans, as well as adjusting the work schedule in a timely manner, ensuring that the tree maintenance operations meet the quality objectives and safety standards.
Level	3
Credit	4 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to supervising tree maintenance operations</p> <ul style="list-style-type: none"> • Comprehend the tree maintenance work plans of the organisation • Comprehend the working principles, proper use and maintenance methods of related tools and machinery • Comprehend the established procedures of tree maintenance operations and the related technical requirements • Comprehend the techniques and knowledge of inspecting the conditions of the health and structure of trees • Comprehend various tree maintenance measures, such as setting up tree support systems and carrying out general maintenance procedures • Comprehend the quality objectives of tree maintenance operations and the related safety measures • Comprehend the qualification requirements of the staff, and the use and safety specifications of the personal protective equipment • Comprehend the practical arrangements for implementing temporary traffic measures <p>2. Supervise tree maintenance operations</p> <ul style="list-style-type: none"> • Explain the objectives, working procedures and points to note of the tree maintenance work plans to the staff • Arrange the jobs of the staff and allocate relevant tools to facilitate the tree maintenance operations • Guide staff to put on suitable personal protective equipment and conduct pre-work safety checks • Arrange staff to fence off the work areas and assist in implementing temporary traffic measures • Supervise staff to carry out tree maintenance operations, ensuring that each process meets the quality objectives and safety standards • Guide staff to implement various tree maintenance measures, such as installing tree support systems and carrying out general maintenance procedures • Adjust the tree maintenance measures according to the work plans with regard to the changes of the structure and health conditions of the trees • Inspect the work sites and record the work progress, as well as adjust the work schedule and report to superiors in a timely manner
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to supervise staff to carry out tree maintenance operations in accordance with the established codes of practice and safety guidelines;

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	<ul style="list-style-type: none">• Able to arrange the jobs of staff appropriately and allocate the required tools for them to carry out the tree maintenance operations;• Able to supervise staff to properly complete the various processes and safety measures of the tree maintenance operations in accordance with the requirements of the work plans, so as to ensure that the operations meet the quality objectives and safety standards; and• Able to adjust the work schedule in a timely manner to ensure that the tree maintenance operations can be completed on schedule.
Remark	

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Functional Area - Planting, Caring and Management of Plants

Title	Supervise tree pruning operations
Code	109097L4
Range	This unit of competency is applicable to supervisors who are engaged in tree pruning operations in the arboriculture and horticulture industry. Practitioners should be capable of supervising and guiding staff to carry out tree pruning operations according to the requirements of the work plans, as well as adjusting the work schedule in a timely manner, ensuring that the tree pruning operations meet the quality objectives and safety standards.
Level	4
Credit	4 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to supervising tree pruning operations</p> <ul style="list-style-type: none"> • Comprehend the tree pruning work plans of the organisation • Comprehend the working principles, proper use and maintenance methods of related tools and machinery • Comprehend the working procedures, standards, related technical knowledge and requirements of related guidelines of tree pruning operations • Comprehend the techniques and knowledge of inspecting the conditions of the health and structure of trees • Comprehend the quality objectives of tree pruning operations and the related safety measures • Comprehend the qualification requirements of the staff, and the use and safety specifications of the personal protective equipment • Comprehend the methods and techniques for communicating with operators • Comprehend the practical arrangements for implementing temporary traffic measures • Comprehend the working principles and application methods of rigging systems <p>2. Supervise tree pruning operations</p> <ul style="list-style-type: none"> • Explain the objectives, working procedures and points to note of the tree pruning work plans to the staff • Arrange the jobs of the staff and allocate relevant tools or machinery to facilitate the tree pruning operations • Guide staff to put on suitable personal protective equipment and conduct pre-work safety checks • Arrange staff to fence off the work areas and assist in implementing temporary traffic measures • Supervise staff to inspect the safety of the rigging systems to ensure their smooth operation • Use instruments to measure the distances between tree crowns and buildings / public facilities to adjust the extent of pruning appropriately • Identify the branches on tree crowns that need to be pruned and guide staff to carry out the pruning operations • Supervise staff to carry out the tree pruning operations, ensuring that each process meets the quality objectives and safety standards • Guide staff to install and apply rigging systems to transport tools and removed trunks or branches with cables • Guide staff to handle infected trunks or branches appropriately, including cleaning up and transportation

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	<ul style="list-style-type: none"> • Inspect the work sites and record the work progress, as well as adjust the work schedule and report to superiors in a timely manner <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Always pay attention to the working conditions of the staff, ensure good communication, take adequate safety precautions and provide timely support to the staff working on trees
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to supervise staff to carry out tree pruning operations in accordance with the established codes of practice and safety guidelines; • Able to arrange the jobs of staff appropriately and allocate the required tools for them to carry out the tree pruning operations in a safe manner; • Able to supervise staff to properly complete the various processes and safety measures of the tree pruning operations in the light of the actual situation, so as to ensure that the operations meet the quality objectives and safety standards; and • Able to adjust the work schedule in a timely manner to ensure that the tree pruning operations can be completed on schedule.
Remark	

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Functional Area - Planting, Caring and Management of Plants

Title	Prepare work plans for tree pruning operations
Code	109098L4
Range	This unit of competency is applicable to managers or technical personnel who are engaged in tree pruning operations in the arboriculture and horticulture industry. Practitioners should be capable of mastering the methods of tree pruning and the job requirements of related operations. They should also be able to prepare the corresponding work plans for tree pruning operations in accordance with the environmental constraints and the structure and health conditions of trees.
Level	4
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to preparing work plans for tree pruning operations</p> <ul style="list-style-type: none"> • Comprehend the working procedures, standards, relevant technical knowledge and requirements of relevant guidelines for tree pruning operations • Comprehend the methods and opportune time for pruning different types of trees • Comprehend the requirements and objectives of the tree pruning operations • Possess knowledge of tree biology and the growth characteristics of different types of trees • Comprehend the requirements and constraints of different environment on tree pruning, such as nearby wildlife habitat • Comprehend the suitable distances between trees and buildings / public facilities • Possess knowledge of the different types of pruning tools and their areas of use • Comprehend the personnel arrangement of tree pruning operations, relevant qualification requirements, and allocation of tools and resources • Comprehend the relevant procedures for arranging temporary traffic measures and protection measures on the ground <p>2. Prepare work plans for tree pruning operations</p> <ul style="list-style-type: none"> • Conduct field surveys on the work sites to assess the surrounding environment, such as the topography, nearby high-rise and underground public facilities, nearby wildlife habitat and protected plants on the trees • Plan corresponding measures in response to the environmental constraints on the tree pruning operations, such as notifying the relevant organisations of the public facilities being affected and arranging professionals to help monitor the tree pruning operations • Inspect the structure and health conditions of the trees and assess the distances between the tree crowns and buildings / public facilities • Determine the extent of pruning and the opportune time for pruning based on the diagnosis results of pests and diseases, the distances to the buildings, and the structure and health conditions of the trees • Discuss with project leaders to develop suitable tree pruning plans according to the job requirements and inspection results • Plan suitable transportation arrangements and protection measures on the ground according to the working space and nearby road conditions, such as arranging transport equipment, temporary traffic measures and fencing off work areas • Develop the working procedures, working guidelines and safety codes for tree pruning operations • Develop the work schedules, work objectives and quality objectives of work processes for tree pruning operations

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	<ul style="list-style-type: none"> • Plan corresponding manpower and resource allocation with regard to the number of trees to be pruned and the project conditions • Develop monitoring and assessment mechanisms for tree pruning projects <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Take into account public safety and the spread of pests and diseases • Be aware of the potential impact of pruning on trees and avoid excessive or unnecessary pruning
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to prepare the corresponding tree pruning work plans in accordance with the job requirements, structure of trees and environmental constraints; • Able to assess the environmental constraints on the tree pruning operations and plan appropriate measures accordingly to ensure that the pruning operations can be undertaken in a safe manner; and • Able to develop monitoring and assessment mechanisms for tree pruning projects to ensure that the work progress and quality meet the specified requirements.
Remark	

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Functional Area - Planting, Caring and Management of Plants

Title	Prepare work plans for tree protection operations
Code	109099L4
Range	This unit of competency is applicable to managers or technical personnel who are engaged in tree protection operations in the arboriculture and horticulture industry. Practitioners should be capable of mastering the methods of tree protection and the job requirements of related operations. They should also be able to prepare the corresponding work plans for tree protection operations in accordance with the environmental constraints and the structure of trees.
Level	4
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to preparing work plans for tree protection operations</p> <ul style="list-style-type: none"> • Comprehend the working procedures, standards, relevant technical knowledge and requirements of relevant guidelines for tree protection operations • Comprehend the impact of the work plans and building arrangements on trees • Possess knowledge of tree biology, and the growth characteristics and structure of different types of trees • Comprehend the threats faced by the trees in the work areas • Possess knowledge of how to read the working drawings of the tree preservation plans • Comprehend the tree protection measures at different work stages • Comprehend the methods and criteria for determining the tree protection zones • Comprehend the personnel arrangement of tree protection operations, relevant qualification requirements, and allocation of tools and resources <p>2. Prepare work plans for tree protection operations</p> <ul style="list-style-type: none"> • Conduct field surveys on the work sites to assess the hazards of the work activities to tree growth • Identify the species of the trees and inspect the health and structure of the trees • Plan the protection zones the trees require according to the conditions of the work sites • Plan appropriate tree protection measures according to the work plans and building arrangements • Develop the working procedures, working guidelines and safety codes for tree protection operations • Develop the work schedules, work objectives and quality objectives of work processes for tree protection operations • Plan corresponding manpower and resource allocation with regard to the number of trees to be processed and the project conditions • Develop monitoring and assessment mechanisms for tree protection projects
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to analyse the potential hazards in the work sites, and the health and structure of the trees in order to prepare the corresponding tree protection work plans; • Able to determine the protection zones the trees require and plan the corresponding protection measures in accordance with the work plans and building arrangements, so as to allow the trees grow healthily; and • Able to develop monitoring and assessment mechanisms for tree protection projects to ensure that the work progress and quality meet the specified requirements.

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Functional Area - Planting, Caring and Management of Plants

Title	Prepare work plans for tree maintenance operations
Code	109100L4
Range	This unit of competency is applicable to managers or technical personnel who are engaged in tree maintenance operations in the arboriculture and horticulture industry. Practitioners should be capable of mastering the methods of tree maintenance and the job requirements of related operations. They should also be able to prepare the corresponding work plans for tree maintenance operations in accordance with the environmental constraints and the health and structure of trees.
Level	4
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to preparing work plans for tree maintenance operations</p> <ul style="list-style-type: none"> • Comprehend the working procedures, standards, relevant technical knowledge and requirements of relevant guidelines for tree maintenance operations • Comprehend various tree maintenance measures, such as the types of support and their application methods • Possess knowledge of tree biology and the key points of maintenance for different types of trees • Comprehend the growth characteristics, health and structure of different types of trees • Comprehend the suitable distances between trees and buildings / public facilities • Comprehend the requirements and constraints of different environment on tree maintenance operations, such as nearby slopes and retaining walls • Comprehend the personnel arrangement of tree maintenance operations, relevant qualification requirements, and allocation of tools and resources • Comprehend the relevant procedures for arranging temporary traffic measures <p>2. Prepare work plans for tree maintenance operations</p> <ul style="list-style-type: none"> • Conduct field surveys on the work sites to inspect the health and structure of the related trees and assess the surrounding environment, such as nearby slopes and retaining walls, nearby high-rise and underground public facilities, nearby wildlife habitat and protected plants on the trees • Plan corresponding measures in response to the environmental constraints on the tree maintenance operations, such as notifying the relevant organisations of the public facilities being affected and arranging professionals to help monitor the tree maintenance operations • Plan appropriate tree maintenance measures according to the job requirements, environmental constraints, and health and structure of trees, such as installing tree support systems and carrying out general maintenance procedures • Develop the working procedures, working guidelines and safety codes for tree maintenance operations • Develop the work schedules, work objectives and quality objectives of work processes for tree maintenance operations • Plan corresponding manpower and resource allocation with regard to the number of trees to be maintained and the project conditions • Develop monitoring and assessment mechanisms for tree maintenance projects
Assessment Criteria	The integrated outcome requirements of this unit of competency are:

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	<ul style="list-style-type: none">• Able to prepare the corresponding tree maintenance work plans in accordance with the job requirements, health and structure of trees, and environmental constraints;• Able to assess the environmental constraints on the tree maintenance operations and plan appropriate measures accordingly to ensure that the tree maintenance operations can be undertaken in a safe manner; and• Able to develop monitoring and assessment mechanisms for tree maintenance projects to ensure that the work progress and quality meet the specified requirements.
Remark	

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Functional Area - Planting, Caring and Management of Plants

Title	Plan tree restoration operations
Code	109101L4
Range	This unit of competency is applicable to technical personnel who are engaged in planning tree restoration operations in the arboriculture and horticulture industry. Practitioners should be capable of determining the direction of tree restoration according to the contract requirements, the form of the target trees, and the health and structure of the trees. They should also be able to plan the tree restoration and maintenance work at different stages.
Level	4
Credit	4 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to planning tree restoration operations</p> <ul style="list-style-type: none"> • Comprehend the procedures and related measures of tree restoration operations • Comprehend the causes of tree damage and the corresponding preventive measures • Comprehend the methods to stimulate or control tree growth • Possess knowledge of tree biology, plant physiology, tree mechanics, defects in tree structure, tree health, pests and diseases of plants, etc. • Comprehend the professional technical knowledge of tree restoration work at different stages, such as methods of rebuilding tree crowns, tree pruning cycle and responses of trees to pruning <p>2. Plan tree restoration operations</p> <ul style="list-style-type: none"> • Observe the form of the target trees on-site and inspect the structure and health conditions of the trees • Confirm the direction of tree restoration with clients based on the inspection results • Choose suitable methods to stimulate or control tree growth • Plan the tree restoration and maintenance work at different stages • Provide clients with maintenance guidelines after tree restoration and suggest a suitable pruning cycle • Inspect the growth of trees regularly to adjust the related tree restoration measures in a timely manner
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to inspect the structure and health conditions of the target trees, and observe the form of them; • Able to confirm the direction of tree restoration with clients and adopt suitable tree restoration methods based on the inspection results; and • Able to plan the tree restoration and maintenance work at different stages, provide clients with maintenance guidelines, and adjust the related tree restoration measures according to the growth of trees.
Remark	

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Functional Area - Planting, Caring and Management of Plants

Title	Carry out soil management
Code	109102L1
Range	This unit of competency is applicable to frontline personnel who are engaged in soil working in the arboriculture and horticulture industry. Practitioners should be capable of mastering the practical work skills of soil management and carrying out work related to soil according to the instructions of superiors.
Level	1
Credit	2 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to carrying out soil management</p> <ul style="list-style-type: none"> • Comprehend the procedures and related skills for working the soil • Comprehend the methods of collecting and storing soil samples • Comprehend the proper use and maintenance methods of related machinery and tools • Comprehend the working guidelines and safety codes of the organisation <p>2. Carry out soil management</p> <ul style="list-style-type: none"> • Operate related instruments and tools for soil testing • Maintain related machinery and tools for soil working • Use relevant tools to collect and store soil samples • Improve soil properties according to the instructions of superiors, such as mixing soils with different components and adding soil conditioners, to meet the needs of planting
Assessment Criteria	<p>The integrated outcome requirement of this unit of competency is:</p> <ul style="list-style-type: none"> • Able to operate related tools and testing instruments properly to carry out work related to soil according to the instructions of superiors.
Remark	

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Functional Area - Planting, Caring and Management of Plants

Title	Carry out composting operations
Code	109103L2
Range	This unit of competency is applicable to frontline personnel who are engaged in composting operations in the arboriculture and horticulture industry. Practitioners should be capable of mastering the practical work skills of composting and carrying out composting operations according to the instructions of superiors.
Level	2
Credit	2 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to carrying out composting operations</p> <ul style="list-style-type: none"> • Comprehend the composting work plans and the related operating procedures • Comprehend the techniques and safety codes of operating the instruments and machinery required for composting • Comprehend the methods of making compost and checking its maturity <p>2. Carry out composting operations</p> <ul style="list-style-type: none"> • Operate related instruments and machinery (such as wood shredders) to shred yard waste for use • Mix the shredded yard waste with mature compost, place it in the designated composting area, and add a suitable amount of water • Record the temperature changes at the core of the compost and stir the compost from time to time to promote its maturation process • Check the maturity of the compost and make adjustments according to the work plans • Maintain and store the related instruments, tools and equipment <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Assist in monitoring and reporting the changes of the compost, and keep carrying out composting operations in an effective manner according to the instructions of superiors
Assessment Criteria	<p>The integrated outcome requirement of this unit of competency is:</p> <ul style="list-style-type: none"> • Able to operate related tools and instruments properly to carry out composting operations according to the instructions of superiors.
Remark	

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Functional Area - Planting, Caring and Management of Plants

Title	Supervise soil management
Code	109104L3
Range	This unit of competency is applicable to supervisors who are engaged in soil management in the arboriculture and horticulture industry. Practitioners should be capable of supervising and guiding staff to carry out soil management and improvement operations according to the instructions of the work plans, as well as adjusting the work schedule in a timely manner, ensuring that the soil management operations meet the quality objectives and safety standards.
Level	3
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to supervising soil management</p> <ul style="list-style-type: none"> • Comprehend the content related to soil management in the organisation's work plans • Comprehend the working procedures of soil management and the related technical requirements • Comprehend the chemical, physical and biological properties of soil • Comprehend various methods for testing the properties of soil • Possess knowledge of the ways to improve the structure and nutrient contents of soil • Comprehend the requirements on the soil for plant growth • Comprehend the qualification requirements of the staff, and the use and safety specifications of the personal protective equipment • Comprehend the quality objectives of soil management operations and the related requirements <p>2. Supervise soil management</p> <ul style="list-style-type: none"> • Explain the objectives, working procedures and points to note of the soil management work plans to the staff • Arrange the jobs of the staff and allocate relevant tools or machinery to facilitate the soil management operations • Guide staff to put on suitable personal protective equipment and conduct pre-work safety checks • Supervise staff to carry out the soil management operations, ensuring that each process meets the quality objectives and safety standards • Spot-check the soil samples within the work areas to ensure that the soil quality meets the job requirements • Inspect the work sites and record the work progress, as well as adjust the work schedule and report to superiors in a timely manner <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Keep the soil management operations proceeding in line with the objectives, ensuring that the work quality meets the requirements of the work plans
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to supervise staff to carry out soil management operations in accordance with the established codes of practice and safety guidelines; • Able to arrange the jobs of staff appropriately and allocate the required tools for them to carry out the soil management operations;

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	<ul style="list-style-type: none">• Able to supervise staff to properly complete the various processes and safety measures of the soil management operations, so as to ensure that the operations meet the quality objectives and safety standards; and• Able to adjust the work schedule in a timely manner to ensure that the soil management operations can be completed on schedule.
Remark	

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Functional Area - Planting, Caring and Management of Plants

Title	Prepare work plans for composting operations
Code	109105L3
Range	This unit of competency is applicable to managers who are engaged in composting operations in the arboriculture and horticulture industry. Practitioners should be capable of preparing appropriate work plans for composting operations according to the types of yard waste and making timely adjustments according to the maturity of the compost.
Level	3
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to preparing work plans for composting operations</p> <ul style="list-style-type: none"> • Realise the feasibility of carrying out composting in specific areas • Possess knowledge of composting and its biochemical principles • Comprehend the sorting and recycling processes of yard waste • Comprehend the relevant guidelines by the government on composting and environmental legislation • Comprehend the working procedures, location arrangements and related technical requirements for making soil conditioners with compost <p>2. Prepare work plans for composting operations</p> <ul style="list-style-type: none"> • Prepare the operating procedures for composting, such as collecting yard waste for use • Choose the instruments and tools required for carrying out composting operations • Arrange staff to properly maintain and store the related instruments and tools • Check the maturity of the compost regularly and adjust the methods of processing the compost • Review the established operating procedures for composting in a timely manner to ensure that they meet the objectives and standards of the composting work plans <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Develop composting work plans that comply with the environmental policy of the government
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to prepare appropriate work plans for composting operations in accordance with the types of yard waste; and • Able to control the maturity of the compost and adjust the methods of processing the compost in a timely manner.
Remark	

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Functional Area - Planting, Caring and Management of Plants

Title	Carry out arboricultural and horticultural work at height
Code	109106L2
Range	This unit of competency is applicable to frontline personnel who are engaged in arboricultural and horticultural work at height in the arboriculture and horticulture industry. Practitioners should be capable of mastering the skills of using lifting machinery and carrying out arboricultural and horticultural work at height according to the instructions of superiors.
Level	2
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to carrying out arboricultural and horticultural work at height</p> <ul style="list-style-type: none"> • Comprehend the requirements for carrying out arboricultural and horticultural work at height, in terms of operation of tools, equipment, physical fitness, experience, techniques, personal protective equipment, etc. • Comprehend the standards, related technical knowledge and guidelines for carrying out arboricultural and horticultural work at height • Comprehend the operation of lifting machinery and the skills in using them • Comprehend the operation of machinery for carrying out arboricultural and horticultural work at height, and the skills in using them <p>2. Carry out arboricultural and horticultural work at height</p> <ul style="list-style-type: none"> • Check the lifting machinery and the personal safety equipment • Choose hand tools and small machinery that are suitable for use at height • Use different lifting machinery for work, such as hydraulic elevating work platforms, scaffolds, podium steps and suspended working platforms • Carry out arboricultural and horticultural work at height, such as replacing plants, irrigating, pruning, fertilising and daily inspections <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Respond to different emergencies calmly and notify ground support staff for assistance when necessary
Assessment Criteria	<p>The integrated outcome requirement of this unit of competency is:</p> <ul style="list-style-type: none"> • Able to properly operate relevant lifting equipment, tools and small machinery, and carry out arboricultural and horticultural work at height in a safe manner according to the instructions of superiors and the requirements of the work plans.
Remark	

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Functional Area - Planting, Caring and Management of Plants

Title	Climb trees
Code	109107L3
Range	This unit of competency is applicable to frontline personnel who are engaged in tree climbing operations in the arboriculture and horticulture industry. Practitioners should be capable of assessing the work sites and checking the tree conditions to choose the most appropriate climbing methods and routes for carrying out tree climbing operations.
Level	3
Credit	8 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to climbing trees</p> <ul style="list-style-type: none"> • Comprehend the requirements of tree climbing, in terms of climbing tools, equipment, physical fitness, experience, techniques, etc. • Comprehend the standards, related technical knowledge and guidelines for tree climbing • Comprehend the different climbing methods and routes • Comprehend the use, inspection methods and maintenance methods of the tools and equipment for tree climbing • Comprehend the requirements on the structural safety of the trees that can be climbed • Comprehend the safe standing positions and moving methods on trees • Comprehend the methods of establishing a good communication system with ground support staff <p>2. Climb trees</p> <ul style="list-style-type: none"> • Check the work sites and the structure of the trees • Check the climbing tools and the personal safety equipment • Assess the work sites, and choose the appropriate climbing methods and routes • Use suitable climbing tools and techniques to climb trees • Make assessment and choose to stand in the safest position on trees for working • Choose tools that are suitable for use on trees, and maintain and store them properly <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Calmly respond to emergencies encountered during climbing and notify ground support staff for assistance when necessary
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to assess the work sites and check the tree conditions to ensure that the trees are suitable for climbing; and • Able to choose appropriate climbing methods, routes and tools to climb trees with the correct techniques in a safe manner.
Remark	

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Unit of Competency

Functional Area - Planting, Caring and Management of Plants

Title	Supervise tree climbing operations
Code	109108L3
Range	This unit of competency is applicable to supervisors who are engaged in tree climbing operations in the arboriculture and horticulture industry. Practitioners should be capable of guiding and supervising staff in climbing trees in accordance with the established code of practice for tree climbing, and properly arranging ground support staff to assist climbers in carrying out related operations.
Level	3
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to supervising tree climbing operations</p> <ul style="list-style-type: none"> • Comprehend the requirements of tree climbing, in terms of purposes of tree climbing, equipment, physical fitness, experience, etc. • Comprehend the standards, related technical knowledge and guidelines for tree climbing • Comprehend the methods for checking the tools and equipment for tree climbing • Comprehend the skills in using the tools and equipment for tree climbing • Comprehend the qualification requirements of climbers, and the use and safety specifications of the personal protective equipment • Comprehend the legislation in regard to working at height <p>2. Supervise tree climbing operations</p> <ul style="list-style-type: none"> • Supervise tree climbing operations, ensuring that the climbers comply with the requirements of the tree climbing guidelines and the codes of practice of the organisation • Supervise the work processes of tree climbing, for example, checking the work sites and tree conditions, checking the climbing tools and personal safety equipment, monitoring climbers' safe use of tools, ensuring that there are support staff on the ground to assist the climbers in working on the trees during the course of the operations, and arranging staff to clean up the work sites • Check the requirements of the climbers before the tree climbing operations, in terms of clothing, equipment, physical conditions, fitness, experience, skills, etc. • Record and report any emergencies for follow-up and improvement in the future <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Identify the potential hazards in the work processes and recommend climbers adopt appropriate climbing methods
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to guide and supervise staff in climbing trees in accordance with the established code of practice for tree climbing; and • Able to properly arrange ground support staff to assist climbers in carrying out related operations.
Remark	

Specification of Competency Standards
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Unit of Competency

Functional Area - Planting, Caring and Management of Plants

Title	Supervise arboricultural and horticultural work at height
Code	109109L3
Range	This unit of competency is applicable to supervisors who are engaged in arboricultural and horticultural work at height in the arboriculture and horticulture industry. Practitioners should be capable of guiding and supervising staff in carrying out arboricultural and horticultural work at height in accordance with the instructions of the work plans, as well as adjusting the work schedule in a timely manner, ensuring that the projects are completed with their quality meeting the requirements of the work plans.
Level	3
Credit	4 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to supervising arboricultural and horticultural work at height</p> <ul style="list-style-type: none"> • Comprehend the requirements of arboricultural and horticultural work at height, in terms of work purpose, operation of machinery, equipment, physical fitness, experience, etc. • Comprehend the standards, related technical knowledge and guidelines of arboricultural and horticultural work at height • Comprehend the methods for checking and using the tools and machinery for carrying out arboricultural and horticultural work at height • Comprehend the qualification requirements of the staff, and the use and safety specifications of the personal protective equipment • Comprehend the skills required for carrying out routine arboricultural and horticultural work at height • Comprehend the legislation and guidelines of the government in regard to working at height <p>2. Supervise arboricultural and horticultural work at height</p> <ul style="list-style-type: none"> • Supervise arboricultural and horticultural work at height, ensuring that the staff comply with the requirements of the guidelines and the codes of practice of the organisation • Assess the work sites and choose the appropriate lifting methods • Supervise and guide the general processes of the arboricultural and horticultural work at height of the organisation, for example, checking the work sites and related plants, inspecting the lifting machinery, tools and personal safety equipment, and arranging staff to clean up the work sites • Guide staff to correctly operate and properly maintain the related tools and machinery • Check the requirements of the staff before the operations, in terms of clothing, equipment, physical conditions, fitness, experience, skills, etc. • Record and report the processes of the emergencies happened for follow-up and improvement in the future
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to guide and supervise staff in carrying out arboricultural and horticultural work at height in accordance with the requirements of the work plans and the established safety codes; and • Able to adjust the work schedule in a timely manner to ensure that the arboricultural and horticultural work at height can be completed on schedule.
Remark	

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Unit of Competency

Functional Area - Planting, Caring and Management of Plants

Title	Install rigging systems
Code	109110L3
Range	This unit of competency is applicable to technical personnel who are engaged in installing rigging systems in the arboriculture and horticulture industry. Practitioners should be capable of mastering the design methods of rigging systems and installing appropriate rigging systems to facilitate tree work in accordance with the job requirements and environmental constraints.
Level	3
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to installing rigging systems</p> <ul style="list-style-type: none"> • Comprehend the design criteria and installation methods of rigging systems • Comprehend the equipment combinations for installing rigging systems and their characteristics • Comprehend the source of hazards during the installation of rigging systems and the corresponding safety measures • Comprehend the safe distances between the areas of falling tree parts and the roads / public facilities • Comprehend the constraints posed by different environment on the installation of rigging systems • Comprehend the methods of using a combination of rope, different rigging and pulleys • Comprehend the methods of establishing a good communication system with support staff <p>2. Install rigging systems</p> <ul style="list-style-type: none"> • Assess the constraints posed by the site conditions on the installation of the rigging systems • Plan the paths and distances of the rigging systems, fixation points and safe fulcrum positions, and the areas of falling tree parts depending on the job requirements and environmental constraints • Calculate the fulcrum angle and rope tension of the rigging systems, and the force and speed of the falling tree parts • Plan the corresponding safety measures based on the calculation results, such as fencing off work areas and erecting warning signs • Choose the appropriate combination of rope, rigging and pulleys according to the job requirements and characteristics of the equipment • Work with other support staff to use the combination of rope, rigging and pulleys to install the rigging systems • Confirm the safety and efficiency of the rigging systems through testing <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Take reference to the latest rigging techniques in the industry to continue to optimise the application of the combination of rope, rigging and pulleys
Assessment Criteria	<p>The integrated outcome requirement of this unit of competency is:</p> <ul style="list-style-type: none"> • Install appropriate rigging systems and adopt corresponding safety measures to facilitate tree work in accordance with the job requirements and environmental constraints.

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Functional Area - Planting, Caring and Management of Plants

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Specification of Competency Standards
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Unit of Competency

Functional Area - Planting, Caring and Management of Plants

Title	Carry out plant cultivation and care operations
Code	109111L1
Range	This unit of competency is applicable to frontline personnel who are engaged in plant cultivation and care operations in the arboriculture and horticulture industry. Practitioners should be capable of mastering the practical work skills for cultivating and caring for plants, and carrying out plant cultivation operations and related daily caring work in accordance with the instructions of superiors.
Level	1
Credit	2 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to carrying out plant cultivation and care operations</p> <ul style="list-style-type: none"> • Comprehend the working procedures for caring for different species of plants and the related technical requirements • Comprehend the proper use and maintenance methods of related machinery and tools • Comprehend the techniques and knowledge of cultivating different species of plants • Comprehend the working guidelines and safety codes of the organisation <p>2. Carry out plant cultivation and care operations</p> <ul style="list-style-type: none"> • Fence off the work areas and assist in implementing temporary traffic measures according to the instructions of superiors • Operate related tools to carry out caring work such as pruning, fertilising, irrigating, cultivating the soil and applying pesticides • Carry out preparatory work before cultivating plants, such as flattening and clearing the planting areas, and loosening the soil • Transplant the plants from the nurseries to the designated planting areas, and carry out fertilisation and irrigation, ensuring that the plants have sufficient nutrients • Implement temporary traffic measures to divert traffic flow • Clean up the work sites and maintain the related tool
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to correctly operate related tools and machinery to carry out daily caring work of plants according to the instructions of superiors; and • Able to properly carry out follow-up work after plant cultivation operations.
Remark	

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Functional Area - Planting, Caring and Management of Plants

Title	Carry out lawn cultivation and care operations
Code	109112L1
Range	This unit of competency is applicable to frontline personnel who are engaged in lawn cultivation and care operations in the arboriculture and horticulture industry. Practitioners should be capable of mastering the skills for cultivating and caring for lawns, and carrying out lawn cultivation operations and related daily caring work in accordance with the instructions of superiors and the requirements of the work plans.
Level	1
Credit	2 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to carrying out lawn cultivation and care operations</p> <ul style="list-style-type: none"> • Comprehend the working procedures of the daily caring work of lawns and the related technical requirements • Comprehend the proper use and maintenance methods of related tools • Comprehend the techniques and working procedures for cultivating lawns and laying turf • Comprehend the working guidelines and safety codes of the organisation <p>2. Carry out lawn cultivation and care operations</p> <ul style="list-style-type: none"> • Operate related tools to carry out the daily caring work of lawns, such as pruning, punching, separating roots, fertilising, irrigating and applying pesticides • Prepare or dilute pesticides according to the instructions of superiors and store them properly • Lay new turf or replace damaged old turf • Carry out preparatory work of lawn cultivation operations and use seed sowing tools to spread grass seeds • Clean up the work sites and maintain the related tool
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to correctly operate related tools to carry out the daily caring work of lawns according to the instructions of superiors; and • Able to properly carry out lawn cultivation or turf laying.
Remark	

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Unit of Competency

Functional Area - Planting, Caring and Management of Plants

Title	Carry out hydroseeding operations
Code	109113L1
Range	This unit of competency is applicable to frontline personnel who are engaged in hydroseeding operations in the arboriculture and horticulture industry. Practitioners should be capable of mastering the skills for operating hydroseeding machinery and carrying out hydroseeding operations according to the instructions of superiors.
Level	1
Credit	2 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to carrying out hydroseeding operations</p> <ul style="list-style-type: none"> • Comprehend the proper ways to use hydroseeding machinery • Comprehend the techniques and procedures of mixing hydroseeding solution • Comprehend the working procedures of hydroseeding operations and the related technical requirements • Comprehend the working guidelines and safety codes of the organisation • Comprehend the maintenance methods of hydroseeding machinery <p>2. Carry out hydroseeding</p> <ul style="list-style-type: none"> • Fence off the work areas and assist in implementing temporary traffic measures according to the instructions of superiors • Clear the hydroseeding areas to ensure that there are no remaining plants or rubbish • Mix sufficient hydroseeding solution for use according to the instructions of superiors • Use hydroseeding machinery to spray the hydroseeding solution over the planting areas until the planting areas are evenly covered • When the hydroseeding processes are completed, cover the hydroseeding areas with a protective fabric and carry out the follow-up work of hydroseeding • Clean up the work sites, and maintain the related machinery and tools
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to correctly operate the hydroseeding machinery to carry out the hydroseeding processes according to the instructions of superiors; and • Able to properly handle the follow-up work after the completion of the hydroseeding processes.
Remark	

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Unit of Competency

Functional Area - Planting, Caring and Management of Plants

Title	Supervise plant cultivation and care operations
Code	109114L3
Range	This unit of competency is applicable to supervisors who are engaged in plant cultivation and care operations in the arboriculture and horticulture industry. Practitioners should be capable of supervising and guiding staff in carrying out plant cultivation and care operations in accordance with the instructions of the work plans, as well as adjusting the work schedule in a timely manner, ensuring that the planting operations meet the quality objectives and safety standards.
Level	3
Credit	4 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to supervising plant cultivation and care operations</p> <ul style="list-style-type: none"> • Comprehend the work plans of the organisation for plant cultivation and care operations • Comprehend the working principles, proper use and maintenance methods of related tools and machinery • Comprehend the working procedures for caring for different species of plants and the related technical requirements • Comprehend the techniques and knowledge of cultivating different species of plants • Comprehend the qualification requirements of the staff, and the use and safety specifications of the personal protective equipment • Comprehend the quality objectives of the plant cultivation and care operations, and the corresponding safety measures • Comprehend the practical arrangements for implementing temporary traffic measures <p>2. Supervise plant cultivation and care operations</p> <ul style="list-style-type: none"> • Explain the objectives, working procedures and points to note of the work plans for plant cultivation and care to the staff • Arrange the jobs of the staff and allocate relevant tools to facilitate the plant cultivation and care operations • Guide staff to put on suitable personal protective equipment and conduct pre-work safety checks • Arrange staff to fence off the work areas and assist in implementing temporary traffic measures • Supervise staff to carry out the plant cultivation and care operations, ensuring that each process meets the quality objectives and safety standards • Inspect the work sites regularly and record the work progress, as well as adjust the work schedule and report to superiors in a timely manner <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Adjust the work plans for plant cultivation and care operations appropriately according to the conditions of the planting sites to meet the environmental needs
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to supervise staff to carry out plant cultivation and care operations in accordance with the established codes of practice and safety guidelines; • Able to arrange the jobs of staff appropriately and allocate the required tools for them to carry out the plant cultivation and care operations;

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	<ul style="list-style-type: none">• Able to supervise staff to properly complete the various processes and safety measures of the plant cultivation and care operations, so as to ensure that the operations meet the quality objectives and safety standards; and• Able to adjust the work schedule in a timely manner to ensure that the plant cultivation and care operations can be completed on schedule.
Remark	

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Unit of Competency

Functional Area - Planting, Caring and Management of Plants

Title	Supervise lawn cultivation and care operations
Code	109115L3
Range	This unit of competency is applicable to supervisors who are engaged in lawn cultivation and care operations in the arboriculture and horticulture industry. Practitioners should be capable of supervising and guiding staff in carrying out lawn cultivation and care operations in accordance with the instructions of the work plans, as well as adjusting the work schedule in a timely manner, ensuring that the lawn cultivation and care operations meet the quality objectives and safety standards.
Level	3
Credit	4 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to supervising lawn cultivation and care operations</p> <ul style="list-style-type: none"> • Comprehend the work plans of the organisation for lawn cultivation and care operations • Comprehend the working principles, proper use and maintenance methods of related tools and machinery • Comprehend the working procedures of the daily caring work of lawns and the related technical requirements • Comprehend the techniques and working procedures for laying turf • Possess knowledge of the common grass species and their growth characteristics • Comprehend the operating principles and testing methods of the drainage systems of lawns • Comprehend the qualification requirements of the staff, and the use and safety specifications of the personal protective equipment • Comprehend the quality objectives of the lawn cultivation and care operations, and the corresponding safety measures <p>2. Supervise lawn cultivation and care operations</p> <ul style="list-style-type: none"> • Explain the objectives, working procedures and points to note of the work plans for lawn cultivation and care operations to the staff • Arrange the jobs of the staff and allocate relevant tools to facilitate the lawn cultivation and care operations • Guide staff to put on suitable personal protective equipment and conduct pre-work safety checks • Guide staff to prepare or dilute pesticides, ensuring that the proportions and amounts are accurate • Identify the grass species planted, ensuring compliance with the requirements of the work plans • Supervise staff to carry out lawn cultivation, daily caring work and turf laying, ensuring that each process of them meets the quality objectives and safety standards • Inspect the work sites regularly and record the work progress, as well as adjust the work schedule and report to superiors in a timely manner <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Arrange staff to test the drainage systems before carrying out lawn cultivation operations to ensure that water can be drained smoothly

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Functional Area - Planting, Caring and Management of Plants

Assessment Criteria	The integrated outcome requirements of this unit of competency are: <ul style="list-style-type: none">• Able to supervise staff to carry out lawn cultivation and care operations in accordance with the established codes of practice and safety guidelines;• Able to arrange the jobs of staff appropriately and allocate the required tools for them to carry out the lawn cultivation and care operations;• Able to supervise staff to properly complete the various processes and safety measures of the lawn cultivation and care operations, so as to ensure that the operations meet the quality objectives and safety standards; and• Able to adjust the work schedule in a timely manner to ensure that the lawn cultivation and care operations can be completed on schedule.
Remark	

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Functional Area - Planting, Caring and Management of Plants

Title	Supervise hydroseeding operations
Code	109116L3
Range	This unit of competency is applicable to supervisors who are engaged in hydroseeding operations in the arboriculture and horticulture industry. Practitioners should be capable of supervising and guiding staff in carrying out hydroseeding operations in accordance with the requirements of the work plans, as well as adjusting the work schedule in a timely manner, ensuring that the hydroseeding operations meet the quality objectives and safety standards.
Level	3
Credit	2 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to supervising hydroseeding operations</p> <ul style="list-style-type: none"> • Comprehend the hydroseeding work plans of the organisation • Comprehend the working principles, proper use and maintenance methods of hydroseeding machinery • Comprehend the working procedures of hydroseeding operations and the related technical requirements • Comprehend the formulation for mixing hydroseeding solution • Comprehend the qualification requirements of the staff, and the use and safety specifications of the personal protective equipment • Comprehend the quality objectives of the hydroseeding operations, and the corresponding safety measures • Comprehend the practical arrangements for implementing temporary traffic measures <p>2. Supervise hydroseeding operations</p> <ul style="list-style-type: none"> • Explain the objectives, working procedures and points to note of the hydroseeding work plans to the staff • Arrange the jobs of the staff and allocate relevant tools to facilitate the hydroseeding operations • Guide staff to put on suitable personal protective equipment and conduct pre-work safety checks • Arrange staff to fence off the work areas and assist in implementing temporary traffic measures • Guide staff to mix the hydroseeding solution, ensuring that the proportion and amount of each raw material are accurate • Supervise staff to carry out the hydroseeding operations, ensuring that each of the processes meets the quality objectives and safety standards • Inspect the work sites regularly and record the work progress, as well as adjust the work schedule and report to superiors in a timely manner
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to supervise staff to carry out hydroseeding operations in accordance with the established work plans; • Able to arrange the jobs of staff appropriately and allocate the required tools for them to carry out the hydroseeding operations; • Able to supervise staff to properly complete the various processes and safety measures of the hydroseeding operations, so as to ensure that the operations meet the quality objectives and safety standards; and

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	<ul style="list-style-type: none">• Able to adjust the work schedule in a timely manner to ensure that the hydroseeding operations can be completed on schedule.
Remark	

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Functional Area - Planting, Caring and Management of Plants

Title	Set up and maintain automatic irrigation systems
Code	109117L3
Range	This unit of competency is applicable to technical personnel who are engaged in managing irrigation systems in the arboriculture and horticulture industry. Practitioners should be capable of mastering the working principles and operation methods of automatic irrigation systems. They should also be able to set up and maintain automatic irrigation systems properly.
Level	3
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to setting up and maintaining automatic irrigation systems</p> <ul style="list-style-type: none"> • Comprehend the working principles and operation methods of automatic irrigation systems • Comprehend the daily procedures involved in the maintenance of automatic irrigation systems • Comprehend the design concepts and coverage of automatic irrigation systems • Possess knowledge of how to set up automatic irrigation systems • Comprehend the water requirements of different types of plants • Comprehend the operation and maintenance manuals of the automatic irrigation systems <p>2. Set up and maintain automatic irrigation systems</p> <ul style="list-style-type: none"> • Coordinate the installation process of the irrigation systems with suppliers, ensuring that the irrigation areas cover the whole planting areas • Develop irrigation plans, including setting irrigation time, irrigation volume, irrigation frequency, etc. • Inspect sites equipped with automatic irrigation systems regularly to monitor the operation of the systems • Clear the deposit that hinders the operation of the irrigation systems and carry out basic repairing by following the maintenance guidelines • Arrange suppliers to conduct regular inspections of the irrigation systems to ensure the normal operation of the machines
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to coordinate the installation process of irrigation systems properly and develop corresponding irrigation plans; and • Able to set up and maintain irrigation systems properly to ensure their normal operation.
Remark	

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Functional Area - Planting, Caring and Management of Plants

Title	Carry out formative pruning
Code	109118L3
Range	This unit of competency is applicable to technical personnel who are engaged in carrying out formative pruning in the arboriculture and horticulture industry. Practitioners should be capable of following the established formative pruning procedures of plants to operate suitable tools to prune target plants into specific shapes in accordance with the contract requirements or organisational needs.
Level	3
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to carrying out formative pruning</p> <ul style="list-style-type: none"> • Comprehend the procedures and professional skills of formative pruning • Comprehend the species, characteristics and response to pruning of target plants • Comprehend the types of plants suitable for formative pruning • Comprehend the knowledge and techniques of making wire models • Comprehend the requirements of the contracts or the organisation on the formative pruning of plants <p>2. Carry out formative pruning</p> <ul style="list-style-type: none"> • Inspect the target plants on-site to confirm their species, characteristics and response to pruning • Choose the methods to prune the target plants into specified shapes according to the contract requirements, organisational needs and inspection results • Make wire models to facilitate the pruning operations according to the shaping requirements of the plants • Operate suitable tools to prune the target plants into specified shapes by following the formative plant pruning procedures • Prune the target plants regularly to maintain their shapes according to the established maintenance guidelines
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to choose suitable formative pruning methods according to the species, characteristics and response to pruning of the target plants; and • Able to make wire models and operate suitable tools to prune the target plants into specified shapes according to the established formative pruning procedures and shaping requirements of the plants.
Remark	

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Unit of Competency

Functional Area - Planting, Caring and Management of Plants

Title	Prepare work plans for plant cultivation and care operations
Code	109119L4
Range	This unit of competency is applicable to managers or technical personnel who are engaged in plant cultivation and care operations in the arboriculture and horticulture industry. Practitioners should be capable of mastering the job requirements to choose appropriate plant cultivation and care approaches according to the types of plants and the environmental considerations, so as to prepare the corresponding work plans.
Level	4
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to preparing work plans for plant cultivation and care operations</p> <ul style="list-style-type: none"> • Comprehend the daily caring procedures of different types of plants and the related technical requirements • Comprehend the techniques and knowledge of the cultivation of different types of plants • Comprehend the requirements of plant cultivation and care operations • Comprehend the growth characteristics of different types of plants • Comprehend the constraints posed by different geographical environment on plant cultivation and care operations, such as nearby public facilities • Comprehend the personnel arrangement of plant cultivation and care operations, relevant qualification requirements, and allocation of tools and resources • Comprehend the relevant procedures for arranging temporary traffic measures <p>2. Prepare work plans for plant cultivation and care operations</p> <ul style="list-style-type: none"> • Conduct field surveys on the plant cultivation and care areas to assess the restrictions of the landform and slope • Discuss with project leaders to prepare appropriate work plans according to the job requirements and environmental constraints • Determine the mixing ratio of the soil amendments and thickness of the soil for plant cultivation • Prepare the working procedures, working guidelines and safety codes for plant cultivation and care operations • Develop the work schedules, work objectives and quality objectives of work processes for plant cultivation and care operations • Plan corresponding manpower and resource allocation with regard to the size of the planting areas • Plan suitable transportation arrangements and protection measures on the ground according to the working space of the planting environment and nearby road conditions, such as arranging temporary traffic measures and fencing off work areas • Choose suitable species of plants for cultivation with the environmental factors and job requirements taken into account • Develop monitoring and assessment mechanisms for plant cultivation and care projects <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Adopt new techniques and technologies in the work plans with regard to the development trend of the industry to improve the efficiency of plant cultivation operations

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Functional Area - Planting, Caring and Management of Plants

Assessment Criteria	The integrated outcome requirements of this unit of competency are: <ul style="list-style-type: none">• Able to prepare the corresponding work plans for plant cultivation and care operations in accordance with the job requirements, plant species and environmental considerations; and• Able to develop monitoring and assessment mechanisms for plant cultivation and care projects to ensure that the work progress and quality meet the specified requirements.
Remark	

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Functional Area - Planting, Caring and Management of Plants

Title	Prepare work plans for lawn cultivation and care operations
Code	109120L4
Range	This unit of competency is applicable to managers or technical personnel who are engaged in lawn cultivation and care operations in the arboriculture and horticulture industry. Practitioners should be capable of mastering the job requirements to choose appropriate lawn cultivation and care approaches according to the types of lawns, so as to prepare the corresponding work plans.
Level	4
Credit	4 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to preparing work plans for lawn cultivation and care operations</p> <ul style="list-style-type: none"> • Comprehend the daily caring procedures of different types of lawns and the related technical requirements • Comprehend the techniques and knowledge of the cultivation of different types of lawns • Comprehend the requirements of lawn cultivation and care operations • Comprehend the growth characteristics and suitability of different species of grass • Comprehend the structure of the soil and the mixing ratio of the soil amendments for lawn cultivation • Comprehend the working principles of the drainage systems of lawns • Comprehend the personnel arrangement of lawn cultivation and care operations, relevant qualification requirements, and allocation of tools and resources <p>2. Prepare work plans for lawn cultivation and care operations</p> <ul style="list-style-type: none"> • Discuss with project leaders to prepare appropriate lawn cultivation work plans according to the job requirements and environmental constraints • Determine the mixing ratio of the soil amendments and thickness of the soil for lawn cultivation • Prepare the working procedures, working guidelines and safety codes for the daily caring operations of lawns • Develop the work schedules, work objectives and quality objectives of work processes for the caring operations of lawns • Plan corresponding manpower and resource allocation with regard to the size of the lawns • Choose suitable turf or cultivate suitable species of grass with the environmental factors and job requirements taken into account • Develop monitoring and assessment mechanisms for lawn cultivation and care projects <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Inspect the quality of the lawn soil regularly and suggest improvement measures when necessary
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to prepare the corresponding work plans for lawn cultivation and care operations in accordance with the job requirements and types of lawns; and • Able to develop monitoring and assessment mechanisms for lawn cultivation and care projects to ensure that the work progress and quality meet the specified requirements.

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Functional Area - Planting, Caring and Management of Plants

Remark	
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Functional Area - Planting, Caring and Management of Plants

Title	Prepare work plans for skyrise greening and maintenance operations
Code	109121L4
Range	This unit of competency is applicable to managers who are engaged in skyrise greening and maintenance operations in the arboriculture and horticulture industry. Practitioners should be capable of mastering the job requirements of the skyrise greening and maintenance operations, so as to prepare the corresponding work plans with respect to different site environment.
Level	4
Credit	4 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to preparing work plans for skyrise greening and maintenance operations</p> <ul style="list-style-type: none"> • Comprehend the working procedures of different types of skyrise greening and maintenance operations and the related technical requirements • Comprehend the work methods and safety guidelines for conducting skyrise greening operations in different locations • Comprehend the requirements of skyrise greening and maintenance operations • Possess knowledge of the types of plants suitable for use in skyrise greening and their growth characteristics • Comprehend the personnel arrangement of skyrise greening and maintenance operations, relevant qualification requirements, and allocation of tools and resources • Comprehend the relevant procedures for arranging temporary traffic measures <p>2. Prepare work plans for skyrise greening and maintenance operations</p> <ul style="list-style-type: none"> • Discuss with project leaders to prepare appropriate work plans according to the job requirements and the constraints of the skyrise greening environment • Prepare the working procedures, working guidelines and safety codes for the skyrise greening and maintenance projects • Develop the work schedules, work objectives and quality objectives of work processes for the maintenance operations • Plan corresponding manpower and resource allocation with regard to the size of the projects • Plan suitable transportation arrangements and protection measures on the ground according to the working space and nearby road conditions, such as arranging temporary traffic measures and fencing off work areas • Choose suitable species of plants for cultivation with the environmental factors and job requirements taken into account • Develop monitoring and assessment mechanisms for the skyrise greening and maintenance projects
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to prepare the corresponding work plans for skyrise greening and maintenance operations in accordance with the job requirements and the constraints of the skyrise greening environment; and • Able to develop monitoring and assessment mechanisms for skyrise greening projects to ensure that the work progress and quality meet the specified requirements.
Remark	

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Functional Area - Planting, Caring and Management of Plants

Title	Prepare work plans for hydroseeding operations
Code	109122L4
Range	This unit of competency is applicable to managers who are engaged in hydroseeding operations in the arboriculture and horticulture industry. Practitioners should be capable of mastering the job requirements to choose appropriate work methods with respect to different site environment, so as to prepare the corresponding hydroseeding work plans.
Level	4
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to preparing work plans for hydroseeding operations</p> <ul style="list-style-type: none"> • Comprehend the established working procedures of hydroseeding operations and the related technical requirements • Comprehend the work methods for conducting hydroseeding operations in different locations • Comprehend the formulation for making hydroseeding solution • Comprehend the treatment and storage of seeds before spraying • Comprehend the characteristics of hydroseeding machinery • Comprehend the requirements of hydroseeding operations • Comprehend the growth characteristics of different seed species • Comprehend the personnel arrangement of hydroseeding operations, relevant qualification requirements, and allocation of tools and resources • Comprehend the relevant procedures for arranging temporary traffic measures <p>2. Prepare work plans for hydroseeding operations</p> <ul style="list-style-type: none"> • Discuss with project leaders to prepare appropriate hydroseeding work plans according to the job requirements and the environmental constraints • Prepare the working procedures, working guidelines and safety codes for the hydroseeding projects • Develop the work schedules, work objectives and quality objectives of work processes for the hydroseeding operations • Plan corresponding manpower and resource allocation with regard to the size of the hydroseeding projects • Design the formulation of the hydroseeding solution according to the seed species specified in the job requirements • Plan the treatment methods of the seeds before spraying • Develop monitoring and assessment mechanisms for the hydroseeding projects to ensure the work quality • Plan suitable transportation arrangements and protection measures on the ground according to the working space and nearby road conditions, such as arranging temporary traffic measures and fencing off work areas <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Introduce advanced hydroseeding machinery and technologies to improve the effectiveness of the hydroseeding operations
Assessment Criteria	The integrated outcome requirements of this unit of competency are:

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	<ul style="list-style-type: none">• Able to prepare the corresponding work plans for hydroseeding operations in accordance with the job requirements and the constraints of the hydroseeding environment; and• Able to develop monitoring and assessment mechanisms for hydroseeding projects to ensure that the work progress and quality meet the specified requirements.
Remark	

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Functional Area - Diagnosis and Treatment of Pests and Diseases

Title	Identify pests and diseases of plants
Code	109123L2
Range	This unit of competency is applicable to frontline personnel who are engaged in diagnosis of plant problems in the arboriculture and horticulture industry. Practitioners should be capable of identifying common pests and diseases of plants, recording the infection and the spread, and reporting the incidents to superiors.
Level	2
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to identifying pests and diseases of plants</p> <ul style="list-style-type: none"> • Possess knowledge of the common types of plants and the common types of pests and diseases • Comprehend the methods of identifying pests and diseases of plants • Comprehend the use of the tools and instruments for identifying pests and diseases of plants • Comprehend the infection and spread of pests and diseases of plants <p>2. Identify pests and diseases of plants</p> <ul style="list-style-type: none"> • Identify the types of plants being affected and the types of pests and diseases • Observe the growing environment of the affected plants and collect the preliminary environmental information • Record the infection and spread of the pests and diseases of plants • Report the preliminary identification results to superiors <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Report the newly found pests and diseases of plants to superiors proactively and provide a brief description
Assessment Criteria	<p>The integrated outcome requirement of this unit of competency is:</p> <ul style="list-style-type: none"> • Able to identify common pests and diseases of plants, record the infection and spread accurately, and report the preliminary identification results to superiors.
Remark	

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Functional Area - Diagnosis and Treatment of Pests and Diseases

Title	Diagnose abiotic disorders of plants
Code	109124L3
Range	This unit of competency is applicable to technical personnel who are engaged in diagnosis of plant problems in the arboriculture and horticulture industry. Practitioners should be capable of mastering the methods for diagnosing abiotic plant disorders, as well as analysing the causes of the abiotic disorders of the target plants and making accurate diagnoses through detailed observation and inspection.
Level	3
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to diagnosing abiotic disorders of plants</p> <ul style="list-style-type: none"> • Comprehend the common plant species • Comprehend the types of abiotic plant disorders and their symptoms and signs • Comprehend the methods for diagnosing abiotic plant disorders • Familiarise with the use of diagnostic tools and equipment • Comprehend the relationship between plant health and living environment • Comprehend the causes of plant disorders and the abiotic factors that affect the growth and health of plants • Familiarise with the workflow and technical requirements of sample collection and delivery <p>2. Diagnose abiotic disorders of plants</p> <ul style="list-style-type: none"> • Identify the species of the infected plants • Look for a pattern of abnormality in the infected plants and check for the symptoms and signs • Examine the living environment of the infected plants on-site and collect the environmental data • Examine the health conditions of the infected plants • Collect plant or soil samples and send them to the laboratory for testing when necessary • Analyse the causes of the plant disorders and the abiotic factors that affect the growth and health of the infected plants • Diagnose the types of abiotic disorders of the infected plants based on the analysis results <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Suggest corresponding treatment methods according to the types of abiotic disorders of the infected plants
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to identify the species of the target plants and their symptoms and signs to figure out the causes of the plant disorders; and • Able to analyse the causes of the plant disorders and find out the abiotic factors that affect the growth and health of the target plants based on the data collected, so as to make diagnoses.
Remark	

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Functional Area - Diagnosis and Treatment of Pests and Diseases

Title	Diagnose biotic disorders of plants
Code	109125L4
Range	This unit of competency is applicable to technical personnel who are engaged in diagnosis of plant problems in the arboriculture and horticulture industry. Practitioners should be capable of mastering the methods for diagnosing biotic plant disorders, as well as analysing the causes of the biotic disorders of the target plants through detailed observation and inspection.
Level	4
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to diagnosing biotic disorders of plants</p> <ul style="list-style-type: none"> • Comprehend the common plant species • Comprehend the types of pathogenic organisms and their attack patterns • Comprehend the methods for diagnosing biotic plant disorders • Familiarise with the use of diagnostic tools and equipment • Comprehend the types of biotic plant disorders and their symptoms and signs • Comprehend the transmission media and cycles of pathogenic organisms • Comprehend the causes of plant disorders and the biotic factors that affect the growth and health of plants • Familiarise with the workflow and technical requirements of sample collection and delivery <p>2. Diagnose biotic disorders of plants</p> <ul style="list-style-type: none"> • Identify the species of the infected plants • Look for a pattern of abnormality in the infected plants and check for the symptoms and signs • Identify the types of pathogenic organisms attached to the infected plants through visual inspection or auxiliary equipment • Examine the living environment of the infected plants on-site and collect the environmental data • Examine the health conditions of the infected plants and the dispersion of the pathogenic organisms • Collect plant, pathogenic organism or soil samples and send them to the laboratory for testing when necessary • Analyse the causes of the plant disorders and the biotic factors that affect the growth and health of the infected plants based on the symptoms and signs of the infected plants, testing of the pathogenic organism samples and environmental factors • Diagnose the types of biotic disorders of the infected plants based on the analysis results <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • During the diagnosis process, take the initiative to inspect the surrounding plants to observe the dispersion of the pathogenic organisms
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to identify the species of the target plants and their symptoms and signs to figure out the causes of the plant disorders;

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	<ul style="list-style-type: none">• Able to identify the types of the pathogenic organisms and their attack patterns in order to find out the biotic factors that affect the growth and health of the target plants; and• Able to analyse the causes of the plant disorders based on the data collected, so as to make diagnoses.
Remark	

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Functional Area - Diagnosis and Treatment of Pests and Diseases

Title	Monitor plants infected by pests and diseases and guide caring procedures
Code	109126L4
Range	This unit of competency is applicable to supervisors who are engaged in monitoring and caring work in the arboriculture and horticulture industry. Practitioners should be capable of supervising frontline staff to care for plants infected by pests and diseases in accordance with the established monitoring and caring plans of the organisation, as well as preparing monitoring reports to point out the effectiveness of the plans at different stages.
Level	4
Credit	4 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to monitoring and caring for plants infected by pests and diseases</p> <ul style="list-style-type: none"> • Comprehend the correct methods, techniques and procedures of caring for plants infected by pests and diseases • Comprehend the objectives, content and working guidelines of the implementation of the monitoring and caring plans by the organisation • Familiarise with the use of the equipment and tools required for undertaking monitoring and caring work • Possess knowledge of the inspection of the health and structural conditions of plants • Possess knowledge of plant disease epidemiology • Comprehend the chemical composition of various pesticides (such as insecticides and fungicides) and their effects on plants <p>2. Monitor and care for plants infected by pests and diseases</p> <ul style="list-style-type: none"> • Follow the guidelines of the organisation to instruct staff to care for plants infected by pests and diseases, for example, pruning branches infected by pests and diseases, irrigating, and injecting or spraying drugs • Monitor plants infected by pests and diseases regularly to inspect their health and structural conditions • Record the details of each inspection and caring operation for future follow-up • Prepare monitoring reports and point out the effectiveness of the monitoring and caring plans at different stages based on the records of the routine inspection and caring operations, such as the spread of disease, number of pests and health conditions of plants
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to implement regular inspection and guiding work in accordance with the established monitoring and caring plans to improve the health conditions of the plants infected by pests and diseases; and • Able to prepare monitoring reports based on the past monitoring and caring operation records, detailing the implementation of the plans and the effectiveness of the caring measures.
Remark	

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Functional Area - Diagnosis and Treatment of Pests and Diseases

Title	Evaluate the effectiveness of monitoring and caring operations
Code	109127L5
Range	This unit of competency is applicable to technical personnel who are engaged in assessment work in the arboriculture and horticulture industry. Practitioners should be capable of analysing the health conditions of plants after treatment according to the information collected on-site, so as to evaluate the effectiveness of the monitoring and caring operations.
Level	5
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to evaluating the effectiveness of the regular monitoring and caring procedures</p> <ul style="list-style-type: none"> • Comprehend the requirements of the procedures for proper monitoring and caring for plants affected by abiotic disorders • Comprehend different kinds of abiotic disorders • Comprehend the causes of abiotic plant disorders and the corresponding caring methods • Comprehend the objectives and content of the implementation of the monitoring and caring plans by the organisation • Comprehend the methods and industry standards for evaluating the effectiveness of monitoring and caring work • Possess knowledge of the inspection and determination of the health and structural conditions of plants <p>2. Evaluate the effectiveness of the regular monitoring and caring procedures</p> <ul style="list-style-type: none"> • Make a preliminary evaluation of the infection status and the results of the caring operations according to the records of the monitoring reports • Observe the plants affected by abiotic disorders on-site when necessary, and record the health conditions of the plants after the caring operations and the responses to the caring measures • Ask staff for details about the implementation of the monitoring and caring operations to obtain information in a comprehensive manner • Analyse the information obtained through observation and the information collected • Prepare evaluation reports to explain the implementation of the monitoring and caring plans and their actual effectiveness <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Keep on optimising the caring strategies and make suggestions for improvement, so as to improve the current work plans
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to analyse the effectiveness of the monitoring and caring procedures to improve plant health conditions based on the observations made and information collected; and • Able to evaluate the effectiveness of the regular monitoring and caring plans based on the analysis results, and prepare relevant reports.
Remark	

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Functional Area - Diagnosis and Treatment of Pests and Diseases

Title	Implement pest and disease control
Code	109128L2
Range	This unit of competency is applicable to frontline personnel who are engaged in pest and disease control in the arboriculture and horticulture industry. Practitioners should be capable of mastering the practical work skills of various control methods, and carrying out pest and disease control operations in accordance with the instructions of superiors and the requirements of the work plans.
Level	2
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to implementing pest and disease control</p> <ul style="list-style-type: none"> • Comprehend the practical work skills of the implementation of physical control, chemical control and biological control • Possess knowledge of the techniques and safety of the application of tools and machinery in relation to pest and disease control • Possess knowledge of the application of chemicals in relation to pest and disease control, and the requirements of related legislation • Comprehend the working guidelines of the organisation on pest and disease control operations, and the content of the work plans • Comprehend the application of personal protective equipment <p>2. Implement pest and disease control</p> <ul style="list-style-type: none"> • Acquire suitable equipment and tools according to the requirements of the work plans, and check them before working to ensure that they function normally • Check the personal protective equipment donned and set up safety protection measures in the work areas • Undertake the practical work of pest and disease control according to the working procedures specified in the work plans, such as removing visible pests on plants, spraying pesticides, pruning infected branches and placing natural predators of pests • Dispose of the branches pruned from the infected plants properly • Record the progress of the operations and report the relevant status to superiors • Clean and disinfect used containers, tools and machinery thoroughly in accordance with the organisation's guidelines, and properly dispose of the remaining chemicals
Assessment Criteria	<p>The integrated outcome requirement of this unit of competency is:</p> <ul style="list-style-type: none"> • Able to operate related tools to carry out pest and disease control operations in accordance with the instructions of superiors and the requirements of the work plans.
Remark	

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Functional Area - Diagnosis and Treatment of Pests and Diseases

Title	Develop work plans for disease control by means of physical and chemical methods
Code	109129L5
Range	This unit of competency is applicable to managers or technical personnel who are engaged in disease control in the arboriculture and horticulture industry. Practitioners should be capable of mastering the physical and chemical methods for disease control, as well as developing corresponding work plans for disease control after having the health conditions of plants and the environmental factors inspected on-site.
Level	5
Credit	4 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to developing work plans for disease control by means of physical and chemical methods</p> <ul style="list-style-type: none"> • Comprehend the types, characteristics, causes and modes of transmission of common plant diseases • Comprehend the characteristics, measures to be taken and impact on the environment of the physical and chemical means of disease control • Comprehend the species, properties and health conditions of the target plants • Comprehend the causes of the plant diseases • Possess knowledge of plant pathology and toxicology • Comprehend the equipment, tools and pesticides related to the integrated approach of disease control operations • Comprehend the government legislation and regulations related to disease control operations <p>2. Develop work plans for disease control by means of physical and chemical methods</p> <ul style="list-style-type: none"> • Conduct site visits to inspect the health conditions of the target plants • Identify the signs and symptoms of the target plants • Collect the environmental information of the sites, such as illumination level, soil properties and soil moisture • Analyse the causes of plant diseases based on the environmental information and the signs of infection of the plants • Choose to use physical or chemical control methods to treat the diseases based on the analysis results • Develop the workflow, guidelines and safety codes for disease control projects • Set the work schedules, work objectives and quality objectives of work processes for the disease control projects • Plan corresponding manpower and resource allocation with regard to the area the disease control operations cover and the number of diseased plants • Develop monitoring and assessment mechanisms for the projects to ensure the work quality <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Follow the reasonable pesticide application principle to precisely control the amount and concentration of the chemicals used, so as to reduce the negative impact on the plants and the environment

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Assessment Criteria	The integrated outcome requirements of this unit of competency are: <ul style="list-style-type: none">• Able to identify the signs and symptoms of the target plants and integrate information from all aspects to analyse the causes of the plant diseases;• Able to choose suitable disease control methods based on the analysis results and develop corresponding work plans; and• Able to develop monitoring and assessment mechanisms for the projects to ensure that the work progress and quality meet the contract requirements.
Remark	

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Functional Area - Diagnosis and Treatment of Pests and Diseases

Title	Develop work plans for pest control by means of physical and chemical methods
Code	109130L5
Range	This unit of competency is applicable to managers or technical personnel who are engaged in pest control in the arboriculture and horticulture industry. Practitioners should be capable of mastering the physical and chemical methods for pest control, as well as developing corresponding work plans for pest control after having the health conditions of plants and types of pests inspected on-site.
Level	5
Credit	4 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to developing work plans for pest control by means of physical and chemical methods</p> <ul style="list-style-type: none"> • Comprehend the types, characteristics, causes, infection cycles and modes of transmission of common plant pest problems • Comprehend the characteristics, measures to be taken and impact on the environment of the physical and chemical means of pest control • Comprehend the species, properties and health conditions of the target plants • Comprehend the feeding methods and types of mouthparts of common pests • Possess knowledge of plant entomology and toxicology • Familiarise with the use of the equipment and tools related to pest control operations • Comprehend the government legislation and regulations related to pest control operations <p>2. Develop work plans for pest control by means of physical and chemical methods</p> <ul style="list-style-type: none"> • Conduct site visits to inspect the health conditions of the target plants • Observe the signs of the target plants and the damage caused by the pests • Collect pest samples to analyse their feeding methods and types of mouthparts • Analyse the health problems caused by the pests on the target plants based on the inspection results and the pest samples • Choose to use physical or chemical control methods to treat the pest problems based on the analysis results • Develop the workflow, guidelines and safety codes for pest control projects • Set the work schedules, work objectives and quality objectives of work processes for the pest control projects • Plan corresponding manpower and resource allocation with regard to the area the pest control operations cover, the number of plants affected by pests and the number of pests • Develop monitoring and assessment mechanisms for the projects to ensure the work quality <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Adopt pest control methods that have a lower impact on the environment to maintain ecological balance
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to identify the signs of the target plants to analyse the health problems caused by the pests on the target plants with reference to the pest samples collected;

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	<ul style="list-style-type: none">• Able to choose suitable pest control methods based on the analysis results and develop corresponding work plans; and• Able to develop monitoring and assessment mechanisms for the projects to ensure that the work progress and quality meet the contract requirements.
Remark	

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Functional Area - Diagnosis and Treatment of Pests and Diseases

Title	Evaluate the effectiveness of pest and disease control operations
Code	109131L5
Range	This unit of competency is applicable to technical personnel who are engaged in assessment work in the arboriculture and horticulture industry. Practitioners should be capable of identifying the responses of the diseased plants to the pesticides applied and their health conditions according to the information collected on-site, so as to make analyses, evaluating the effectiveness of the pest and disease control operations.
Level	5
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to evaluating the effectiveness of pest and disease control operations</p> <ul style="list-style-type: none"> • Comprehend the types, characteristics, causes and modes of transmission of common pests and diseases of plants • Comprehend the characteristics and implementation measures of the integrated management of pests and diseases of plants, such as physical control, chemical control, biological control and integrated pest management (IPM) • Comprehend the objectives and content of the work plans for pest and disease control operations • Comprehend the methods and industry standards for evaluating the effectiveness of pest and disease control operations • Comprehend the government legislation and regulations related to pest and disease control operations <p>2. Evaluate the effectiveness of pest and disease control operations</p> <ul style="list-style-type: none"> • Observe the plants affected by pests or diseases on-site, and record the progress and results of the pest and disease control operations according to the list of evaluation items • Identify the responses of the diseased plants to the pesticides applied and their health conditions, and record the relevant results • Ask staff for details about the implementation of the pest and disease control operations to obtain information in a comprehensive manner, so as to make more accurate judgments • Analyse the information obtained through observation and the information collected to evaluate the effectiveness of the pest and disease control operations • Prepare evaluation reports to explain the implementation of the pest and disease control work plans and their actual effectiveness <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Give suggestions to improve the corresponding measures, so as to optimise the current pest and disease control operations in accordance with the post-evaluation analysis
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to analyse the effectiveness of the pest and disease control measures to improve plant health and put an end to pests and diseases in accordance with the observations made and information collected; and

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	<ul style="list-style-type: none">• Able to evaluate the effectiveness of the pest and disease control operations based on the analysis results, and prepare relevant reports.
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Functional Area - Diagnosis and Treatment of Pests and Diseases

Title	Develop work plans for biological and integrated control of pests and diseases
Code	109132L6
Range	This unit of competency is applicable to managers or technical personnel who engaged in biological and integrated control of pests and diseases in the arboriculture and horticulture industry. Practitioners should be capable of mastering the methods for controlling pests and diseases using biological and integrated approaches. They should also be able to develop corresponding work plans for biological and integrated control of pests and diseases through field investigations and analysis of the health of plants.
Level	6
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to developing work plans for biological and integrated control of pests and diseases</p> <ul style="list-style-type: none"> • Comprehend the types, characteristics, causes, infection cycles and modes of transmission of common pests and diseases of plants • Comprehend the characteristics, measures to be taken and impact on the environment of various pest and disease control methods • Comprehend the management strategies and established cycles of the integrated control of pests and diseases • Comprehend the species, properties and health conditions of the target plants • Comprehend the types and characteristics of pathogens, and the corresponding control methods • Possess knowledge of plant pathology, entomology and toxicology • Familiarise with the use of the equipment and tools related to pest and disease control operations • Comprehend the government legislation and regulations related to pest and disease control operations <p>2. Develop work plans for biological and integrated control of pests and diseases</p> <ul style="list-style-type: none"> • Conduct site visits to inspect the health conditions of the target plants • Identify the symptoms and signs of the target plants, as well as the types of pathogens • Analyse the collected environmental information and pest samples • Consider the effectiveness of different control methods and their impact on the environment • Choose a series of suitable physical, chemical and biological control methods • Develop management strategies and work cycles for the work plans of the integrated control operations • Develop the workflow, guidelines and safety codes for the integrated control operations • Set the work schedules, work objectives and quality objectives of work processes for the integrated control operations • Plan corresponding manpower and resource allocation with regard to the area the control operations cover, the number of plants affected by pests and diseases, and the amount of pathogens • Develop monitoring and assessment mechanisms for the projects to ensure the work quality <p>3. Exhibit professionalism</p>

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Functional Area - Diagnosis and Treatment of Pests and Diseases

	<ul style="list-style-type: none"> • Keep abreast of the latest technical knowledge and management modes of integrated pest and disease management
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to identify the symptoms and signs of the target plants as well as the types of pathogens, so as to select a series of suitable control methods; • Able to develop management strategies and work cycles for the work plans of the integrated control operations in accordance with the analysis results and the characteristics of different control methods; and • Able to develop monitoring and assessment mechanisms for the projects to ensure that the work progress and quality meet the contract requirements.
Remark	

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Unit of Competency

Functional Area - Survey, Inspection and Risk Assessment

Title	Conduct plant surveys and identify plants
Code	109133L3
Range	This unit of competency is applicable to frontline staff who are engaged in plant surveying in the arboriculture and horticulture industry. Practitioners should be capable of employing basic techniques of identifying plants and collecting specimens to record plant information and collect plant specimens in accordance with the established surveying scope and standards, so as to facilitate superiors to conduct related analysis and research.
Level	3
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to conducting plant surveys and identifying plants</p> <ul style="list-style-type: none"> • Possess knowledge of botany, plant taxonomy and plant ecology • Possess knowledge of identifying common plant species in Hong Kong, their habits and growth cycles • Familiarise with plant surveying methods and related techniques • Comprehend the local legislation and guidelines in relation to plant protection • Comprehend the basic skills and legislation related to legal collection and preservation of wild plant specimens <p>2. Conduct plant surveys and identify plants</p> <ul style="list-style-type: none"> • Identify plants within the areas of the surveys by following the established surveying methods, procedures and standards • Observe and record the basic information, ecological characteristics, living environment and distribution of the plant species • Take photos to keep record of the environment of the sites and the conditions of the plants • Input the collected information • Submit the collected specimens, information and data to superiors / researchers for analysis <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Pay attention to any abnormalities or special conditions of plants during the surveying operations and report to superiors in a timely manner
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to accurately identify plant species in accordance with the established surveying methods, scope and standards, and record the information of the plants; and • Able to submit suitable photo records and plant specimens.
Remark	

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Functional Area - Survey, Inspection and Risk Assessment

Title	Prepare plant survey reports
Code	109134L4
Range	This unit of competency is applicable to technical personnel who are engaged in plant surveying and assessment work in the arboriculture and horticulture industry. Practitioners should be capable of using knowledge of ecological conservation, and relevant legislation and guidelines to prepare plant survey reports based on the information collected from plant surveys. They should also be able to provide suggestions on the monitoring of invasive plants, and the preservation of rare and endangered plants for concerned departments to refer to when developing relevant measures.
Level	4
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to preparing plant survey reports</p> <ul style="list-style-type: none"> • Possess knowledge of botany, plant physiology, ecology, and nature conservation and management • Possess knowledge of local natural ecosystems and various ecological environments • Comprehend the information and data of plant surveys • Comprehend the format and requirements for writing plant survey reports • Comprehend the legislation and guidelines in relation to nature conservation, prevention and control of invasive plants, and preservation of rare and endangered plants <p>2. Prepare plant survey reports</p> <ul style="list-style-type: none"> • Collect and consolidate information, data and photos collected from plant surveys • Prepare plant survey reports with reference to the objectives and scope of the surveys in order to explain the analysis results of the surveys • Provide suggestions on nature conservation, prevention and control of invasive plants, and preservation of rare and endangered plants based on the results of the plant surveys <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Select methods that are favourable to the conservation of ecology and that are sustainable when making recommendations and suggesting measures
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to collect, analyse and consolidate relevant information from plant surveys; • Able to prepare plant survey reports in an objective, clear and precise manner; and • Able to make suggestions related to nature conservation, prevention and control of invasive plants, and preservation of rare and endangered plants.
Remark	

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Functional Area - Survey, Inspection and Risk Assessment

Title	Prepare plant survey work plans
Code	109135L4
Range	This unit of competency is applicable to line managers who are engaged in plant surveying in the arboriculture and horticulture industry. Practitioners should be capable of preparing the implementation details of the plant survey work plans in accordance with the objectives and scope of the plant survey projects, including organising the survey staff and the required resources, so as to ensure that the survey work can be carried out smoothly.
Level	4
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to preparing plant survey work plans</p> <ul style="list-style-type: none"> • Comprehend the objectives, scope, requirements and standards of the plant survey projects of the organisation • Comprehend the relationship between plant growth cycle, ecological environment and climate • Familiarise with plant surveying methods and related techniques • Comprehend the legislation and guidelines related to conducting plant surveys in different locations • Comprehend the resources that the organisation can provide for conducting plant surveys <p>2. Prepare plant survey work plans</p> <ul style="list-style-type: none"> • Develop plant survey work plans in accordance with the objectives, scope, requirements and standards of the plant survey projects • Set the schedules for the monitoring and completion of individual survey items to align with the overall schedule of the survey • Organise the survey staff, resources required for the survey and briefing before the survey • Specify the keeping and recording methods of the plant specimens, data, information and photos to be collected in the surveys • Review and report on the progress of the survey projects regularly to ensure that the survey objectives can be met <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Report the progress of the survey projects to superiors in a timely manner and propose suggestions of corrective measures
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to prepare appropriate plant survey work plans and schedules according to the requirements of the plant survey projects; • Able to plan the manpower and resources required, and the methods for recording the data and information collected for the plant surveys in an effective manner; and • Able to monitor and report on the progress of the survey projects regularly according to actual situations.
Remark	

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Functional Area - Survey, Inspection and Risk Assessment

Title	Assess the distribution of rare and endangered plants
Code	109136L4
Range	This unit of competency is applicable to technical personnel who are engaged in plant surveying in the arboriculture and horticulture industry. Practitioners should be capable of mastering the knowledge of rare and endangered plants and their ecology. They should also be able to assess the distribution of rare and endangered plants through the analysis of information and data collected from plant surveys.
Level	4
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to assessing the distribution of rare and endangered plants</p> <ul style="list-style-type: none"> • Possess knowledge of local rare and endangered plants and their ecology • Comprehend the legislation, standards and knowledge related to nature conservation • Possess knowledge of local natural ecosystems and various types of ecological environments • Comprehend the application of plant surveys and the related knowledge <p>2. Assess the distribution of rare and endangered plants</p> <ul style="list-style-type: none"> • Consolidate the information and data on rare and endangered plants collected from surveys • Identify the rare and endangered plants within the area of the surveys based on consolidated information and data • Assess the distribution of the rare and endangered plants based on the identification results • Analyse the origin of the rare and endangered plants and their development <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Refer to and make use of local and overseas research studies on rare and endangered plants to enhance the professional level of the identification of rare and endangered plants
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to consolidate the information and data on rare and endangered plants collected from surveys, and make identification; • Able to employ professional knowledge to assess the distribution of rare and endangered plants; and • Able to analyse the origin of rare and endangered plants and their development.
Remark	

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Functional Area - Survey, Inspection and Risk Assessment

Title	Plan the objectives, scope and methods of plant surveys
Code	109137L5
Range	This unit of competency is applicable to managers who are engaged in plant surveying in the arboriculture and horticulture industry. Practitioners should be capable of mastering the professional knowledge in relation to the local ecological environment and plant surveys. They should also be able to utilise the resources of the organisation effectively to plan the objectives, scope, methods and requirements on quality control of the plant survey projects, so as to ensure that the survey work can be carried out smoothly.
Level	5
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to planning the objectives, scope and methods of plant surveys</p> <ul style="list-style-type: none"> • Comprehend the relationship between plant growth cycle, ecological environment and climate • Possess knowledge of local natural ecosystems and various ecological environments • Familiarise with plant surveying methods and related techniques • Comprehend the legislation and guidelines related to conducting plant surveys in different locations • Comprehend the resources that the organisation can provide for conducting plant surveys <p>2. Plan the objectives, scope and methods of plant surveys</p> <ul style="list-style-type: none"> • Explore and plan the objectives and scope of plant survey projects, for example, understanding the types and species of plants in the target areas, their ecology and properties, and their impact on the ecological environment • Determine the surveying methods and standards for the plant survey projects • Set the methods for collecting and preserving plant specimens, scope of information and data to be recorded in the surveys, and requirements on quality control with reference to related legislation and guidelines • Evaluate the overall schedules and financial resources of the surveys <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Have a full understanding of the techniques and limitations of the planning and conducting of plant surveys • Refer to local and overseas research reports and studies on plant surveys to enhance the level of planning and implementation of organisational survey projects
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to use professional knowledge and refer to relevant legislation and guidelines to plan appropriate and feasible plant survey projects; • Able to set clear objectives, scope and surveying methods for the plant survey projects; and • Able to set the scope of information and data to be recorded, and the quality control standards.
Remark	

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Functional Area - Survey, Inspection and Risk Assessment

Title	Analyse the impact of invasive plants on the environment
Code	109138L5
Range	This unit of competency is applicable to technical personnel who are engaged in plant surveying in the arboriculture and horticulture industry. Practitioners should be capable of mastering the knowledge of invasive plants and their ecology. They should also be able to assess the information and data collected from plant surveys to analyse the impact of the invasive plants on the environment.
Level	5
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to analysing the impact of invasive plants on the environment</p> <ul style="list-style-type: none"> • Possess knowledge of local invasive plants and their ecology • Comprehend the legislation, standards and knowledge related to nature conservation and control of invasive plants • Possess knowledge of local natural ecosystems and various ecological environments • Comprehend the application of plant surveys and related knowledge <p>2. Analyse the impact of invasive plants on the environment</p> <ul style="list-style-type: none"> • Analyse the sources and spread of the invasive plants according to the information and data collected from the surveying areas • Assess the distribution and affected areas of the invasive plants • Analyse the harmful effect of the invasive plants on the native species and their impact on the surrounding environment <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Refer to and make use of local and overseas research studies on the development of invasive plants to enhance the professional level of the analysis of invasive plants continuously
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to use professional knowledge to assess the information and data collected from plant surveys regarding the species of the invasive plants; and • Able to analyse the impact of the invasive plants on the environment.
Remark	

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Functional Area - Survey, Inspection and Risk Assessment

Title	Develop proposals for plant preservation
Code	109139L5
Range	This unit of competency is applicable to technical personnel who are engaged in plant surveying and assessment work in the arboriculture and horticulture industry. Practitioners should be capable of applying knowledge of nature conservation and local ecosystems to analyse the results of plant survey reports, so as to develop appropriate proposals for plant preservation.
Level	5
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to developing proposals for plant preservation</p> <ul style="list-style-type: none"> • Possess knowledge of botany, plant physiology, ecology, and nature conservation and management • Possess knowledge of local natural ecosystems and various ecological environments • Comprehend the legislation and guidelines related to nature conservation and control of invasive plants • Comprehend the legislation and guidelines related to protection of rare and endangered plants • Know how to prepare proposals for plant preservation • Know about the commonly used databases and applications of plant surveys <p>2. Develop proposals for plant preservation</p> <ul style="list-style-type: none"> • Develop appropriate proposals for plant preservation based on the results of the plant survey reports • Prepare the recommendations, rationale, preserved species, scope, work plans, required resources, maintenance measures, etc. of the plant preservation proposals • Develop the work procedures of the plant preservation proposals according to the work plans, site environment and resources • Choose the plant database format and applications that fit the needs of the organisation <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Have a comprehensive understanding of nature conservation and related legislation and guidelines to help propose appropriate plant preservation proposals to the organisation • Refer to local and overseas research reports and work plans on nature conservation to provide further suitable recommendations on plant preservation to the organisation
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to develop appropriate proposals for plant preservation based on the results of plant survey reports; and • Able to prepare the work procedures of the plant preservation proposals.
Remark	

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Functional Area - Survey, Inspection and Risk Assessment

Title	Input data to and update tree inventories
Code	109140L2
Range	This unit of competency is applicable to frontline staff who are engaged in tree surveying in the arboriculture and horticulture industry. Practitioners should be capable of mastering the tree data collected from tree surveys and inputting the data, as well as performing updates in a timely manner.
Level	2
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to inputting data to and updating tree inventories</p> <ul style="list-style-type: none"> • Comprehend the job requirements of tree survey projects • Familiarise with the format commonly used for tree inventories and the application of related programs • Comprehend the tree data collected from tree surveys <p>2. Input data to and update tree inventories</p> <ul style="list-style-type: none"> • Review the species, health conditions and related information about the trees in the inventories in a timely manner • Input and update data of the trees and their health conditions in a timely manner <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Process the data properly by updating the tree inventories accurately and regularly, so as to make them ready for use at any time
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to accurately input the tree data collected from tree surveys to the tree inventories; and • Able to update the data of the tree inventories in a timely manner.
Remark	

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Functional Area - Survey, Inspection and Risk Assessment

Title	Identify trees and conduct tree surveys
Code	109141L3
Range	This unit of competency is applicable to personnel who are engaged in tree surveying in the arboriculture and horticulture industry. Practitioners should be capable of mastering the knowledge of common tree species in Hong Kong. They should also be able to identify trees accurately and conduct tree surveys according to the job requirements, as well as to take relevant records.
Level	3
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to identifying trees and conducting tree surveys</p> <ul style="list-style-type: none"> • Comprehend the job requirements, land boundaries and work areas of tree survey projects • Possess basic knowledge of land surveying and working drawings • Possess knowledge of dendrology • Possess knowledge of identifying the characteristics and habits of common tree species in Hong Kong • Possess basic knowledge and skills of wildlife photography <p>2. Identify trees and conduct tree surveys</p> <ul style="list-style-type: none"> • Identify the tree species in the designated areas according to the job requirements and work areas of the tree survey projects • Record the data of the trees in the designated areas, such as tree code, species, size, health conditions and coordinates • Take photos to record the information of all the trees in the areas (for example, the photo should show the location of the entire tree), the characteristics of the tree species, their health conditions, etc. • Extract suitable information or data from tree inventories to help with the survey work <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Accurately identify tree species and provide suitable photo records
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to identify tree species accurately according to the job requirements; and • Able to record the required tree information precisely and extract suitable information or data from tree inventories to help with the survey work.
Remark	

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Functional Area - Survey, Inspection and Risk Assessment

Title	Inspect the basic structure and health conditions of trees
Code	109142L3
Range	This unit of competency is applicable to frontline personnel who are engaged in tree structure and health assessment in the arboriculture and horticulture industry. Practitioners should be capable of mastering the basic structure and health signs of trees. They should also be able to inspect and make a truthful record of the tree conditions, so as to identify trees with structural and health problems as early as possible, and undertake follow-up actions.
Level	3
Credit	4 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to inspecting the basic structure and health conditions of trees</p> <ul style="list-style-type: none"> • Comprehend the basic structure of trees and the signs that reflect the health conditions of trees • Comprehend the characteristics of common tree species • Comprehend the biotic and abiotic factors that cause tree disorders • Comprehend the health indicators of trees <p>2. Inspect the basic structure and health conditions of trees</p> <ul style="list-style-type: none"> • Use simple tools to inspect the basic health signs and structure of trees, such as defoliation, broken branches, dead branches, decay, cavities and decay of roots • Record the health conditions and potential structural problems of trees based on the information collected • Identify trees that need to be cared for in particular and report to superiors for follow-up <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Employ professional knowledge and experience to carry out inspections, so as to make a truthful record of the tree information for reference
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to use professional knowledge to observe and inspect the basic structure and health conditions of trees; and • Able to make a truthful record of the health conditions and potential structural problems of trees.
Remark	

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Functional Area - Survey, Inspection and Risk Assessment

Title	Prepare proposals of compensatory planting after tree removal
Code	109143L4
Range	This unit of competency is applicable to managers who are engaged in preparing compensatory tree planting proposals in the arboriculture and horticulture industry. Practitioners should be capable of mastering the legislation and guidelines related to the requirements on preservation and removal of trees. They should also be able to analyse the conditions of the trees within the project areas, putting forward justifications for removing trees, and preparing plans of compensatory planting and management after tree removal.
Level	4
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to preparing proposals of compensatory planting after tree removal</p> <ul style="list-style-type: none"> • Possess basic knowledge of tree biology, and tree planting and maintenance • Comprehend the legislation and guidelines related to the requirements on preservation and removal of trees • Comprehend the methods and standards for reviewing working drawings • Comprehend the requirements and approval procedures of tree removal and compensatory planting • Possess knowledge of common tree species in Hong Kong and their growth characteristics, such as their ecology and life cycle • Comprehend the techniques and criteria for preparing compensatory planting proposals <p>2. Prepare proposals of compensatory planting after tree removal</p> <ul style="list-style-type: none"> • In accordance with the requirements of the related legislation and guidelines, provide justifications for tree removal with reference to the latest information, health conditions and photo records of the trees within the work areas • Calculating the quantity of trees that will be lost due to the project and considering the conditions of the proposed planting areas, recommend a suitable tree species for compensatory planting • Consult the opinions of various stakeholders on the compensatory planting proposals by attending community liaison meetings • Develop the tree management and maintenance measures in the compensatory planting proposals in accordance with the site requirements and the opinions of the stakeholders • Prepare tree planting proposals and descriptions of the working drawings, giving details of the justifications for tree removal and the compensatory planting recommendations, and submit them to relevant departments for approval <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Have a full understanding of the legislation and regulations in relation to tree removal and compensatory planting • Refer to the approval results of similar projects and the instructions of relevant departments to assist the organisation in better preparing the compensatory tree planting proposals
Assessment Criteria	The integrated outcome requirements of this unit of competency are:

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	<ul style="list-style-type: none">• Able to integrate a wide range of information and apply professional knowledge to provide justifications for tree removal; and• Able to prepare the specifics of the compensatory planting proposals and the descriptions of the working drawings in accordance with the site requirements and the opinions of the stakeholders.
Remark	

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Functional Area - Survey, Inspection and Risk Assessment

Title	Develop and evaluate proposals of tree protection, preservation, transplantation and removal
Code	109144L5
Range	This unit of competency is applicable to managers who are engaged in tree surveying and assessment work in the arboriculture and horticulture industry. Practitioners should be capable of mastering the protection measures of trees, and related legislation and guidelines. They should also be able to develop appropriate proposals of tree protection, preservation, transplantation and removal according to the requirements of the projects, and carry out relevant evaluation.
Level	5
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to developing and evaluating proposals of tree protection, preservation, transplantation and removal</p> <ul style="list-style-type: none"> • Comprehend the various values of trees and related considerations, such as ecology, economy, society and life cycle • Comprehend the impact of the works on trees • Comprehend the requirements of relevant legislation and guidelines on the protection, preservation, transplantation and removal of trees • Comprehend the tree information collected from tree surveys • Familiarise with the methods and application of different tree protection measures • Familiarise with the methods of transplanting and removing trees, and the success and failure factors • Know how to prepare proposals of tree preservation / conservation, transplantation and removal, and related working drawings • Comprehend the workflow of tree preservation, transplantation and removal, and its impact on the soil and the environment <p>2. Develop and evaluate proposals of tree protection, preservation, transplantation and removal</p> <ul style="list-style-type: none"> • Develop appropriate proposals of tree protection, preservation, transplantation and removal in accordance with the requirements of the works projects • Review the site plans and raise questions to relevant personnel • Develop plans for setting up tree protection zones on the work sites and the detailed work plans • Explain the rationale of transplantation, and evaluate the expected survival rate of the trees upon adaptation to the new environment, as well as the work plans, transportation arrangements, safety measures, maintenance plans after transplantation, etc. • Prepare tree protection, preservation, transplantation and removal proposals, and descriptions of the working drawings, and submit them to relevant departments for approval • With regard to trees of special value within or in the vicinity of the work areas, such as old and valuable trees, stonewall trees, and endangered or rare species of trees, evaluate the impact of the works on the relevant old trees in accordance with relevant legislation and guidelines, and provide additional details of the corresponding protection and preservation recommendations • Develop the work procedures for the tree protection / transplantation works in accordance with the work plans, site environment and resources

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	<p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Have a full understanding of the legislation and guidelines related to tree protection, preservation, transplantation and removal to assist the organisation in proposing appropriate tree preservation / conservation plans • Seek help from the right people to study the proposals together • Refer to techniques used locally and overseas about tree protection and preservation, in preparation for introducing the most appropriate solutions for the organisation
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to develop appropriate tree protection, preservation, transplantation and removal proposals according to the requirements of the projects, and carry out relevant evaluation; and • Able to prepare the work procedures for tree protection / transplantation / removal.
Remark	

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Functional Area - Survey, Inspection and Risk Assessment

Title	Carry out tree inspection using visual tree assessment and simple assisting tools
Code	109145L3
Range	This unit of competency is applicable to personnel who are engaged in tree inspection and risk assessment in the arboriculture and horticulture industry. Practitioners should be capable of carrying out tree inspection using visual tree assessment and simple assisting tools in accordance with the established tree inspection plans of the organisation. They should also be able to prepare inspection records for further assessment of tree risk.
Level	3
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to carrying out tree inspection using visual tree assessment and simple assisting tools</p> <ul style="list-style-type: none"> • Familiarise with the different procedures and levels of detail of tree inspection • Familiarise with the systematic approaches of tree inspection • Familiarise with the techniques and standards for carrying out tree inspection • Comprehend the limitations of visual inspection and the ways of improvement • Possess knowledge of tree biology, plant physiology, tree mechanics, defects in tree structure, tree health, pests and diseases of plants, etc. • Comprehend the pests / diseases and abiotic factors that cause plant and tree disorders • Possess knowledge of occupational safety and health • Familiarise with simple assisting tools for tree inspection • Possess knowledge of soil biology, chemistry and physics <p>2. Carry out tree inspection using visual tree assessment and simple assisting tools</p> <ul style="list-style-type: none"> • Carry out inspection systematically using visual tree assessment • Use simple tools to aid inspection • Take suitable samples from the trees and the environment for further analysis • Analyse the sites and their usage • Analyse the biological, chemical and physical conditions of the soil organisms • Analyse the growth environment and historical factors of the trees • Prepare tree inspection records systematically, including data, photos and samples • Provide preliminary assessment of the impact of pests and diseases on the trees <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Accurately observe and identify abnormalities in the tree structure or signs of health degradation • With regard to the abnormalities in the tree structure and signs of health degradation, select appropriate assisting tools to inspect the trees and record the tree inspection data systematically to ensure the accuracy of the tree inspection results • Ensure the safety of oneself and the public during the inspection process
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to inspect trees systematically using visual tree assessment and simple assisting tools; • Able to take samples of trees and the environment for in-depth inspection; and • Able to prepare tree inspection records and preliminary analysis of the impact of pests and diseases on the trees.

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Functional Area - Survey, Inspection and Risk Assessment

Remark	
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Functional Area - Survey, Inspection and Risk Assessment

Title	Inspect the structural conditions of trees using instruments
Code	109146L3
Range	This unit of competency is applicable to personnel who are engaged in tree inspection and risk assessment in the arboriculture and horticulture industry. Practitioners should be capable of inspecting the structural conditions of trees using suitable electronic instruments in accordance with the work procedures of tree inspection. They should also be able to provide scanned images and data to help interpret and analyse the internal structural conditions of trees and the overall tree risk.
Level	3
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to inspecting the structural conditions of trees using instruments</p> <ul style="list-style-type: none"> • Familiarise with the different procedures and levels of detail of tree inspection • Familiarise with the systematic approaches of tree inspection • Familiarise with the different electronic instruments for conducting tree inspection, and the techniques and standards for the application of related software • Possess basic knowledge of the structure and health conditions of trees • Possess knowledge of occupational safety and health in relation to tree inspection • Familiarise with the assisting tools for tree inspection <p>2. Inspect the structural conditions of trees using instruments</p> <ul style="list-style-type: none"> • Employ suitable electronic instruments to inspect the conditions of trees from ground level in accordance with the work procedures of tree inspection, for example, using sonic tomographs or resistographs, which drill into the tree body, to assess the degree of decay • Submit tree inspection records, scanned images and data to superiors for analysis <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Compare with the computer images and data of trees at the same location taken in the past, and report the differences to superiors
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to choose and apply suitable electronic instruments and software properly for tree inspection; and • Able to submit accurate scanned images and data to superiors for analysis.
Remark	

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Functional Area - Survey, Inspection and Risk Assessment

Title	Carry out aerial tree inspection
Code	109147L3
Range	This unit of competency is applicable to personnel who are engaged in tree inspection and risk assessment in the arboriculture and horticulture industry. Practitioners should be capable of using appropriate methods to reach a certain height for undertaking tree inspection in a safe manner.
Level	3
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to carrying out aerial tree inspection</p> <ul style="list-style-type: none"> • Comprehend the needs commonly associated with aerial tree inspection and related tree problems • Familiarise with the techniques and limitations of tree inspection using visual methods and various electronic instruments • Comprehend the set-up and maintenance of aerial tree support systems and lightning protection systems • Familiarise with various tree climbing techniques, and their occupational safety and health requirements, as well as acquire relevant qualifications • Comprehend the machinery, equipment, and occupational safety and health requirements related to aerial tree work • Comprehend the potential hazards in relation to aerial tree inspection • Know about the wildlife that inhabits the crown <p>2. Carry out aerial tree inspection</p> <ul style="list-style-type: none"> • Choose and use suitable machinery and tools, as well as climbing methods, to carry out aerial tree inspection • Conduct a risk assessment before carrying out aerial tree inspection and an integrated assessment of the wildlife that inhabits the crown, and use relevant equipment properly • Make use of relevant safety equipment according to the assessment results to ensure personal and public safety • Inspect the crown and branches, and inspect related trees as required, such as the conditions of the cables and lightning protection equipment • Take pictures and prepare tree inspection records • Report the tree inspection records to superiors, including data, photos and samples <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Attach importance to occupational safety and health when carrying out aerial tree inspection, and take note of personal safety and the safety of the people on the ground • Protect the wildlife that lives in the crown when carrying out aerial tree inspection
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to use suitable machinery and tools, and climbing techniques to complete aerial tree inspection work independently; • Able to use appropriate personal protective equipment to carry out aerial tree inspection in a safe manner; and • Able to prepare tree inspection records.

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Functional Area - Survey, Inspection and Risk Assessment

Title	Collect site environment information
Code	109148L4
Range	This unit of competency is applicable to managers or technical personnel who are engaged in tree risk assessment in the arboriculture and horticulture industry. Practitioners should be capable of observing the site environment based on the tree risk assessment results, as well as analysing the potential tree risks and hazards on the site, so as to set the priority of the risk mitigation measures.
Level	4
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to collecting site environment information</p> <ul style="list-style-type: none"> • Comprehend the usage nature of the sites • Comprehend the impact of the sites and any protective facilities / objects on risks • Comprehend the methods for assessing the usage • Comprehend the areas, facilities and responsibilities of the sites <p>2. Collect site environment information</p> <ul style="list-style-type: none"> • Analyse the tree risks and hazards in the target environment in accordance with the tree risk assessment results, including the assessment of the probability of collapse of trees or branches, the areas where potential risks exist, any protective facilities / objects, and the probability of hitting targets upon collapse and the estimated casualties • Analyse the health of trees, and its function to and potential conflicts with the surrounding users / properties in accordance with the tree risk assessment results • Set the priority of the risk mitigation measures in accordance with the analysis of the tree risk assessment • Report the analysis results to relevant personnel <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Realise the limitations of the assessment • Collect comprehensive information about the sites and the surrounding facilities actively to help assess the potential risks and hazards of the trees to the sites
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to observe and analyse the site environment based on the tree risk assessment results; • Able to assess and anticipate the potential risks and hazards of the trees; and • Able to set the priority of the risk mitigation measures.
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Functional Area - Survey, Inspection and Risk Assessment

Title	Analyse the health, structural conditions and hazards of trees
Code	109149L4
Range	This unit of competency is applicable to technical personnel who are engaged in tree inspection and risk assessment in the arboriculture and horticulture industry. Practitioners should be capable of analysing the severity of tree diseases and the potential hazards of trees in accordance with the results of tree inspection and risk assessment, so as to assist in developing suitable risk mitigation measures.
Level	4
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to analysing the health, structural conditions and hazards of trees</p> <ul style="list-style-type: none"> • Comprehend the results of tree inspection and risk assessment of the responsible projects • Familiarise with the techniques and criteria for carrying out tree risk assessment • Familiarise with the relevant guidelines for tree risk assessment and management • Possess knowledge of tree biology, plant physiology, tree mechanics, defects in tree structure, tree health, and pests and diseases of plants, as well as knowledge of tree maintenance <p>2. Analyse the health, structural conditions and hazards of trees</p> <ul style="list-style-type: none"> • Analyse the severity of tree diseases and the mitigation measures in accordance with the results of tree inspection and risk assessment • Analyse the potential hazards, for example, assessment of the probability of collapse of trees or branches, areas where potential risks exist, and the probability of hitting targets upon collapse and the estimated casualties <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Interpret the results and data of tree risk assessment precisely, and provide accurate analysis of the health, structural conditions and degree of hazards of the trees
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to use professional knowledge to analyse the health, structural conditions and severity of hazards of trees in accordance with the results of tree inspection and risk assessment; and • Able to analyse the potential hazards of trees and propose corresponding mitigation measures.
Remark	

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Unit of Competency

Functional Area - Survey, Inspection and Risk Assessment

Title	Prepare various mitigation and maintenance plans
Code	109150L4
Range	This unit of competency is applicable to managers who are engaged in tree inspection and risk assessment in the arboriculture and horticulture industry. Practitioners should be capable of mastering the analysis results of tree inspection and risk assessment, as well as preparing corresponding mitigation measures and maintenance plans to help reduce risks.
Level	4
Credit	2 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to preparing various mitigation and maintenance plans</p> <ul style="list-style-type: none"> • Possess knowledge of tree assessment • Possess knowledge of tree biology, plant physiology, tree mechanics, defects in tree structure, tree health, and pests and diseases of plants, as well as knowledge of tree maintenance • Familiarise with risk mitigation measures and the technical requirements • Comprehend the relevant guidelines of various mitigation and maintenance measures • Comprehend the related support for the processes, site environment conditions and limitations of implementing various mitigation and maintenance plans <p>2. Prepare various mitigation and maintenance plans</p> <ul style="list-style-type: none"> • Propose appropriate risk mitigation measures • Propose the related support for the processes, the limitations and effectiveness of various mitigation measures, and analyse the residual risks after undertaking the mitigation measures • Propose appropriate management and maintenance plans • Review the effectiveness of the risk mitigation measures and the management / maintenance plans regularly <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Analyse the public expectations for tree management, and the effectiveness of risk mitigation measures and tree maintenance in an objective manner, so as to prepare appropriate plans • Strike a balance between budget and expectations
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to propose appropriate risk mitigation measures; • Able to propose appropriate tree management and maintenance plans; and • Able to review risk mitigation measures regularly.
Remark	

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Functional Area - Survey, Inspection and Risk Assessment

Title	Prepare various tree inspection or risk assessment reports
Code	109151L4
Range	This unit of competency is applicable to administrative personnel who are engaged in tree inspection and risk assessment in the arboriculture and horticulture industry. Practitioners should be capable of mastering the job requirements of the projects and the format of different types of tree inspection or risk assessment reports, so as to prepare various tree inspection or risk assessment reports.
Level	4
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to preparing various tree inspection or risk assessment reports</p> <ul style="list-style-type: none"> • Comprehend the job content and requirements of the projects • Comprehend the relevant guidelines and standards for tree risk assessment and management • Comprehend the requirements for writing technical documents • Comprehend the conduct and responsibilities in relation to tree inspection or risk assessment • Possess knowledge of tree assessment, tree risk mitigation, tree maintenance, etc. • Possess knowledge of tree biology, plant physiology, tree mechanics, defects in tree structure, tree health, pests and diseases of plants, etc. • Familiarise with the proper use of professional terms • Comprehend the format (such as forms), requirements and applications of various types of reports <p>2. Prepare various tree inspection or risk assessment reports</p> <ul style="list-style-type: none"> • Analyse the results of tree inspection or risk assessment • Choose appropriate report format • Write tree assessment reports, including collecting various kinds of suitable data, information and photos, and carrying out analysis; prepare suitable charts; refer to various guidelines, standards and other reference materials; list various assessment methods and their limitations; and draw conclusions and make recommendations • Explain the content and recommendations of the tree inspection or risk assessment reports to superiors or clients <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Express clearly, concisely and precisely • Remain objective and impartial, making conclusions based on facts • Cite the sources of the reference materials, protecting intellectual property • Be responsible for the content of the reports
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to choose appropriate report format according to the job requirements of the projects; • Able to integrate a wide range of information to write tree inspection or risk assessment reports, providing analysis and recommendations with solid bases; and • Able to clearly explain the content and recommendations of the tree inspection or risk assessment reports to superiors or clients.

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Functional Area - Survey, Inspection and Risk Assessment

Title	Review tree inspection or risk assessment reports
Code	109152L4
Range	This unit of competency is applicable to technical personnel who are engaged in reviewing tree inspection or risk assessment reports in the arboriculture and horticulture industry. Practitioners should be capable of reviewing the content of tree inspection or risk assessment reports in accordance with the relevant guidelines and standards for tree inspection or risk assessment, as well as proposing revisions and supplementary matters for the review reports.
Level	4
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to reviewing tree inspection or risk assessment reports</p> <ul style="list-style-type: none"> • Familiarise with the techniques, methods and established procedures for reviewing tree inspection and risk assessment reports • Comprehend the relevant guidelines and standards for reviewing tree inspection and risk assessment reports • Possess professional technical knowledge of tree inspection and risk assessment • Comprehend the conduct and responsibilities in relation to tree inspection or risk assessment • Possess knowledge of tree biology, plant physiology, tree mechanics, defects in tree structure, tree health, pests and diseases of plants, etc. • Comprehend risk mitigation measures and possess knowledge of tree maintenance <p>2. Review tree inspection or risk assessment reports</p> <ul style="list-style-type: none"> • Review the relevant tree inspection or risk assessment reports to ensure that the content complies with relevant guidelines and standards • Following the tree inspection or risk assessment procedures, inspect the target trees on-site and assess their surrounding environment • Analyse the information collected from the on-site assessment to identify the risk factors and determine the degree of risk • Review the methods and working procedures for tree inspection or risk assessment adopted in the reports • Assess the suitability of the risk mitigation measures implemented • Verify the authenticity and comprehensiveness of the content of the reports according to the results of the on-site assessment • Point out the abnormalities in the report content, and propose revisions and supplementary matters • Integrate various inspection and assessment results to write the review reports <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Undertake the review work in an objective and impartial manner, and write the report content based on facts
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to review the content of tree inspection or risk assessment reports in accordance with the relevant guidelines and standards for tree inspection or risk assessment; • Able to assess the target trees and their surrounding environment on-site to identify the risk factors and determine the degree of risk;

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	<ul style="list-style-type: none">• Able to review the methods, working procedures and risk mitigation measures adopted in the reports to ensure that they comply with the requirements of relevant guidelines, and point out the abnormalities in the report content; and• Able to integrate various inspection and assessment results to write the review reports, and propose revisions and supplementary matters.
Remark	

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Functional Area - Survey, Inspection and Risk Assessment

Title	Interpret and analyse data obtained with tree inspection instruments
Code	109153L5
Range	This unit of competency is applicable to managers or research personnel who are engaged in tree inspection and risk assessment in the arboriculture and horticulture industry. Practitioners should be capable of applying the expertise, information technology skills and analytical capability in relation to tree inspection instruments and related application software to integrate a wide range of information and data, so as to interpret the data obtained with tree inspection instruments. They should also be able to analyse and assess the internal structural conditions of trees and the overall tree risks.
Level	5
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to interpreting and analysing data obtained with tree inspection instruments</p> <ul style="list-style-type: none"> • Familiarise with the different procedures and levels of detail of tree inspection • Familiarise with the systematic approaches of tree inspection • Familiarise with the techniques and standards for applying different electronic instruments and related application software to conduct tree inspection • Comprehend the explanation, application, standards and limitations of the images and data output by different tree inspection instruments • Possess knowledge of tree biology, plant physiology, tree mechanics, defects in tree structure, tree health, etc. • Comprehend the pests / diseases and abiotic factors that cause plant and tree disorders <p>2. Interpret and analyse data obtained with tree inspection instruments</p> <ul style="list-style-type: none"> • Based on the records and results of the electronic instruments for tree inspection, interpret in detail the scanned images, distribution maps, photos and data obtained with reference to the instructions and standards of the relevant application software • Integrating and comparing related images and data, analyse and interpret the results to assess the internal structural conditions, degree of decay and health conditions of the trees • Consolidate all interpretations and analyses to assess the overall tree risks • Document the interpretation and analysis results so that the responsible personnel can develop corresponding mitigation measures and maintenance plans <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Interpret the meaning of the images and data of tree inspection precisely, and provide an accurate analysis of the internal structural conditions of the trees and the overall tree risks • Refer to the latest technologies and applications of tree inspection instruments used locally and overseas to improve the relevant standards of the organisation or the industry
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to effectively apply the expertise in various tree inspection instruments and related application software, and demonstrate the ability to interpret the relevant images and data;

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	<ul style="list-style-type: none">• Able to accurately interpret the scanned images and data of tree inspection, and conduct analyses; and• Able to provide a quantifiable assessment on the internal structural conditions and overall risks of the trees.
Remark	

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Functional Area - Survey, Inspection and Risk Assessment

Title	Develop tree risk management plans
Code	109154L5
Range	This unit of competency is applicable to technical personnel who are engaged in tree risk management in the arboriculture and horticulture industry. Practitioners should be capable of mastering the job content of the projects and the application of tree risk assessment and management to develop appropriate tree risk assessment objectives, procedures and management plans. They should also be able to implement quality assurance measures to ensure that the team can implement tree risk management in an effective and safe manner.
Level	5
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to developing tree risk management plans</p> <ul style="list-style-type: none"> • Comprehend the job content of the projects • Comprehend basic risk management theories • Comprehend the various considerations of tree risk management, such as the risk acceptance levels of various stakeholders • Comprehend the different levels and levels of detail of tree risk assessment • Comprehend the work procedures and monitoring mechanisms of tree risk assessment • Comprehend the guidelines related to tree risk assessment and management • Comprehend the theory and practice of quality management <p>2. Develop tree risk management plans</p> <ul style="list-style-type: none"> • Set the objectives of tree risk assessment with regard to corresponding circumstances • Develop appropriate inspection procedures and safety measures during implementation in accordance with the tree risk assessment objectives • Determine the suitable qualifications and competency requirements of inspectors in accordance with the relevant guidelines and inspection procedures of tree risk assessment and management • Following the regulations of relevant departments, implement appropriate temporary safety measures at the work sites, such as arrangements of transportation, lighting and electrical devices • Plan and make the independent or internal review arrangements • Set the format of the records and reports of the review • Review and update the risk assessment reports, manpower, workflow, work records and mitigation measures • Explain the quality assurance measures, implementation methods and expected results to the team <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Develop appropriate tree risk assessment procedures according to the actual work environment to ensure the safety of the operational staff and the public • Refer to and employ the latest technologies and assisting tools used locally and overseas related to risk management and tree risk assessment, so as to enhance the quality of tree risk management of the organisation • Collect opinions from supervisory staff and clients on the quality assurance measures with a view to improving and refining the measures

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Functional Area - Survey, Inspection and Risk Assessment

Assessment Criteria	The integrated outcome requirements of this unit of competency are: <ul style="list-style-type: none">• Able to employ professional knowledge to set appropriate tree risk assessment objectives and work procedures in accordance with the actual circumstances and regulations of relevant departments;• Able to consider the safety of the team and the public thoroughly, and include corresponding safety measures when making arrangements on manpower and workflow; and• Able to plan the quality assurance measures for tree risk assessment and require the team to implement them as specified.
Remark	

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Functional Area - Survey, Inspection and Risk Assessment

Title	Investigate the causes of tree incidents
Code	109155L5
Range	This unit of competency is applicable to technical personnel who are engaged in investigating the causes of tree incidents in the arboriculture and horticulture industry. Practitioners should be capable of using their expertise in tree inspection and risk assessment to investigate the scene of tree incidents and inspect the target trees on-site. They should also be able to integrate various investigation results to analyse the causes of tree incidents, as well as to prepare investigation reports on the causes of the tree incidents.
Level	5
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge related to investigating the causes of tree incidents</p> <ul style="list-style-type: none"> • Comprehend the causes of different tree incidents and their related influencing factors • Comprehend the guidelines and standards related to the investigation of the causes of tree incidents • Comprehend the methods and procedures for investigating the causes of tree incidents • Comprehend the professional skills of tree inspection and risk assessment, and the related knowledge • Possess knowledge of tree biology, plant physiology, tree mechanics, defects in tree structure, tree health, pests and diseases of plants, etc. <p>2. Investigate the causes of tree incidents</p> <ul style="list-style-type: none"> • Collect the background information of tree incidents through different channels and analyse the information • Conduct site investigation at the scene of tree incidents and collect relevant influencing environmental factors • Inspect the health and structural conditions of the target trees, and collect samples for further testing • Infer the major factors leading to the damage of tree health and structure from the inspection and testing results • Analyse the causes of tree incidents based on the background information of the tree incidents, influencing environmental factors, and the health and structural conditions of the trees • Suggest preventive measures to avoid the occurrence of similar incidents in accordance with the causes of the incidents and the latest conditions of the trees • Integrate results from different investigations and prepare investigation reports on the causes of the tree incidents <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Refer to other expert evidence and review past tree inspection and risk assessment reports to make judgments accurately
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Able to investigate the scene of tree incidents, and collect relevant background information and influencing environmental factors; • Able to inspect the health and structural conditions of target trees, and analyse the causes of tree incidents; and

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Functional Area - Survey, Inspection and Risk Assessment

	<ul style="list-style-type: none">• Able to integrate the results from different investigations, prepare the investigation reports on the causes of the tree incidents and suggest corresponding preventive measures.
Remark	

QF Level 1

Knowledge and Intellectual Skills

- Demonstrate and/or work with basic general and foundation knowledge in a narrow range of areas of a field of work or study
- Use basic intellectual skills in familiar, personal and/or everyday contexts
- Employ recall and demonstrate comprehension of facts with dependency on ideas of others
- Receive and pass on information

Processes

- Perform a limited range of tasks of a routine and repetitive nature in defined and highly structured contexts
- Use, under supervision or prompting, basic tools and materials
- Apply learnt responses to solve problems
- Take some account, with prompting, of identified consequences of actions

Autonomy and Accountability

- Carry out directed activity under close supervision
- Rely entirely on external monitoring of quantity and quality of own output
- Interact with others to complete tasks

Communication, ICT and Numeracy

- Use a limited range of simple skills with assistance in familiar, routine contexts
- Produce and respond to a limited range of simple, written and oral communications and take some part in discussions on straightforward subjects
- Carry out a limited range of simple tasks to process data and access information
- Use a limited range of simple and familiar numerical and graphical data

QF Level 2

Knowledge and Intellectual Skills

- Demonstrate and/or work with basic factual or operational knowledge in a selected number of areas of a field of work or study
- Use a range of intellectual skills in familiar, personal and/or everyday contexts
- Make comparisons with some evaluation and interpret available information

Processes

- Perform a range of tasks in predictable and structured contexts
- Apply basic tools and materials to complete routine processes
- Use rehearsed stages for solving problems
- Take account of the identified consequences of actions

Autonomy and Accountability

- Undertake directed activity with a degree of autonomy
- Accept defined responsibility for quantity and quality of own output subject to external quality checking
- Co-ordinate with others to achieve common goals

Communication, ICT and Numeracy

- Use a range of routine skills with some assistance in familiar, routine contexts
- Identify the main points and ideas from documents and reproduce them in other contexts
- Produce and respond to a specified range of written and oral communications and take an active part in discussions on identified topics
- Carry out a defined range of tasks to process data and access information
- Use a range of familiar numerical and graphical data

QF Level 3

Knowledge and Intellectual Skills

- Demonstrate and/or work with broad operational and theoretical knowledge of a field of work or study
- Use a broad range of intellectual skills in familiar but sometimes unfamiliar contexts
- Access, organise and evaluate information independently and draw reasoned conclusions

Processes

- Perform a broad range of tasks in a variety of familiar and some unfamiliar contexts using a known range of technical skills
- Employ a range of responses to well defined, but sometimes unfamiliar or unpredictable problems
- Make generalisations and predictions in familiar contexts

Autonomy and Accountability

- Carry out self-directed activity with guidance/ evaluation
- Accept responsibility for quantity and quality of own output and comply with prevailing practice
- Accept clearly defined but limited responsibility for the quantity and quality of the output of others
- Adapt own behaviour when working with others

Communication, ICT and Numeracy

- Use a wide range of largely routine and well-practiced skills in familiar and some unfamiliar contexts
- Produce and respond to detailed and complex written and oral communication and make presentations to an audience using suitable structure and style
- Use a wide range of standard ICT applications to obtain, process and combine information
- Use a wide range of numerical and graphical data to support work or study

QF Level 4

Knowledge and Intellectual Skills

- Demonstrate and/or work with a broad knowledge base with some specialised knowledge of a field of work or study
- Use a wide range of largely routine and some specialised intellectual skills related to a subject/discipline/sector
- Present and evaluate information, using it to inform future actions

Processes

- Perform skilled tasks requiring some discretion and creativity in a range of contexts
- Carry out routine lines of enquiry to address professional level issues and problems
- Exercise appropriate judgement in planning, selecting or presenting information, methods or resources

Autonomy and Accountability

- Undertake self-directed and some supervisory activity
- Operate within broad general guidelines and meet specified quality standards
- Take responsibility for the nature and quantity of own output
- Undertake a supervisory role, accepting some responsibility for the quantity and quality of the output of others including compliance with prevailing practice
- Contribute to group performance

Communication, ICT and Numeracy

- Use a wide range of routine and some advanced skills associated with a subject/discipline/sector in both familiar and some new contexts
- Synthesise, organise and present information coherently to convey complex ideas in well-structured form
- Use a wide range of standard ICT applications to support and enhance work
- Use and evaluate numerical and graphical data to measure progress and achieve goals and/or targets

QF Level 5

Knowledge and Intellectual Skills

- Demonstrate and/or work with in-depth specialised technical or theoretical knowledge of a field of work or study
- Use a wide range of specialised intellectual skills in support of established practices in a subject/discipline/ sector
- Critically analyse, evaluate and/or synthesise concepts, information and issues drawn from a wide range of sources to generate ideas

Processes

- Apply knowledge and skills in a range of technical, professional or management activities
- Identify and analyse both routine and abstract technical/ professional problems and issues, and formulate evidence-based responses
- Exercise appropriate judgement in planning, design, technical and/or management functions related to products, services, operations or processes

Autonomy and Accountability

- Accept responsibility and accountability, within broad parameters, for determining and achieving personal and/or group outcomes
- Work under the mentoring of senior qualified practitioners
- Deal with ethical issues, seeking guidance of others where appropriate

Communication, ICT and Numeracy

- Use some advanced and specialised skills in support of established practices in a subject/discipline/ sector
- Participate constructively in group discussions and make formal and informal presentations to a range of audiences on standard/mainstream topics in a subject/ discipline/sector
- Use some advanced features of ICT applications to support and enhance work
- Interpret, use and evaluate numerical and graphical data to set and achieve goals/ targets

QF Level 6

Knowledge and Intellectual Skills

- Demonstrate command of a systematic, coherent body of knowledge, some of which is at the forefront of a field of study or professional practice
- Utilise highly specialised technical, research or scholastic skills across an area of study
- Critically review, consolidate and extend knowledge, skills, practices and thinking in a subject/discipline/sector

Processes

- Apply knowledge and skills in a broad range of specialised technical, professional or management activities
- Utilise diagnostic and creative skills to carry out complex planning, design, technical and/or management functions related to products, services, operations or processes, including resourcing and evaluation
- Design and apply appropriate methodologies to conduct research and/or advanced technical or professional activity
- Critically evaluate new information, concepts and evidence from a range of sources and develop creative responses to routine and abstract professional problems and issues
- Deal with complex issues and make informed judgements in the absence of complete or consistent data/information

Autonomy and Accountability

- Exercise significant autonomy in determining and achieving personal and/or group outcomes
- Accept accountability in decision making relating to the achievement of outcomes
- Demonstrate leadership and make an identifiable contribution to change and development
- Deal with complex ethical and professional issues

Communication, ICT and Numeracy

- Use advanced and specialised skills to support academic and professional work in a subject/ discipline/sector
- Communicate, using appropriate methods, to a range of audiences including peers, senior colleagues and specialists
- Use advanced features of ICT applications to support and enhance work and identify refinements and/or new requirements to increase effectiveness
- Undertake critical evaluations of numerical and graphical data in support of decision-making

QF Level 7

Knowledge and Intellectual Skills

- Demonstrate a critical overview of a substantial body of knowledge and its related theories and concepts at the forefront of a field of study or professional practice, including an evaluative understanding of its broad relationship with other disciplines
- Make a significant and original contribution to a specialised field of inquiry, or to broader interdisciplinary relationships
- Identify, conceptualise and offer original and creative insights into new, complex and abstract ideas and information

Processes

- Apply knowledge and skills in a broad range of complex activities in highly specialised technical, professional or management contexts
- Demonstrate command of research and methodological issues and engage in critical dialogue
- Produce creative and original responses to problems and issues in the context of new circumstances
- Deal with very complex and/or new issues and make informed judgements in the absence of complete or consistent data/information

Autonomy and Accountability

- Assume a high degree of autonomy, with full accountability for own work, and significant responsibility for others
- Demonstrate leadership and originality in responding to new and unforeseen circumstances and accept accountability in related decision making
- Deal with very complex ethical and professional issues

Communication, ICT and Numeracy

- Use advanced and specialised skills to support academic and professional work that is at the forefront of a subject/discipline/ sector
- Strategically use communication skills, at the standard of published academic work and/or critical dialogue, adapting content and purpose to a range of audiences and contexts
- Use advanced features of ICT applications and specify requirements in anticipation of future needs
- Undertake critical evaluations of numerical and graphical data and employ such data extensively in support of the creation of new knowledge and innovative practice

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