DUT
DURBAN UNIVERSITY OF TECHNOLOGY
INYUVESI YASETHEKWINI YEZOBUCHWEPHESHE

FACULTY OF APPLIED SCIENCES

HORTICULTURE
2020 HANDBOOK

HANDBOOK FOR 2020

FACULTY of APPLIED SCIENCES

DEPARTMENT OF HORTICULTURE

IMPORTANT NOTICES

Your registration is in accordance with all current rules of the Institution. If, for whatever reason, you do not register consecutively for every year/semester of your programme, your existing registration contract with the Institution will cease. Your re-registration anytime thereafter will be at the discretion of the institution and, if permitted, will be in accordance with the rules applicable at that time.

The rules in this departmental handbook must be read in conjunction with the General Rules (G Rules) contained in the DUT General Handbook for Students as well as the relevant Study Guides.

With respect to an appeal, your attention is specifically drawn to Rules G1 (8) and (9), and to the process of dealing with students issues.

STRATEGIC DIRECTION
FACULTY OF APPLIED SCIENCES [Educate. Engage. Innovate.]
VISION
Leading innovation through science and technology

MISSION STATEMENT
Educate students
Generate new scientific knowledge
Engage communities

VALUES
1. **Accountability:** We take ownership of all activities, resources and tasks required of us. We deliver on our promises and responsibilities.
2. **Integrity:** We adhere to moral standards and principles. We are transparent and consistent in all our actions, and lead by example.
3. **Dedication:** We are committed to achieving our goals and expectations.
4. **Professionalism:** We operate within clear boundaries with respect to our code of conduct.
5. **People Oriented:** We are committed to sustaining the morale and holistic development of staff and student. We value diversity in all forms.

DEPARTMENT OF HORTICULTURE

VISION

Growing a Centre of horticultural excellence that integrates people, plants and planet.

MISSION

Empowering graduates to create sustainable healthy environments through the diverse use of plants.

VALUES

1. **Mutual Respect**
   We accept, acknowledge and embrace diverse people, plants and perspectives.
   Ubuntu: I am because you are
2. **Integrity**
   We are true to our word. We are ethical in our dealings with one another. We keep our commitments
3. **Accountability**
   We take responsibility for our actions. We are answerable for the tasks placed on us to deliver excellence
4. **Teamwork**
   We work together to add value and achieve our goals. Leadership, to us, is not about the leader – but the team.
5. **Environmental Ethics**
   We strive to develop green consciousness amongst all planetary citizens.

"Growing Success"

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1.0 DEPARTMENTAL AND FACULTY CONTACT DETAILS

All departmental queries to:

Secretary:	Ms S Mhlophe
Tel No:	031 373 5124
Fax mail:	086 743 6240
Email:	sphelelem@dut.ac.za
Location:	Room MB5-19; ML Sultan Campus: 41-43 ML Sultan Road

All Faculty queries to:

Faculty Officer:	Ms G Shackleford
General Enquiries No:	031 373 3033
Facsimile No:	031 373 2175
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Location:	Block S4 Level 3, Steve Biko Campus
Faculty Assistant:	Ms J Nagan
General Enquiries No:	031 373 2717
Facsimile No:	031 373 2175
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Location:	Block S4 Level 3, Steve Biko Campus
Executive Dean:	Prof S Singh
Executive Dean's Secretary:	Mrs N Naidoo
Telephone No:	031 373 2720
Facsimile No:	031 373 2724
Email:	dutfas@dut.ac.za
Location:	Between Block S6 and S7, Level 4, Steve Biko Campus

2.0 DEPARTMENTAL STAFF

Head of Department	Dr I Matimati, BSc. Agric. (Hons), MPhil Agric. (UZ), MSc. Bot. (UWC), PhD (Bot.) (UCT), Postdoc (Plant Ecophys.) (Rhodes), Pr Sci Nat.
Secretary	Ms S Mhlophe (PT), ND: Public Relations Management (DUT), BTech: Public Relations Management (DUT)
Senior Lecturers	Dr JB Foley, ND: Graphic Design (TN), PGD: Environment and Development (UN), NHD: Horticulture (TN); MTech: Tourism & Hospitality, PhD; Conservation (UKZN)
	Dr M Moyo, BSc. Agric. (Hons), (UZ), MSc Agric (WAU), PhD Bot. (UKZN), Postdoc (Plant Biotech) (UKZN)
Lecturers	Mrs A Badenhorst, ND: Horticulture (CPUT), BTech: Horticulture (CPUT), MSc Envir. Mngt. (UNISA)
	Mrs I Govender, BSc (Hons) (UDW), HED (Postgrad) (UNISA), MSc (Env. Sc.) (UN), Pr Sci Nat
	Mr DM Govender, BTech: Horticulture (TSA); BTech: Business Administration (DUT); MTech: Human Resource Management (DUT); IERM (Africa)
Senior Technical Assistant:	Mr T Anumanthoo, BTech: Horticulture (DUT); BTech Business Admin (DUT)
General Assistants:	Mr B Khanyile Mr A Mkhize Mr S Mdunge Ms N Nokwindla

3.0 QUALIFICATIONS OFFERED BY THE DEPARTMENT

Programmes offered in this Department which, upon successful completion, will lead to the award of the following qualifications:

- Diploma (D)
- National Diploma (ND)
- Advanced Diploma (AdvD)
- Bachelor of Technology (BT)

	Qualification Code	Important dates	SAQA NLRD ID
D: Sustainable Horticulture and Landscaping	DISLD1	1st offered Jan 2018	97807
ND: Horticulture	NDHRT2		72238
ND: Horticulture (ECP)	NDHTF1	Last offered in	72238
Advanced Diploma	ADUSH1	1st offered Jan	
BTech: Horticulture	BTHRT1		72139

4.0 DIPLOMA IN SUSTAINABLE HORTICULTURE AND LANDSCAPING (DISLD1)

Purpose of Qualification

One of the most rapid growth areas in the field of agriculture is that of horticulture. Horticulture includes producing, processing and marketing fruits, vegetables, and ornamental plants (turf grass, flowers, shrubs and trees grown and used for their beauty). Landscape horticulture includes the production, marketing and maintenance of landscape plants. Ranging from simple garden design to more sophisticated architectural designs, landscaping involves the organizing and enriching outdoor spaces by placing plants and structures in an agreeable and useful relationship with nature. Sustainable horticulture is dependent on a well maintained biodiversity. Hence, biodiversity conservation is an integral aspect of horticulture with a major focus on plant conservation and landscape restoration.

The three-year diploma course in Sustainable Horticulture and Landscaping is aimed at producing graduates who are competent to plan, develop and manage sustainable plant nurseries and landscapes in a variety of contexts (commercial, community, and amenity), while ensuring sustainable and effective use of natural resources. It will empower young people with the necessary skills set to create and maintain sustainable environments within the various strata of South African society. The first two years are spent in formal study while the third year involves a six-month period of structured practical learning at the department's School of Horticulture training facility and a further six-month integrated learning project with suitable industry mentors developing the required competencies.

4.1 Programme Structure (3 Year)

Code	Modules	Level of Study	Assessment Method	SAQA Credits	Pre-requisite Modules
PLSA101*	Plant Studies 1A	1	Ex	12	
HRTA101*	Horticulture 1A	1	Ex	16	
BSMA101*	Business Management 1A	1	Ex	8	
EGMA101	Estates & Grounds Management 1A	1	Ex	8	
GRMS101	Growth Media Studies	1	Ex	8	
CSTN101	Cornerstone 101	1	Ex	12	
PLSB101*	Plant Studies 1B	2	Ex	12	Plant Studies 1A
HRTB101*	Horticulture 1B	2	Ex	12	Horticulture 1A
BSMA101*	Business Management 1B	2	Ex	8	
EGMB101	Estates & Grounds Management 1B	2	Ex	8	Estate & Grounds Management 1A
ECLG101	Ecology	2	Ex	8	
ICTL101	• Information and Communication Technology Literacy and Skill (IGE)	2	CA	8	
PLSA201*	Plant Studies 2A	3	Ex	8	Plant Studies 1B
HRTA201*	Horticulture 2A	3	Ex	12	Horticulture 1B
BSMA201*	Business Management 2A	3	Ex	8	Business Management 1A & 1B
IPDA201	Integrated Pest & Disease Management	3	Ex	8	
EVSA201	Environmental Sustainability 2A	3	Ex	8	Ecology
SLPA201*	Sustainable Landscape Planning & Practice 2A	3	Ex	12	
MWMU101	• Me, My World, My Universe (IGE)	3	CA	8	
PLSB201*	Plant Studies 2B	4	Ex	12	Plant Studies 2A
HRTB201*	Horticulture 2B	4	Ex	8	Horticulture 2A
ESBM201*	Entrepreneurship & Small Business Management 2B	4	Ex	8	Business Management 2A
IPDB201	Integrated Pest & Disease Management 2B	4	Ex	8	Integrated Pest & Disease Management 2A
EVSB201	Environmental Sustainability 2B	4	Ex	8	Environmental Sustainability 2A
SLPB201*	Sustainable Landscape Planning & Practice 2B	4	Ex	12	Sustainable Landscape Planning & Practice 2A
PLSA301#*	Plant Studies 3A (DUT)	5 or 6	CA	16`	Plant Studies 2B
HRTA301#*	Horticulture 3A (DUT)	5 or 6	CA	16	Horticulture 2B
HLOA301#*	Horticultural and Landscape Operations 3A (DUT)	5 or 6	CA	8	Entrepreneurship & Small Business Management 2B

SLPA301#*	Sustainable Landscape Planning & Practice 3A (DUT)	5 or 6	CA	16	SustainableLandscape Planning & Practice 2B
WWRK101 LDSH101	Choice of one from below: • World of Work (IGE) • Leadership (IGE)	5 or 6	 CA CA	8	
ASCE101	• Community Development &	5 or 6	CA	12	
PLSB301#*	Plant Studies 3B (Industry)	5 or 6	CA	12	Plant Studies 2B
HRTB301#*	Horticulture 3B (Industry)	5 or 6	CA	12	Horticulture 2B
HLOB301#*	Horticultural and Landscape Operations 3B (Industry)	5 or 6	CA	8	Entrepreneurship & Small Business Management 2B
SLPB301#*	Sustainable Landscape Planning & Practice 3B (Industry)	5 or 6	CA	12	Sustainable Landscape Planning & Practice 2B

KEY:

Assessment: Ex = examinable; CA = Continuous Assessment

Numbers 1 to 4 indicates the year of study, "a"= Semester 1, "b"=Semester 2 (eg 2b=Second year, Semester 2),

*These are major modules

These are WIL and final level modules.

A Pre-Req (prerequisite) means this module must be passed prior to registration for the subsequent module.

IGE = Institutional General Education module

FGE = Faculty General Education Module, IGE = Institutional General Education module

4.2 Programme Information

This information must be read in conjunction with the programme rules that follow.

4.2.1 Academic Integrity

Refer to the DUT General Rules pertaining to academic integrity G13(1)(o) - covering falsification of academic records, plagiarism and cheating. These will be enforced wherever necessary to safeguard the worthiness of our qualifications, and the integrity of the Faculty of Applied Sciences at DUT.

4.2.2Code of Conduct for Students

A professional code of conduct pertaining to behaviour, appearance, personal hygiene and dress shall apply to all students registered with the Faculty of Applied Sciences, at all times. Refer to Programme Rule 5.3.8 below.

4.2.3 Attendance

Students are expected to achieve 100% attendance for all planned academic activities as these are designed to provide optimal support for the required competency. Students are expected to be punctual for all academic activities. Penalties may be invoked for late attendance. Refer to Programme Rule 5.3.9 below.

4.2.4 Work Integrated Learning (WIL)

The compulsory WIL component of this programme comprises 12 months. Refer to Programme Rule 5.3.7 below.

4.2.5 Assessment and Moderation

Students are expected to work steadily through the period of registration in order to achieve the highest results possible. Assessment details are listed under each subject at the back of this handbook. Assessments could include a variety of testing methods including, but not limited to, written tests, oral tests, theoretical or practical examinations, group work and assignments. Assignments must be handed personally to the lecturer who will record their receipt. Late submission will be penalised. In the case of a continuous assessment subject (a subject which has no final examinations or supplementary examinations) opportunities for reassessment are provided for students who fail assessments. These are stipulated in the relevant study guide. Moderation follows the DUT Assessment Policy stipulations. Refer to Programme Rule 5.3.9 below.

4.2.6 Employment Opportunities

The Horticulture sector is broad, diverse and multidisciplinary. In an emerging developing country such as South Arica there is an urgent demand for skilled graduates to create and conserve rich bio-diverse landscapes. There are seven broad sectors within the green economy that provide employment to our graduates. These are Nursery Production, Floriculture, Retail Garden Centres, Turf Grass Culture and Management, Conservation Horticulture, Amenity Horticulture and Landscape Design. Career opportunities are unlimited. Past alumni trained by the Durban University of Technology are leaders and innovators within the Green Industry. Horticulture and landscaping are truly portable skills and our qualifications recognized internationally. Our students have worked all over the world including Mozambique, Indian Ocean Islands, Florida USA, Australia, the UK and the Middle East.

4.2.7 Registration Periods:

January - The following groups will register in January: All
Semesters 1, 3 and 5 students
July - The following groups will register in July: All
Semesters 2, 4 and 6 students

4.3 Programme Rules

4.3.1 Minimum Admission Requirements

In addition to DUT Rule G7, the following minimum entrance requirements and the selection criteria outlined in Rule 4.3.2 will apply for applicants with reference to:-

4.3.1.1 Academic Achievement

In line with the above, the applicants' school leaving academic achievement must comply with one of the following at the stated minimum ratings as outlined in the table below:

(i) A National Senior Certificate (NSC) with endorsement for a diploma/degree:

(ii) A Senior Certificate with matriculation exemption and the following modules at the stated minimum ratings:

(iii) A National Certificate (Vocational) Level 4 with statutory requirements for a diploma entrance and the following modules at the stated minimum ratings:

(iv)

Compulsory Module	NSC Rating	SC		NCV
		HG	SG	
English (Home) OR English (1st Additional)	4	E	D	50%
Mathematics OR Mathematical Literacy	3 or 4, respectively	E	D	50%
Life Sciences (or recognized equivalents)	4	E	D	60%

4.3.1.2 Admission Requirements based on Work Experience, Age and Maturity; and Recognition of Prior Learning

The DUT Rules G7 (3), and G7 (8) respectively, will apply.

4.3.1.3 Admission of International Applicants

The DUT's Admissions Policy for International Students and DUT Rules G4 and G7 (5) will apply.

International applicants must meet the equivalent programme minimum entrance requirements as stated above.

4.3.1.4 Admission of Applicants from Other Institutions

In addition to the relevant DUT Rules a transferring applicant will only be accepted if there are places available and the student has met the applicable entrance requirements of the university.

4.3.2 Selection Criteria *(Programme Rule)*

In addition to the Minimum Admission Requirements (Rule 4.3.1), the following selection process will determine acceptance into the programme:

- All applicants must apply through the Central Applications Office (CAO).
- Initial shortlisting for selection is based on the applicant's academic performance in Grade 12 (Grade 11 or Grade 12 trial marks will be used for current matriculants). Applicants who meet the above criteria will be ranked based on performance according to the table below:-
-

Assessment	Weighting
Academic achievement • Average percentage of all compulsory modules (refer to 4.3.1.1)	100%

- Provisional acceptance will be given to selected applicants awaiting National Senior Certificate* (NSC). If the final Grade 12 results do not meet the minimum entrance requirements, this provisional acceptance will be withdrawn.
- Final selection for placement will be based on results of the above ranking process.

Where spaces are limited, preference will be given to applicants with minimum achievement rating of 5 for Geography OR Agricultural Science OR Engineering & Graphic Design.

(refer to DUT Rule G5).

4.3.3 Pass Requirements

In addition to the DUT Rules G12, G14 and G15, the following programme rules apply:

4.3.3.1 In addition to DUT Rule G12 (1) students must obtain a sub-minimum of 50% for the practical component in order to qualify for admission to the examination in that module. Refer to Table 4.1 Programme Structure.

4.3.3.2 A student is required to attend scheduled practicals to be granted a course mark. Field trips form part of practical assessments. Make-up assessments will only be granted to deserving cases in which the student must have had at least 80% attendance.

4.3.4 Promotion to a Higher Level/Progression Rules

4.3.4.1 Promotion from Study Period 1 to Study Period 2

The DUT Rule G16 applies.

4.3.4.2 Promotion from Study Period 2 to Study Period 3 Students must have passed ALL modules in Study Period 1 and Study Period2, before proceeding to Study Period 3.

4.3.5. Exclusion Rules

In addition to DUT Rule G17, a student in their first year of studies who fails 50% plus one of the modules with an average of less than 40% in each of the failed modules is not permitted to reregister in this programme. Deregistration from any modules is subject to the provision of DUT Rule G6A.

4.3.6 Interruption of Studies

Should a student interrupt their studies by more than three (3) years, the student will need to apply to the department for permission to reregister and will need to prove currency of appropriate knowledge prior to being given permission to continue with registration.

4.3.7 Work Integrated Learning Rules *(Programme Rule)*

The DUT Rule G28 applies. (Detailed guidelines which are contained in the portfolio file handed to students on completion of their registration for the first semester of Work Integrated Learning. Registration is only complete when an ET2 form has been submitted to the Department and the appropriate registration fee has been paid.)

4.3.7.1 Registration must be completed during the annual registration period. Students must inform the Head of Department within two weeks of any changes affecting their training (eg change of employer or contact address). Any such changes must be submitted to the Department by completing the appropriate "Change of Work Integrated Learning Details" form which may be found in the portfolio file.

4.3.7.2 Where a student submits written proof of Work Integrated Learning received before registering for the Diploma: Sustainable Horticulture and Landscaping, a maximum period of six months (one semester) of Work Integrated Learning may be credited after meeting RPL requirements and departmental panel requirements.

4.3.7.3 This programme requires all students/candidates to undergo one semester of structured Work Integrated Learning at DUT under the School of Horticulture and one semester in industry. All prescribed compulsory and elective modules together with the prescribed School of Horticulture (one semester) and Work Integrated Learning component (one semester must be passed in order to obtain the qualification.

4.3.7.4 In terms of Work Integrated Learning placement:

(i) The employer must be accredited by the Institution for the purposes of Work Integrated Learning.

(ii) A Work Integrated Learning agreement creates a separate contract between the "employer" and the student/candidate.

(iii) The department may assist the student in obtaining suitable Work Integrated Learning placement.

4.3.8 Code of Conduct

In addition to the Student Code of Conduct in the DUT General Handbook for Students, and the relevant requirements as stated in the appropriate Study Guides, the following rules apply:

4.3.8.1 **Conduct of Students in Practical Facilities**

Strict adherence to instructions issued by technical, supervisory or academic staff is required due to the need to ensure effective and safe practice in these facilities. Misconduct or disregard for instructions will be referred to the relevant disciplinary procedure.

4.3.8.2 **Uniforms**

Students must adhere to instructions issued by technical, supervisory or academic staff regarding the specific dress code required during practicals. Non-compliance will result in the student being denied access to the venue.

4.3.9 **Attendance and Assessment *(Programme Rule)***

4.3.9.1 A student who, for any valid reason (Refer to Programme Rule 4.3.9.2), is absent from planned academic activity must provide written proof of the reason for the absence to the lecturer concerned, within five (5) working days of returning to the institution in order to be considered for a special assessment.

4.3.9.2 The DUT Rule G13(3)(a) which refers to special examinations also refers to special assessments set within departments for students who have missed coursework assessments. In these cases the department will determine the validity of the student's reason for not taking the assessment, and the nature of the special assessment.

4.3.10 Health and Safety *(Programme Rule)*

Students must adhere to all Health and Safety regulations both on campus and off campus at all times. Failure to do so will be treated as a breach of discipline. Refer to the appropriate Health and Safety policies.

4.3.11. General Education Modules *(Programme Rule)*

Students must comply with the university's General Education requirement. This includes the following standalone General Education modules which comprise of:

- 1 Compulsory DUT Cornerstone 101 module
- 1 Compulsory Faculty General Education module
- 3 Elective Institutional General Education modules (Students will take elective modules as indicated in Table 4.1 Programme Structure)

5. NATIONAL DIPLOMA: HORTICULTURE (NDHRT2)

Purpose of Qualification

The purpose of this programme is to produce graduates who are competent to plan, develop and manage sustainable plant nurseries and landscapes in a variety of contexts (commercial, community, and amenity), while ensuring sustainable use of natural resources and minimising harm to the environment.

5.1 PROGRAMME STRUCTURE (3 YEAR)

Code	Subjects	Year/Sem of Study	Assessment Method	Nated Credits	Prerequisite Subjects
GMET101*	Growth Media Technology I	1a	Ex	0.070	
HORT102*	Horticulture	1a	Ex	0.090	
PMAS101*	Plant Material Studies I	1a	Ex	0.090	
SPLN101	Site Planning I	1a	Ex	0.070	
SUMN102*	Supervisory Management I	1a	Ex	0.090	
HMEC101	Horticultural Mechanisation I	1a	Ex	0.070	
TGCL101	Turf-grass Culture I	1b	Ex	0.070	
ESTD102	Environmental Studies I	1b	Ex	0.090	
HORT202*	Horticulture II	1b	Ex	0.133	Horticulture I
HMNT203*	Horticultural Management II	1b	Ex	0.132	Supervisory Management I
PMAS201*	Plant Material Studies II	1b	Ex	0.095	Plant Material Studies I
PLPR201	Plant Protection II	2	Ex	0.125	
ESTD201	Environmental Studies II	2	Ex	0.125	Environmental Studies I
HORT302*#	Horticulture III	2	Ex	0.300	Horticulture II
PMAS301*#	Plant Material Studies III	2	Ex	0.150	Plant Materials Studies II
HPRM301*#	Horticultural Production Management III	2	Ex	0.300	Horticultural Management
HRTP201/2	Horticulture Practice II A/B	3	CA	0.500	See Rule 4.3.7.5
HTPS201/2	Horticulture Practice II A/B (SoH)	3	CA	0.500	See Rule 4.3.7.5

KEY: The three major subjects at each level are indicated with an * next to the subject code.
Assessment: Ex = examinable; CA = Continuous Assessment
Numbers 1 to 3 indicates the year of study, "a"= Semester 1, "b"=Semester 2 (eg 1b=First year, Semester 2)
These subjects are final level subjects.
A Pre-Req (prerequisite) means this subject must be passed prior to registration for the subsequent subject

5.2 PROGRAMME INFORMATION

This information must be read in conjunction with the programme rules that follow.

5.2.1. Academic Integrity

Refer to the DUT General Rules pertaining to academic integrity G13 (1) (o) —covering falsification of academic records, plagiarism and cheating. These will be enforced wherever necessary to safeguard the worthiness of our qualifications, and the integrity of the Faculty of Applied Sciences at DUT.

5.2.2. Code of Conduct for Students

A professional code of conduct pertaining to behaviour, appearance, personal hygiene and dress shall apply to all students registered with the Faculty of Applied Sciences, at all times. Refer to Programme Rule 5.3.8 below.

5.2.3. Attendance

Students are expected to achieve 100% attendance for all planned academic activities as these are designed to provide optimal support for the required competency. Students are expected to be punctual for all academic activities. Penalties may be invoked for late attendance. Refer to Programme Rule 5.3.9 below.

5.2.4 Work Integrated Learning (WIL)

The compulsory WIL component of this programme comprises 12 months. Refer to Programme Rule 5.3.7 below.

5.2.5. Assessment and Moderation

Students are expected to work steadily through the period of registration in order to achieve the highest results possible.

Assessment details are listed under each subject at the back of this handbook.

Assessments could include a variety of testing methods including, but not limited to, written tests, oral tests, theoretical or practical examinations, group work and assignments.

Assignments must be handed personally to the lecturer who will record their receipt. Late submission will be penalised.

In the case of a continuous assessment subject (a subject which has no final examinations or supplementary examinations) opportunities for reassessment are provided for students who fail assessments. These are stipulated in the relevant study guide.

Moderation follows the DUT Assessment Policy stipulations. Refer to Programme Rule 5.3.9 below.

5.2.6. Employment Opportunities

The Horticulture sector is broad, diverse and multidisciplinary. In an emerging developing country such as South Arica there is an urgent demand for skilled graduates to create and conserve rich bio-diverse landscapes. There are seven broad sectors within the green economy that provide employment to our graduates. These are Nursery Production, Floriculture, Retail Garden Centres, Turf Grass Culture and Management, Conservation Horticulture, Amenity Horticulture and Landscape Design. Career opportunities are unlimited. Past alumni trained by the Durban University of Technology are leaders and innovators within the Green Industry. Horticulture and landscaping are truly portable skills and our qualifications recognized internationally. Our students have worked all over the world including Mozambique, Indian Ocean

Islands, Florida USA, Australia, the UK and the Middle East.

5.2.7 Registration Periods:
January - The following group will register in January:
All 3rd year experiential learning students

5.3 PROGRAMME RULES

5.3.1 Minimum Admission Requirements
No students will be admitted under this programme in 2018

5.3.2. Selection Criteria
No students will be admitted under this programme in 2018

5.3.3. Pass Requirements
In addition to the DUT Rules G12, G14 and G15, the following programme rules apply:

5.3.3.1 In addition to DUT Rule G12(1) students must obtain a sub- minimum of 50% for the practical component in order to qualify for admission to the examination in that subject. Refer to Table 5.1 **Programme Structure.**

5.3.3.2 A student is required to attend all field trips and scheduled practicals to be granted a course mark. *(Approved by Senate Rules Comm wef 2014/10)*

5.3.4. Promotion to a Higher level/Progression Rules

5.3.4.1 Promotion from Year 1 to Year 2
The DUT Rule G16 applies *(Approved by Senate Rules Comm wef 2019/08)*

5.3.5 Exclusion Rules
In addition to DUT Rule G17, a first semester/year student who fails three or more subjects with a final result of less than 40% in each subject is not permitted to reregister in this programme. Deregistration from any subjects is subject to the provision of DUT Rule G6. *(Approved by Senate Rules Comm wef 2014/10)*

5.3.6 Interruption of Studies
In accordance with DUT Rule G21A(b), the minimum duration for this programme will be 3 years of registered study and the maximum duration will be 5 years of registered study, including any periods of WIL. Should a student interrupt their studies by more than three (3) years, the student will need to apply to the department for permission to reregister and will need to prove currency of appropriate knowledge prior to being given permission to continue with registration.
(Approved by Senate Rules Comm wef 2014/10)

5.3.7 Work Integrated Learning Rules
In addition to the DUT Rule G28, the following programme rules apply: (Detailed guidelines which are contained in the portfolio file handed to students on completion of their registration for the first semester of Work Integrated Learning. Registration is only complete when an ET2 form has been submitted to the Department and the appropriate registration fee has been paid.)

5.3.7.1 Registration must be completed during the annual registration period. Students must inform the Head of Department within two weeks of any changes affecting their training (eg change of employer or contact address). Any such changes must be submitted to the Department by completing the appropriate "Change of Work Integrated Learning Details" form which may be found in the portfolio file.

5.3.7.2 Where a student submits written proof of Work Integrated Learning received before registering for the ND: Horticulture, a maximum period of six months (1 semester) of Work Integrated Learning may be credited after scrutiny by a departmental panel. NB- If a credit is granted, the student must still register for that period.

5.3.7.3 This programme requires all students/candidates to undergo one semester of structured Work Integrated Learning at DUT under the School of Horticulture and one semester in industry. All prescribed compulsory and elective subjects and the prescribed Work Integrated Learning component must be passed in order to obtain the qualification.

5.3.7.4 In terms of Work Integrated Learning placement:

(i) The employer must be accredited by the Institution for the purposes of Work Integrated Learning.

(ii) A Work Integrated Learning agreement creates a separate contract between the "employer" and the student/candidate.

(ii) The department will assist the student in obtaining suitable Work Integrated Learning placement.

5.3.7.5 A student who is registering for the requisite one semester of structured Work Integrated Learning at DUT School of Horticulture:

(i) is required to have passed all first year subjects (Semester 1 and 2) and

(ii) is required to have passed a minimum of three second year subjects of which two must be major subjects.

iii) In addition to (i) and (ii) the student will not be allowed to register at DUT for outstanding second year subjects whilst registered for structured work integrated learning.
(Approved by Senate wef 2011/05)

5.3.8 Code of Conduct

In addition to the Student Code of Conduct in the DUT General Handbook for Students, and the relevant requirements as stated in the appropriate Study Guides, the following rules apply:

5.3.8.1 **Conduct of Students in Practical Facilities**

Strict adherence to instructions issued by technical, supervisory or academic staff is required due to the need to ensure effective and safe practice in these facilities. Misconduct or disregard for instructions will be referred to the relevant disciplinary procedure. *(Approved by Senate Rules Comm wef 2014/10)*

5.3.8.2 **Uniforms**

Students must adhere to instructions issued by technical, supervisory or academic staff regarding the specific dress code required during practicals. Non-compliance will result in the student being denied access to the venue.
(Approved by Senate Rules Comm wef 2014/10)

5.3.9 Attendance and Assessment

5.3.9.1 A student who, for any valid reason (Refer to Programme Rule 5.3.9.2 below), is absent from a particular practical or test, must provide written proof of the reason for the absence to the lecturer concerned, within five (5) working days of returning to the institution in order to be considered for a special assessment.
(Approved by Senate Rules Comm wef 2014/10)

5.3.9.2 The DUT Rule G13 (3) (a) which refers to special examinations also refers to special assessments set within departments for students who have missed coursework

assessments. In these cases the department will determine the validity of the student's reason for not taking the assessment, and the nature of the special assessment. *(Approved by Senate Rules Comm wef 2014/10)*

5.3.10 Health and Safety

Students must adhere to all Health and Safety regulations both while at DUT and in WIL placements. Failure to do so will be treated as a breach of discipline. Refer to the appropriate Health and Safety policies.
(Approved by Senate Rules Comm wef 2014/10)

6.0 NATIONAL DIPLOMA: HORTICULTURE (EXTENDED CURRICULUM) (NDHTF1)

Purpose of Qualification

The purpose of the ND: Horticulture is to produce graduates who are competent to plan, develop and manage sustainable plant nurseries and landscapes in a variety of contexts (commercial, community, amenity) while ensuring sustainable use of natural resources and minimising harm to the environment.

This qualification is offered through a three year programme (refer to item 4 above), or through an augmented curriculum - offered over a minimum of four years of study — which is devised to enhance student development and to improve the student's chances of successful completion.

6.1 PROGRAMME STRUCTURE (4 YEAR)

Code	Subjects	Year/Sem of Study	Assessment Method	NATED Credits	Pre-requisite Subjects
PMAS101*	Plant Material Studies I	I annual	Ex	0.045	
SUMN102*	Supervisory Management I	I annual	Ex	0.045	
HORT102*	Horticulture I	1a	Ex	0.050	
HTTQ101	Horticultural Techniques I	1a	CA	0.500	
HORT202*	Horticulture II	1b	Ex	0.080	Horticulture I
HTTQ201	Horticultural Techniques II	1b	CA	0.500	Horticultural Techniques I
GMET101	Growth Media Technology I	2a	Ex	0.030	
HMEC101	Horticultural Mechanisation I	2a	Ex	0.035	
SPLN101	Site Planning I	2a	Ex	0.030	
ESTD102	Environmental Studies I	2b	Ex	0.040	
HMNT203*	Horticultural Management II	2b	Ex	0.070	Supervisory Management I
PMAS201*	Plant Material Studies II	2b	Ex	0.040	Plant Material Studies I
TGCL101	Turf-grass Culture I	2b	Ex	0.035	
PLPR201	Plant Protection II	3	Ex	0.050	Environmental Studies I
ESTD201	Environmental Studies II	3	Ex	0.050	Horticulture II
HORT302*#	Horticulture III	3	Ex	0.149	Plant Materials Studies II
PMAS301*#	Plant Material Studies III	3	Ex	0.075	Horticultural Management II
HPRM301*#	Horticultural Production Management III	3	Ex	0.176	Environmental Studies I
HRTP201/2	Horticulture Practice II A/B	4	CA	0.500	See Rule 4.3.7.5
HTPS201/2	Horticulture Practice II A/B (SoH)	4	CA	0.500	See Rule 4.3.7.5

KEY: The three major subjects at each level are indicated with an * next to the subject code. Assessment: Ex = examinable; CA = Continuous Assessment

Numbers 1 to 4 indicates the year of study, "a"= Semester 1, "b"=Semester 2 (eg 1b=First year, Semester 2)

These subjects are final level subjects.

A Pre-Req (prerequisite) means this subject must be passed prior to registration for the subsequent subject.

6.2 PROGRAMME INFORMATION

Refer to 5.2 Programme Information under the ND: Horticulture.

6.3 PROGRAMME RULES

Refer to 5.3 Programme Rules under the ND: Horticulture and the following rules which apply specifically to ND: Horticulture (ECP).

6.3.1 Minimum Admission Requirements

No students will be admitted under this programme in 2018.

6.3.2 Selection Criteria

No students will be admitted under this qualification in 2018.

6.3.3 Pass Requirements

Refer to Rule 5.3.3 which is applicable to both the ND and ND (ECP).

6.3.4 Promotion to a Higher level/Progression Rules

The DUT Rule G16 applies

6.3.5 Exclusion Rules

Refer to Rule 5.3.5 which is applicable to both the ND and ND (ECP).

6.3.6 Interruption of Studies

In accordance with Rule G21A(b), the minimum duration for this programme will be 4 years of registered study and the maximum duration will be 5 years of registered study, including any periods of WIL. Should a student interrupt their studies by more than three (3) years, the student will need to apply to the department for permission to reregister and will need to prove currency of appropriate knowledge prior to being given permission to continue with registration.
(Approved by Senate Rules Comm wef 2014/10)

6.3.7 Work Integrated Learning Rules

Refer to Rule 5.3.7 which is applicable to both the ND and ND (ECP).

6.3.8 Code of Conduct

Refer to Rule 5.3.8 which is applicable to both the ND and ND (ECP).

6.3.9 Attendance and Assessment

Refer to Rule 5.3.9 which is applicable to both the ND and ND (ECP).

6.3.10 Health and Safety

Refer to Rule 5.3.10 which is applicable to both the ND and ND (ECP).

7.0 ADVANCED DIPLOMA IN SUSTAINABLE HORTICULTURE (ADSUH1)

Purpose of Qualification

The purpose of the Advanced Diploma in Sustainable Horticulture is to enable an applied specialisation within the Horticulture field of study which is interdisciplinary in nature. The qualification serves to strengthen and deepen the student's theoretical knowledge and intellectual independence. This will be achieved through advanced reflection and systematic survey of current thinking, practice and research.

7.1 Programme Structure

Code	Subjects	Year/ Sem of Study	Assessment Method*	HEQSF Credits	Prerequisite Subjects
Full-Time					
COHO401	Conservation Horticulture 4A	1a	Ex	16	
HOMA401	Horticultural Operations Management 4A	1a	Ex	16	
RPJT401	Research Methodology	1a	CA	12	
SUHO402	Sustainable Horticulture 4A	1a	Ex	16	
COHO402	Conservation Horticulture 4B	1b	Ex	16	Conservation Horticulture 4A
HOMA402	Horticultural Operations Management 4B	1b	Ex	16	Horticultural Operations Management 4A
SUHO402	Sustainable Horticulture 4B	1b	Ex	16	Sustainable Horticulture 4A
RSMT401	Research Projects	1b	CA	12	Research Methodology

Part-Time					
COHA401	Conservation Horticulture 4A	1a	Ex	16	
SUHO401	Sustainable Horticulture 4A	1a	Ex	16	
COHA401	Conservation Horticulture 4B	1b	Ex	16	Conservation Horticulture 4A
SUHO401	Sustainable Horticulture 4B	1b	Ex	16	Sustainable Horticulture 4A
HOMA401	Horticultural Operations Management 4A	2a	Ex	16	
RPJT401	Research Methodology	2a	CA	12	
HOMA402	Horticultural Operations Management 4B	2b	Ex	16	Horticultural Operations Management 4A
RSMT401	Research Projects	2b	CA	12	Research Methodology

KEY: * Assessment: Ex = examinable; CA = Continuous Assessment

A Pre-Req (prerequisite) means this subject must be passed prior to registration for the subsequent subject.

7.2 Programme information

The Advanced Diploma in Sustainable Horticulture (ADSUH1) will be offered on both a full-time

and part-time basis.

7.3 PROGRAMME RULES

7.3.1 Minimum Admission Requirements

In addition to DUT Rules G7 and G21C, applicants must be in possession of one of the following minimum admission requirements for entry into this programme:

- Diploma in Sustainable Horticulture and Landscaping or
- National Diploma in Horticulture or
- A recognized equivalent qualification at NQF level 6

7.3.2 Duration of Programme

DUT Rule G21C (2) and G21C (3) apply.

7.3.3 Promotion to a Higher Level/ Progression rules

The DUT Rule G16 applies.

7.3.4 Exclusion Rules

In addition to DUT Rule G17, a student in the first semester who fails 50% plus one of the modules with an average of less than 40% in each module is not permitted to reregister in this programme. Deregistration from any modules is subject to the provision of DUT Rule G6A.

7.3.5 Interruption of Studies

The DUT Rule G6B pertaining to interruption of studies will apply.

8.0 BACHELOR OF TECHNOLOGY: HORTICULTURE (BTHRT1)

8.1 PROGRAMME STRUCTURE

Code	Subjects	Year/Sem of Study	Assessment Method	NATED Credits	Pre-requisite Subjects
HPRM401	Horticultural Production Management IV	Annual	Ex	0.400	Hort. Management III
HPTC401	Horticultural Production Techniques IV	Annual	Ex	0.400	Horticulture III
RSMT101	Research Methodology	Annual	CA	0.200	

KEY: * Assessment: Ex = examinable; CA = Continuous Assessment
A Pre-Req (prerequisite) means this subject must be passed prior to registration for the subsequent subject.

8.1 PROGRAMME INFORMATION

The BT: Horticulture will be offered on a part-time basis where the subjects Horticultural Production Management IV and Horticultural Production Techniques IV will be offered each alternate year. The subject Research Methodology will be offered every year.

8.2 PROGRAMME RULES

8.2.1 Minimum Admission Requirements

No students will be admitted under this programme in 2020

8.2.1 Selection Criteria

No students will be admitted under this programme in 2020

8.2.2 Pass Requirements

The DUT Rules G12, G14 and G15 apply.

8.2.3 Re-registration Rules

The DUT Rule G16 applies.
All BTech Students will register in January:

- Horticultural Production Management IV OR
- Horticultural Production Techniques IV (offered each alternate year) AND
- Research Methodology.

8.2.4 Exclusion Rules

The DUT Rules G17 and G23 (A) (a) (4) apply.

8.2.5 Interruption of Studies

In accordance with Rule G23A (a), the minimum duration for this programme will be 2 year of registered study and the maximum duration will be 2 years of registered study, including any periods of WIL. Should a student interrupt their studies by more than three (3) years, the student will need to apply to the department for permission to reregister and will need to prove currency of appropriate knowledge prior to being given permission to continue with registration.

9.0 SERVICED SUBJECTS

The Department of Horticulture's rules apply to all serviced subjects. The following

subjects may be serviced externally to this department.

Department	Subject	Subject Code
Management and Entrepreneurial Studies	Horticultural Production Management 3	HPRM301
	Entrepreneurship	SUMN102
TBA	Research Methodology	RSMT101

10. SHORT COURSES

This programme does not currently offer any short courses.

11.0 SUBJECT CONTENT

NB: Students to read this section in conjunction with the relevant Study guides.

11.1 DIPLOMA IN SUSTAINABLE HORTICULTURE AND LANDSCAPING

DISLD1

HORTICULTURE 1A (HRTA101)

CONTACT TIME: Theory (4)
Practical (2)

ASSESSMENT

Course Mark: Theory: 50%
Assignment: 25%
Practicals: 25%

Examination: 1 x 3 hour paper

Final Mark: Course Mark (40%) + Examination Mark (60%)

SYLLABUS: This module enables the student to select, propagate and culture a range of plant materials through sexual and asexual propagation methods while practicing the principles of sustainability. Upon completion of this module the student will be able to:
Understand the uses of plants, utilize knowledge of sanitary practices in horticulture, demonstrate and apply knowledge of sexual plant propagation, demonstrate and apply knowledge of asexual plant propagation and maintain newly propagated plant material.

HORTICULTURE 1B (HRTB101)

CONTACT TIME: Theory (4) ASSESSMENT

Course Mark: Theory: 80%
Assignment: 20%

Examination: 1 x 3 hour paper

Final Mark: Course Mark (40%) + Examination Mark (60%)

SYLLABUS Greenhouse Technology: Greenhouse structures, siting and orientation, Covering materials, Structural components; Growth Environmental Manipulation Systems and Specialized Growth Structures; Shadehouses and Covering materials, Planning, Layout and Development of a Community Nursery; Pathways for plant growth and development; Environmental factors affecting growth and development; Changes in plant life cycles – Flowers and fruit for profit and factors influencing its growth and development; Temperature: Measures of heat (heat energy), The greenhouse effect, Greenhouse heating and cooling and ventilation systems; Relative Humidity-RH:
Understanding and how it affects plant growth in the greenhouse environment, Measurement; Irrigation and Fertigation systems: Irrigation system selection for nurseries and landscaped gardens, wetting patterns, Advantages and possible problems in irrigation systems, Fertigation systems and chemical equipment, Types of fertilizers and fertilizer solutions

HORTICULTURE 2A (HRTA201)

CONTACT TIME: Theory (4)
Practical's (2)

ASSESSMENT

Course Mark: Theory: 50%
Assignment: 25%
Practical's: 25%

Examination: 1 x 3 our paper

Final Mark: Course Mark (40%) + Examination Mark (60%)

SYLLABUS: This module will equip the student with the required skills to produce the highest quality plant material within the context of commercial, amenity and community nurseries. The student will gain knowledge of the horticultural significance and profitability of each crop in the global, national and local context. The latest cultivation and production techniques for a wide range of ornamental conservation and community crops are presented.

Upon completion of this module the student will be able to:
Source, propagate and successfully culture ornamental, exotic and indigenous, plant material for use within the commercial, amenity and community sectors of the green industry, while demonstrating knowledge of sustainable practices.
Apply a broad knowledge base of all the major categories of plant production including;

- Floriculture,
- Annuals/Bedding plants.
- Foliage crops and Indoor plants

HORTICULTURE 2B (HRTB201)

CONTACT TIME: Theory (4)
Practical's (2)

ASSESSMENT

Course Mark: Theory: 50%
Assignment: 25%
Practical's: 5%

Examination: 1 x 3 hour paper

Final Mark: Course Mark (40%) + Examination Mark (60%)

SYLLABUS: This module will equip the student with an understanding of Sustainable Horticulture and Ethnobotany and the importance of indigenous plants in local communities. The importance of conservation through cultivation is emphasized and the relevant legislative framework pertaining to nursery cultivation and plant collection is outlined.

Upon completion of this module the student will be able to:
Source, propagate and successfully culture ornamental exotic and indigenous, plant material for use within the commercial, amenity, conservation and urban greening sectors of the green industry, while demonstrating knowledge of sustainable practices.

Apply a broad knowledge base of all the major categories of plant production including;

- Exotic and Indigenous bulbous plant species
- Exotic and Indigenous medicinal and culinary herb
- Exotic and Indigenous tree species

PLANT STUDIES 1A (PLSA101)

CONTACT TIME: Theory (4);
Practical (2)

ASSESSMENT

Course Mark: Theory 50%;
Assignments; 25%
Practical Portfolio 25%

Examination: 1 x 3 hour paper

Final Mark: Course Mark (40%) + Examination Mark (60%)

SYLLABUS: This module will equip the student with knowledge of the internal and external structure of plants, (focusing more on the external morphology and plant adaptations to the environment), the identification of plants and their uses. During this module the student develops an appreciation for the role of plants in a complex and changing global ecosystem, and specifically the characteristics that make plants suitable for uses in different situations/ environments. Additionally, the student will be able to select plants for various situations based on their functional characteristics.

The module content includes:

- General External morphology of plants including physical

structure of roots, stems, leaves, flowers, pollination and fertilization, and fruit is described.

- Descriptions of trees, shrubs, groundcovers, climbers, grasses annuals, aquatics, succulents, herbs, indoor plants, bulbs, vegetables and bedding plants are correctly demonstrated and applied in terms of morphology.
- Diversity of plant types, habitats and their natural relationships; the identification and roles of Indigenous, exotic and endemic plants are described
- The horticultural significance, application and role of Plant taxonomy, plant nomenclature and classification is explained.
- Knowledge of plants listed in the National Plant List is acquired in terms of Plant types, habitats, relationships, appearance (form, growth habit, colour texture, seasonal and visual effects)

PLANT STUDIES 1B (PLSB101)

CONTACT TIME: Theory (4)
Practical (2)

ASSESSMENT

Course Mark: Theory 50%
Assignments 25%
Practical Portfolio 25%

Examination: 1 x 3 hour paper

Final Mark: Course Mark (40%) + Examination Mark (60%)

SYLLABUS: This module will equip the student with a knowledge of the internal and external structure of plants, the identification of plants and their uses. Students will understand the physiological processes within plants and how these are influenced by changes in the environment and other environmental processes. During this module the student develops an appreciation for the role of plants in a complex and changing global ecosystem, and specifically the characteristics that make plants suitable for uses in different situations/ environments. Additionally, the student will be able to select plants for various situations based on their functional characteristics, with a knowledge of the physiological processes and internal structure.

The module content includes:

- Descriptions of trees, shrubs, groundcovers, climbers, grasses annuals, aquatics, succulents, herbs, indoor plants, bulbs, vegetables and bedding plants are correctly demonstrated and applied in terms of morphology.
- Diversity of plant types, habitats and their natural relationships; the identification and roles of Indigenous, exotic and endemic plants are described
- Knowledge of plants listed in the National Plant List is acquired in terms of Plant types, habitats, relationships, appearance (form, growth habit, colour texture, seasonal and visual effects)
- Internal Plant morphology including cytology (cell structure); histology (plant tissues) and anatomy is described.

- Plant physiology and metabolic processes including enzymes; water relations; mineral nutrition; photosynthesis and respiration are explained.
- Various functional factors affecting plant selection including climatic and microclimate conditions; edaphic conditions and growing media; water requirements and environmental stresses are discussed.

PLANT STUDIES 2A (PLSA201)

CONTACT TIME: Theory (4);
Practical (2)

ASSESSMENT

Course Mark: Theory: 60%
Practicals: 40%

Examination: 1 x 3 hour paper

Final Mark: Course Mark (40%) + Examination Mark (60%)

SYLLABUS This module extends student's knowledge of plant taxonomy, plant identification and uses within the horticulture and landscape sector. Theoretical and practical aspects relating to a broad scope of planting and maintenance. Evolutionary development and life cycles of plants over geological time from lower (non-vascular) plant forms (viruses, bacteria, fungi, algae, bryophytes) to higher (vascular) plant forms (ferns, gymnosperms, angiosperms). Elementary floral diagrams are explained and appropriate plant families are explored in detail. Further Knowledge of plants listed in the National Plant List is acquired in terms of Plant types, habitats, relationships, appearance (form, growth habit, colour, texture, seasonal and visual effects). The selection and sustainable use of plant material are developed for a range of contexts.

PLANT STUDIES 2B (PLSB201)

CONTACT TIME: Theory (4);
Practical (2)

ASSESSMENT

Course Mark: Theory: 60%
Practicals: 40%

Examination: 1 x 3 hour paper

Final Mark: Course Mark (40%) + Examination Mark (60%)

SYLLABUS Theoretical and practical aspects relating to a broad scope of planting and maintenance. Plant growth responses as adaptive behaviour to the environment is explained in terms of hormones and plant growth regulators, Trophic responses to light (phototropism) and gravity (geotropism), photoperiodism, temperature. Further Knowledge of plants listed in the National Plant List is acquired in terms of plant types, habitats, relationships, appearance (form, growth habit, colour, texture, seasonal and visual effects). The selection and sustainable use of plant material are developed for a range of contexts. Arboriculture principles and practices are described in terms of optimal tree selection, maintenance and placement for a range of contexts. Specialised techniques available to achieve desired plant forms (e.g. bonsai, topiary).

BUSINESS MANAGEMENT 1A (BSMA101)

CONTACT TIME: Theory (4)

ASSESSMENT

Course Mark: Theory: 66.66%
Assignment: 33.33%

Examination: 1 x 3 hour paper

Final Mark: Course Mark (40%) + Examination Mark (60%)

SYLLABUS: This module will introduce students to terminology, concepts, principles and theories of business management, and to provide a critical perspective of the main function of management, in order to create a knowledge and understanding of the role and nature of business and how it is managed while practicing the principles of sustainability. Upon completion of this module the student will:
Understand and appreciate the value of studying management and its relevance to their field of study and society in general.

- Obtain a basic understanding of what managers do, and the competencies required to be a manager in the workplace.
- Demonstrate integrative knowledge and comprehension of concepts, principles, theories and practices in business management.
- Critically understand the key functions of management namely (planning, leading, organizing and controlling).

BUSINESS MANAGEMENT 1B (BSMB101)

CONTACT TIME: Theory (4)

ASSESSMENT

Course Mark: Theory: 66.66%
Assignment: 33.33%

Examination: 1 x 3 hour paper

Final Mark: Course Mark (40%) + Examination Mark (60%)

SYLLABUS: This module introduces students to the role, importance and interdependence of key functional areas of a business focusing specifically on marketing management and financial management in order to develop a critical and informed understanding of key concepts and practices that can be applied in the business world while practicing the principles of sustainability. This module incorporates communication as a critical component for success in the workplace. Upon completion of this module students will be able to:

- Gain knowledge and understanding of marketing management theory, concepts, principles and strategies that can be applied to practical business situations. Apply knowledge and understanding of financial management terminology, concepts, principles and tools to practical business and personal situations.
- Demonstrate and apply an understanding of theories, process and skills of communication in a business setting.
- Develop skills in measuring, analysing and solving business problems, interpreting data and information, and effective communication.

BUSINESS MANAGEMENT 2A (BSMA201)
CONTACT TIME: Theory (4)
ASSESSMENT

Course Mark:	Theory Tests	70%
	Practicals	30%
Examination:	1 x 2 hour paper	
Final Mark:	Course Mark (40%) + Examination Mark (60%)	

SYLLABUS; the subject offering provides students with the managerial concepts (entrepreneurial) and ownership (entrepreneurial) principles required for a successful future in an industry.
Students will be introduced to the principles of business, and through case study analysis and real world examples, will learn how to apply these concepts to address problems and opportunities facing South Africa's job market. This programme is a multidisciplinary one and covers a range of business areas which includes business management, business ethics and sustainability, personal management, marketing and financial management.

ENTREPRENEURSHIP & SMALL BUSINESS MANAGEMENT 2B (ESBM201)
CONTACT TIME: Theory (4)
ASSESSMENT

Course Mark:	Theory Tests	70%
	Practicals	30%
Examination:	1 x 2 hour paper	
Final Mark:	Course Mark (40%) + Examination Mark (60%)	

SYLLABUS: Entrepreneurship is an essential survival tool in today's competitive business environment. Management and Entrepreneurship have an impact on almost everything we see and do in today's world and are especially relevant in South Africa with the prevalence of small businesses. Students have the opportunity to take up an exciting career requiring talent and creativity as entrepreneurs (job makers).
These modules introduce the wider context of the importance of good business management. Students will learn how businesses identify and get to know their target markets, and then how to manage products and people to build and maintain a sustainable business. A comprehensive approach to all aspects of business management is offered in the subject and allows students to explore the extensive scope of the business function.

SUSTAINABLE LANDSCAPE PLANNING & PRAC 2A (SLPA201)
CONTACT TIME: Theory (4)
ASSESSMENT

Course Mark:	Theory Tests	45%
	Assignment:	10%
	Practical portfolio	45%
Examination:	Continual Assessment	
Final Mark:	Course mark (100%)	

SYLLABUS: Students will develop an understanding of sustainable principles and practices in the context of designing, installing and maintaining environmentally-sound, functional, safe, economically viable, socially responsible and attractive landscape. They will acquire primary knowledge of the landscaping industry, phases of landscaping and the landscaping process, in community, commercial, domestic or amenity contexts. Students are introduced to the hard and soft landscape materials and develop foundational competence in basic site survey and planning techniques.

SUSTAINABLE LANDSCAPE PLANNING & PRAC 2B (SLPB201)
CONTACT TIME: Theory (4)
ASSESSMENT

Course Mark:	Theory Tests	45%
	Assignment:	10%
	Practical portfolio	45%
Examination:	Continual Assessment	
Final Mark:	Course mark (100%)	

SYLLABUS: Various landscape design approaches, influences and aspects that contribute to the creation of aesthetically pleasing, and functionally landscapes are studied. The landscape design process is then activated in terms of developing design solutions based on site characteristics and client needs. Focus is placed on a) Establishing the project brief; b) Surveying and analysing the site; c) Developing a design concept; d) Drawing and presenting a basic landscape plan; and finally preparing estimates. An understanding of plant characteristics is emphasised in plant selection and various drawing and communication techniques are presented to enhance client and designer relationships.

ESTATE & GROUNDS MANAGEMENT 1A (EGMA101)

CONTACT TIME: Theory (4)
Practical (2)

ASSESSMENT

Course Mark:	Theory:	50%
	Practicals:	25%
	Assignment:	25%
Examination:	1 x 3 hour paper	
Final Mark:	Course Mark (40%) + Examination Mark (60%)	

SYLLABUS: This module provides students with the knowledge and skills required to manage and maintain estates and grounds to a high level of quality for a variety of contexts including amenity, sports, corporate and domestic use. The module forms an important part of developing and maintaining sustainable landscapes and sport and leisure facilities for the client and community. Upon completion of this module the student will be able to:

Utilise the necessary knowledge and skills to manage a variety of turf grass and planting environments in various contexts. Students will further equip themselves with the skills and knowledge to identify and use appropriate horticultural equipment in a safe and environmentally responsible manner.

ESTATE & GROUNDS MANAGEMENT 1B (EGMB101)

CONTACT TIME: Theory (4)

ASSESSMENT

Course Mark:	Theory:	50%
	Assignment:	50%
Examination:	1 x 3 hour paper	
Final Mark:	Course Mark (40%) + Examination Mark (60%)	

SYLLABUS: To equip the learner to maintain estates and grounds to a high level of quality for a variety of contexts including amenity, sports, corporate and domestic use. The module forms an important part of developing and maintaining sustainable landscapes for the client and community.

Upon completion of this module the student will be able to:

- Demonstrate knowledge of arboriculture practise including primary felling and stumping procedures and fundamental tree pruning techniques
- Demonstrate knowledge of the nature and significance of tree audits and valuations for amenity and estate work.
- Demonstrate knowledge of trees and the law (Removal of IAP's and public liability issues)
- Demonstrate knowledge of troubleshooting in terms of identification of problematic trees (invasive root systems, overhanging branches) and optimal tree selection and placement for amenity and estate and grounds use
- Demonstrate the ability to maintain and practise general care of shrubberies, hedges and annual and perennial flower beds through appropriate pruning and weeding techniques
- Demonstrate knowledge routine monthly estate maintenance tasks and programming techniques.
- Demonstrate knowledge Safety, Health, Environment and Risk management (Procedures and protocols. Safe use of hand and power equipment, Use of Personal Protective Equipment)
- Identification, safe use and handling of hand tools and small plant for a variety of horticultural operations (cultivation, mowing and pruning)

GROWTH MEDIA STUDIES (GRMS101)

CONTACT TIME: Theory (4)

ASSESSMENT

Course Mark:	Theory:	50%
	Assignment:	50%
Examination:	1 x 3 hour paper	
Final Mark:	Course Mark (40%) + Examination Mark (60%)	

SYLLABUS: This module enables the student to understand the structure and characteristics of the earth, soil and other growth media, the nature for associated water resources, and the concepts and processes that link these with other elements of the natural environment, while practicing the principles of sustainability.

Upon completion of this module the student will be able to:

- Demonstrate knowledge of the chemical and physical characteristics of soils and other growth media
- Demonstrate the ability to utilize soils and growth media to create optimal conditions to grow plants in the "field" as well as to grow plants in confined environments such as in pots/bags.
- Demonstrate knowledge of the structure of the atmosphere, the types of water resources and how these elements relate to soil.

ECOLOGY (ECLG101)

CONTACT TIME: Theory (4)

ASSESSMENT

Course Mark:	Theory	60%,
	Assignments/ Project	40%
Examination:	1 x 3 hour paper	
Final Mark:	Course Mark (40%) + Examination Mark (60%)	

SYLLABUS: This module enables the student to understand the elements of ecosystems and their dynamic interactions, to ensure that this knowledge is incorporated in practising sustainable horticulture and landscaping. The student will be able to see the relationships between the various elements of the physical, chemical and biological components in ecosystems and consider these in horticultural practices to ensure sustainability. In addition, there will be a focus on making environmental issues a fundamental consideration in everything that they do, in the workplace and in their lives in general to achieve sustainability. This module will broaden the understanding of ecological systems and the relationship to humans, and environmental issues and their relationship to larger issues globally and locally.

The module content includes:

- Bio-element Cycles (Relevant terminology; Importance of bio-element cycles to sustenance of life)
- The Atmosphere (Structure of the atmosphere; Weather and Climate)
- Water resources and soil water (Different types of water resources; Role of soil water in horticulture; The effects of water stresses and excess on plant growth are examined)
- Ecosystems and Biomes (Basic concepts and terminology; Food webs and food chains; Energy transfer; Decomposition; Global biome types)
- Biological communities (Interactions between species; Natural selection; Speciation; Species Richness and Species Diversity; Ecological succession)
- Population Dynamics (Factors influencing population size; Population Growth curves)

INTEGRATED PEST & DISEASE MANAGEMENT 2A (IPDA201)

CONTACT TIME: Theory (4)

ASSESSMENT

Course Mark:	Theory:	80%
	Assignment:	20%
Examination:	1 x 3 hour paper	
Final Mark:	Course Mark (40%) + Examination Mark (60%)	

SYLLABUS Entomology; Insect orders; Integrated Pest Management; Review of Major South African Pests and their control; Safe Use of Pesticides. Some disorders of plants that are induced by the environment such as adverse environmental conditions are also included in the area of plant health. These may include among others things, nutrient deficiency, chemical toxicity and water

shortage and they present distinctive symptoms. The use of sustainable methods for insect control. The use of organic and natural chemicals/ methods for insect control.

INTEGRATED PEST & DISEASE MANAGEMENT 2B (IPDB201)

CONTACT TIME: Theory (4)

ASSESSMENT

Course Mark: Theory: 80%
Assignment: 20%

Examination: 1 x 3 hour paper

Final Mark: Course Mark (40%) + Examination Mark (60%)

SYLLABUS Disease identification and control such as Bacteria, Fungi, Viruses, etc. Nematodes and their control; Weed identification and their control; Invasive plant identification, Control and Legislation; Understand and use of environmentally sustainable pest control measures. The use of organic and natural chemicals for pest and disease control.

ENVIRONMENTAL SUSTAINABILITY 2A (EVSA201)

CONTACT TIME: Theory (4)

ASSESSMENT

Course Mark: Tests 60%
Assignments/ Project 40%

Examination: 1 x 3 hour paper

Final Mark: Course Mark (40%) + Examination Mark (60%)

SYLLABUS: This module enables the student to understand a wide range of environmental issues, both locally and globally, and the significance of these issues in practising sustainable horticulture with emphasis on natural resource management and conservation. The student will develop an appreciation for environmental and conservation issues, the impacts of their actions and thus the contribution of their actions to complex local and global environmental concerns, while developing an ethos of making environmental issues a fundamental consideration in everything that they do, in the workplace and in their lives in general to achieve sustainability. In addition, the student will gain knowledge of the complexities of environmental issues and their relationships to development, poverty, community issues and horticulture. Emphasis is placed on the environmental crisis and the role humans play in contributing to this.

The module content includes:

- Human habitation of the earth (Origin of the environmental problem; Analysing the problem; Modification of the natural system; Cultural- ecological systems; Artificial ecosystems; Globalisation)
- The environment as a resource (Definitions; Classification of resources; Ecology of natural resources; Water resources; Biological resources; Food security)
- Environmental degradation (Ecological footprint; Habitat destruction; Environmental Pollution; Global warming and climate change; Pollution Control)

ENVIRONMENTAL SUSTAINABILITY 2B (EVSB201)
CONTACT TIME: Theory (4)
ASSESSMENT
Course Mark: Tests (60%), Assignments/ Project (40%)
Examination: 1 x 3 hour paper
Final Mark: Course Mark (40%) + Examination Mark (60%)
SYLLABUS: This module enables the student to understand a wide range of environmental issues, both locally and globally, and the significance of these issues in practising sustainable horticulture with emphasis on natural resource management and conservation. The student will develop an appreciation for environmental and conservation issues, the impacts of their actions and thus the contribution of their actions to complex local and global environmental concerns, while developing an ethos of making environmental issues a fundamental consideration in everything that they do, in the workplace and in their lives in general to achieve sustainability. In addition, the student will gain knowledge of the complexities of environmental issues and their relationships to development, poverty, community issues and horticulture. Focus is on the policies, programmes, tools and methods employed to manage environmental problems.
The module content includes:

- Environmental conservation (The value of nature conservation; Conservation in South Africa; Biomes of South Africa; Importance of biological resources and biodiversity; Factors that threaten biological resources and biodiversity; Ecotourism and the promotion of conservation; The role of business in conserving biodiversity; Red data species)
- Managing our natural resources (Conservation versus development; Sustainable development; Challenges to sustainable development; Resource management in South Africa; Land-use management)
- Ecological disturbance: Restoration and rehabilitation (Ecological disturbance/degradation; Restoration and rehabilitation; Establishment and management of self-sustaining vegetation)
- Evaluating Environmental and Development projects (Environmental Impact assessment; Social impact assessment; Integrated environmental assessment; Environmental Management plans; Auditing; Local and international laws of relevance)
- Sustainable Horticulture (Best environmental practices as it relates to horticulture; Environmental Management Systems)

11.2 NATIONAL DIPLOMA IN HORTICULTURE NDHRT2

HORTICULTURE I (HORT102)

CONTACT TIME: Theory (4);
Practical (2)

ASSESSMENT

Course Mark:	Theory:	50%
	Assignment:	25%
	Practicals:	25%
Examination:	1 x 3 hour paper	
Final Mark:	Course Mark (40%) + Examination Mark (60%)	
SYLLABUS:	The green industry structure, asexual and sexual plant propagation, Environmental factors, use of equipment and facilities, Growing-on techniques, Mist propagation, Micro propagation	

HORTICULTURE II (HORT202)

CONTACT TIME: Theory (4)

ASSESSMENT

Course Mark:	Theory:	100%
Examination:	1 x 3 hour paper	
Final Mark:	Course Mark (40%) + Examination Mark (60%)	
SYLLABUS:	Plan, develop and maintain a propagation and cultivation facility. Nursery siting, layout and integration of components, construction of growth structures (shade houses and greenhouses), propagation facilities, efficacy of optimal orientation, utilization of ventilation, cooling, heating, light, oxygen, CO2, humidity and water, appointment of specialist contractors,	

HORTICULTURE III (HORT302)

CONTACT TIME: Theory (4)

ASSESSMENT

Course Mark:	Theory:	75%
	Assignment:	25%
Examination:	1 x 3 hour paper	
Final Mark:	Course Mark (40%) + Examination Mark (60%)	
SYLLABUS:	International & local trends, economically viable indigenous/exotic crops, nursery facilities & structures, production programs, cultural techniques to achieve optimum yields, harvesting, preservation, storage, grading & packing processes. Seed storage, treatment & viability harvesting, collection and cleaning. Correct seed sowing. Media containers & seed sowing equipment. Optimal germination (injection, nutritional monitoring and pest/disease preventions), Pinching, hardening off and staging techniques. Production processes for selected crops (indoor pot plants and foliage plants), Applied photoperiodic and thermo periodic techniques, growth regulators, fertilizer & irrigation regimes. Pest & disease control, Potting, packaging, labelling, marketing & distribution strategies, Plant breeders' rights & royalties, Plant morphology, life cycle and physiology of significant crops. Appropriate propagation techniques, floral induction and forcing. Bulb production facilities and equipment. Horticultural	

significance of exotic and indigenous species.
Utilitarian uses of trees (amenity, conservation, urban greening, establishment of community nurseries). European and African medicinal and culinary herb species, Develop and/or maintain a cut flower farm, seedling nursery, wholesale container nursery, commercial bulb farm, tree nursery and herb nursery.

PLANT MATERIAL STUDIES I (PMAS101)

CONTACT TIME: Theory (4);
Practical (2)

ASSESSMENT

Course Mark:	Theory:	50%
	Assignment:	20%
	Practicals:	30%
Examination:	1 x 3 hour paper	
Final Mark:	Course Mark (40%) + Examination Mark (60%)	

SYLLABUS: General External morphology of plants - physical structure of roots, stems, leaves, flowers, pollination, fertilisation, and fruit. Descriptions of trees, shrubs, groundcovers, climbers, grasses annuals, aquatics, succulents, herbs, indoor plants, bulbs, vegetables and bedding plants. Diversity of plant types, habitats and their natural relationships; the identification and roles of Indigenous, exotic and endemic plants. Horticultural significance, application & role of Plant taxonomy, plant nomenclature and classification. Use of keys (books, cards, computer etc) to identify plants. Knowledge of National Plant List wrt Plant types, habitats, relationships, appearance (form, growth habit, colour, texture, seasonal and visual effects). Plant usage wrt architectural, climatological & aesthetic functions.
Identification & artificial classification of indigenous & exotic ornamental plants. Ornamental plant material - horticultural characteristics and application in the context of the nursery landscaping and conservation ambit.

PLANT MATERIAL STUDIES II (PMAS201)

CONTACT TIME: Theory (4);
Practical (2)

ASSESSMENT

Course Mark:	Theory:	60%
	Practicals:	40%
Examination:	1 x 3 hour paper	
Final Mark:	Course Mark (40%) + Examination Mark (60%)	

SYLLABUS: Internal Plant morphology - cytology (cell structure); histology (plant tissues) and anatomy. Plant physiology & Metabolic processes -enzymes; water relations; mineral nutrition; photosynthesis & respiration. Plant selection - climatic and microclimate conditions; edaphic conditions and growing media; water requirements and environmental stresses. Further Knowledge of the National Plant List

PLANT MATERIAL STUDIES III PMAS301)

CONTACT TIME: Theory (4);
Practical (2)

ASSESSMENT

Course Mark: Theory: 60%
Practicals: 40%

Examination: 1 x 3 hour paper

Final Mark: Course Mark (40%) + Examination Mark (60%)

SYLLABUS: Diagnostic features of economically/horticulturally significant plant families. Establishment/ transplanting/maintenance of plant material viz groundcovers, shrubs and trees. Aboricultural and tree care - pruning, grafting, pollarding, topiary and hedging. National Plant List

GROWTH MEDIA TECHNOLOGY (GMET101)

CONTACT TIME: Theory (4)

ASSESSMENT

Course Mark: Theory: 100%

Examination: 1 x 3 hour paper

Final Mark: Course Mark (40%) + Examination Mark (60%)

SYLLABUS: Orientation - sunlight, ventilation, cooling and heating systems. Controlled climatic environments / shade house. Soil - growth medium, agricultural/horticultural uses. Modern potting media. Soil formation, Soil horizons, profiles and pedons. Soil texture and structure. Soil triangles analytic tool. Concepts of bulk density, permeability, air filled porosity and water holding capacity. Agricultural practices / impact on soil structure. Soil temperatures. Soil colour. Soil life. Organic matter. Composting. Soil colloids & clay. Soil pH, lime and sulphates, saline and sodic soil. Readings pertaining to Soluble salt content (EC) and pH. Water stresses & excess. Capillarity. Soil /water /plant relationships. Irrigation-sub surface and surface, frequency, duration, water quality and quantity. Essential macro and micronutrients for plant growth - Organic and inorganic forms of Nitrogen, Phosphorous and Potassium. Fertilisers - "complete" granular, "straights", slow release, fluids. Trace element mix. Basic fertilizer calculations. Fertiliser application methods and procedures - pre-enrichment, fertigation, foliar sprays and top dressing. Ordering, mixing, storage and handling procedures and modern pasteurization and sterilization.

TURFGRASS CULTURE (TGCL101)

CONTACT TIME: Theory (4)

ASSESSMENT

Course Mark: Theory: 75%
Assignment: 25%

Examination: 1 x 3 hour paper

Final Mark: Course Mark (40%) + Examination Mark (60%)

SYLLABUS: Grasses evaluated wrt civilization, sport, amenity & ecological rehabilitation. Turf grass species identified (characteristics, function

and morphology), selected (environmental tolerance/intended use), establishing and maintaining (establishment methods, site cultivation & maintenance practice), facilities layout (use, construction, reparation, irrigation systems & drainage), Maintenance (mowing, spring treatment, topdressing and fertilization), alternatives (synthetic and biotic), Social, cultural, economic & ecological influences, Indigenous veld grass applications & lawn substitutes. Over seeding, inter seeding, use of bio stimulants, turf colouring & wetting agents.

SUPERVISORY MANAGEMENT I (SUMN101)

CONTACT TIME: Theory (4)

ASSESSMENT

Course Mark:	Theory:	60%
	Assignment:	40%
Examination:	1 x 3 hour paper	
Final Mark:	Course Mark (40%) + Examination Mark (60%)	

SYLLABUS: Effective self-management, Business etiquette, Business communication skills, Personal/ professional ethics and social responsibility. Significance, function & role of management. Management responsibility & skills. Levels of management. Organizational structures wrt public and private horticultural businesses, Organizational resources - people, financial & physical. Scope and horticultural business environment. Planning, leading, organizing & controlling (POLC). Leadership styles. Motivation. Teamwork. Decision-making and problem-solving methods. Delegation. Staff supervision.

HORTICULTURAL MANAGEMENT II (HMNT203)

CONTACT TIME: Theory (4)

ASSESSMENT

Course Mark:	Theory:	80%
	Assignment:	20%
Examination:	1 x 3 hour paper	
Final Mark:	Course Mark (40%) + Examination Mark (60%)	

SYLLABUS: Components, design and layouts of retail garden centres. International and local retailing trends. Practical merchandising and layout. Personal selling. Quality service. Daily retail and office routines - handling cashiers, communication, record-keeping, stock taking and security. Operational factors - procurement and dispatching. Business communication techniques - business letters, telephone communication, faxes & e-mailing. Marketing function. Satisfying customer needs. Target markets. Market research. Feasibility and viability tests. Marketing strategies and marketing mix (product, price, promotion and distribution) for horticultural businesses. Maximising sales - promotions and displays, creating effective promotional material and signage. Key financial terminology. Establishment and maintenance of basic accounts and record-keeping. Using banks -personal and business. Profitable pricing and costing.

HORTICULTURAL PRODUCTION MANAGEMENT III (HPRM301)
CONTACT TIME: **Theory (4)**
ASSESSMENT

Course Mark:	Theory:	80%
	Assignment:	20%
Examination:	1 x 3 hour paper	
Final Mark:	Course Mark (40%) + Examination Mark (60%)	
SYLLABUS:	Staffing - planning, advertising, interviewing/selecting suitable applicants for horticultural SMME. Performance appraisals, Employer-employee relationships. Staff training & development. Staff record keeping, SA Labour Legislation - LRA, BCEA, OHASA, UIF, and SDA. Employee compensation. Disciplinary and grievance. Trade unions & CCMA. AIDS, safety in the workplace, employment equity. Conflict-management. Negotiation. Law of contract. Tendering (for horticultural business), BBBEE, outsourcing and contracting. The business plan - Product /Service description & need, Financial & marketing feasibility/viability studies, Marketing strategy & corporate identity , Operational & production considerations, Human Resource implications, Type of business registration, insurances and compliance with SARS requirements, CVs. Financial documents.	

ENVIRONMENTAL STUDIES I (ESTD102)
CONTACT TIME: Theory (4)
ASSESSMENT

Course Mark:	Theory:	50%
	Assignment:	50%
Examination:	1 x 3 hour paper	
Final Mark:	Course Mark (40%) + Examination Mark (60%)	
SYLLABUS:	Environmental Terminology. Environmental significance of atmosphere & biosphere - climate, geology & hydrology. Biochemical cycles. Biotic components - man, plants & animals. Community structure, succession & population.	

ENVIRONMENTAL STUDIES II (ESTD201)
CONTACT TIME: Theory (4)
ASSESSMENT

Course Mark:	Theory:	50%
	Assignments:	30%
	Project:	20%
Examination:	1 x 3 hour paper	
Final Mark:	Course Mark (40%) + Examination Mark (60%)	
SYLLABUS:	Human impact & imprint on environment (political, socio and economic), Anthropogenic impacts on environment Habitat destruction / degradation. Unsustainable land use practice. Global warming & ozone depletion, Acid rain, Atmospheric, terrestrial, marine and aquatic pollution. Desertification, Deforestation, Poverty and its alleviation, Genetically Modified Organisms (GMOs). Significance, benefits, limitations and practices of ex situ and in situ conservation techniques. Land reclamation. Categories and examples of protected sites. First and Third world	

conservation. Significance of and nature of biodiversity and species loss. Sustainable open space planning, policies and practice for cities. Significance and implementation of Local Agenda 21 strategies. Sustainable development - balance economic development with environmental responsibilities. Environmental Impact Assessment (EIA's), Integrated Environmental Management (IEM). International treaties and conventions. SA Environmental law

PROTECTION II (PLPR201)
CONTACT TIME: Theory (4)
ASSESSMENT
Course Mark: Theory: 80%
Practicals: 20%
Examination: 1 x 3 hour paper
Final Mark: Course Mark (40%) + Examination Mark (60%)
SYLLABUS: Entomology- Anatomy and physiology of insects, insect classification, growth and impact. Review of major S African pests in ornamental plants, turf grasses and edible crops. Integrated Pest Management: definition and methods of control. Plant pathology: Fungi, Bacteria and Viruses, their identification and control. Nematology: nematodes as pests and as natural enemies. Pesticide formulations, their compositions and safe handling, storage and application according to OHASA standards. Weed management and the identification and control of Invasive Alien plants.

HORTICULTURAL MECHANISATION I (HMEC101)
CONTACT TIME: Theory (4)
ASSESSMENT
Course Mark: Theory: 100%
Examination: 1 x 3 hour paper
Final Mark: Course Mark (40%) + Examination Mark (60%)
SYLLABUS: Workshop Tools - spanners; power tools. Mechanised equipment / tractor drawn machinery: gang, rotary & hydraulic mowers, fertilizer spreaders, seed sowers, boom & other sprayers, hollow tiners and verticuttters. Task specific mowing equipment —hand/ self- propelled mowers, ride on mowers, brush cutters. Safety aspects

SITE PLANNING I (SPLN101)
CONTACT TIME: Theory (4);
Practical (4)
ASSESSMENT
Course Mark: Theory: 50%
Assignment: 10%
Practicals: 40%
Examination: 1 x 3 hour paper
Final Mark: Course Mark (40%) + Examination Mark (60%)
SYLLABUS: Site planning & landscaping. Landscaping procedures - survey, analysis, synthesis, design, implementation and maintenance. Design

vocabulary. Hard & soft landscaping components. Functional and aesthetic considerations. Client and User needs - client brief and user surveys. Legislative requirements. Physical site data - soil, geology, topography, vegetation, climate & wildlife. Manmade & cultural elements. Specialist consultants. Record keeping & data. Plan graphic techniques - scale, page layout, labelling, symbols and dimensions. Basic soft landscaping elements. Use of various plan measuring techniques and mathematical calculations. Basic on-site measuring and levelling techniques and equipment are demonstrated.

HORTICULTURAL AND LANDSCAPE OPERATIONS 3A (HLOA301)
CONTACT TIME: Theory and prac (4)
ASSESSMENT

Course Mark: ILP (Integrated learning project) and POE (Journal of activities) 50%
Satisfactory supervisors report 50%

Examination: Continual Assessment

Final Mark: Course mark (100%)

SYLLABUS The student will acquire knowledge of appropriate career focussed horticultural, supervisory and technical skills within the nursery, landscaping or community sectors. The student will learn the application of personal management techniques and further develop the ability to manage staff in order to achieve personal and organizational goals. Integrated learning projects (ILP) based on real life scenarios within the nursery and landscape sector encourage critical thinking and problem solving. Learning takes place under supervision at the departmental School of Horticulture where practical projects relevant to the local horticultural and landscape sector are conceived and initiated.

HORTICULTURAL AND LANDSCAPE OPERATIONS 3B (HLOB 301)
CONTACT TIME: Theory and prac (3)
ASSESSMENT

Course Mark: ILP (Integrated learning project) and POE (Journal of activities) 50%
Satisfactory supervisors report 50%

Examination: Continual Assessment

Final Mark: Course mark (100%)

Syllabus The student will acquire knowledge of appropriate career focussed horticultural, supervisory and technical skills within the nursery, landscaping or community sectors. The student will learn the application of personal management techniques and further develop the ability to manage staff in order to achieve personal and organizational goals. Integrated learning projects (ILP) based on real life scenarios within the nursery and landscape sector encourage critical thinking and problem solving. This module takes place in accredited work places in conjunction with qualified assessors and industry experts.

SUSTAINABLE LANDSCAPE PLANNING & PRACTICE 3A (SLPA301)
CONTACT TIME: Theory and prac (4)
ASSESSMENT
Course Mark: Practical planting and installation 50%
POE Evidence of landscape designs and projects completed during this semester 50%
Examination: Continual Assessment
Final Mark: Course mark (100%)
SYLLABUS The student will develop an integrated knowledge of site assessment and basic site planning techniques as required by the client (user) in a corporate, domestic, amenity or community context. This includes competence in terms of developing and interpreting a landscape sketch plan and bill of quantities. The student will acquire integrated knowledge of onsite installation techniques including the use of hard and soft landscape elements (as suited to water wise gardening and biodiversity principles). Finally attention to maintenance detail is emphasised given the need to develop sustainable landscape projects. Learning takes place under supervision at the departmental School of Horticulture where practical projects relevant to the local landscape sector are conceived and initiated.

SUSTAINABLE LANDSCAPE PLANNING & PRACTICE 3B (SLPB301)
CONTACT TIME: Theory and prac (3)
ASSESSMENT
Course Mark: Practical planting and installation 50%
POE Evidence of landscape designs and projects 50%
Examination: Continual Assessment
Final Mark: Course mark (100%)

SYLLABUS The student learn how to practically assess a landscape site for development and be able to plan, select, install and maintain appropriate hard and soft landscape elements for the client or community. The student will learn to create sustainable green spaces that are aesthetically pleasing as well as functional and practical. This learning takes place under supervision in accredited work places in conjunction with qualified assessors and industry experts. Evidence of completed landscape projects are recorded in a portfolio and assessed.

HORTICULTURE 3A (HRTA301)
CONTACT TIME: Theory and prac (4)
ASSESSMENT
Course Mark: Formative term tests and tasks (20%)
Summative practical competency test (40%)
Portfolio of evidence (POE) (40%)
Examination: Continual Assessment
Final Mark: Course mark (100%)
SYLLABUS The student will learn to apply his/ her theoretical knowledge

concerning asexual and sexual plant propagation and planting techniques within the nursery, landscaping and community context. The student will develop practical skills in respect of soils, media and fertilization and irrigation techniques within the nursery context. The student will be able to identify and control plant disease, pests and alien weed growth within the nursery. A knowledge of the core components and layout of nursery facilities is developed including daily, monthly and seasonal nursery operations and practise as well as record keeping and basic management techniques. Finally the student will develop a sense of environmental responsibility as applied to the nursery context in respect to water conservation, nutrient recycling and the growing of non-invasive plant material. This learning takes place under supervision at the departmental School of Horticulture at the in-house nursery.

HORTICULTURE 3B (HRTB301)
CONTACT TIME: Theory and prac (3)
ASSESSMENT
Course Mark: Portfolio of evidence (POE) (100%)
Examination: Continual Assessment
Final Mark: Course mark (100%)
SYLLABUS A similar skills set as described in Horticulture 3A is developed and this learning takes place under supervision in a departmental accredited wholesale, retail or amenity nursery in conjunction with qualified assessors and industry experts. Evidence of completed nursery activities and integrated learning projects (IPL) are recorded in a portfolio and assessed.

PLANT STUDIES 3A (PLSA301)
CONTACT TIME: Theory and prac (4)
ASSESSMENT
Course Mark: Formative Practical assessment Live Plant ID and slide recognition 33%
One summative Live Plant ID test at the demonstration garden 33%
Portfolio of Evidence (POE) 33%
Examination: Continual Assessment
Final Mark: Course mark (100%)
SYLLABUS This cross cutting module extends practical hands on learning on a major theme of the Diploma namely plant knowledge and utilisation for the commercial, domestic, amenity and community horticulture and landscape sectors. The module is designed to develop both practical and academic plant identification competencies. Allied with these competencies is a knowledge of the characteristics, uses, culture and application of each plant as applied to the nursery and landscape sectors. This learning takes place under supervision at the departmental School of Horticulture at the in-house nursery. Learners are assessed by means of tests from visual and live plant material as

well as plant profiles and presentations in their Portfolio of Evidence (POE).

PLANT STUDIES 3B (PLSB301)

CONTACT TIME: Theory and prac (4)

ASSESSMENT

Course Mark: Portfolio of evidence (POE) (100%)

Examination: Continual Assessment

Final Mark: Course mark (100%)
Continual Assessment

SYLLABUS This cross cutting module extends practical hands on learning on a major theme of the Diploma namely plant knowledge and utilisation for the commercial, domestic, amenity and community horticulture and landscape sectors. The module is designed to develop both practical and academic plant identification competencies. Allied with these competencies is a knowledge of the characteristics, uses, culture and application of each plant as applied to the nursery and landscape sectors. This learning takes place under supervision in a departmental accredited wholesale, retail or amenity nursery in conjunction with qualified assessors and industry experts. Learners are evaluated on the basis of their Portfolio of Evidence (POE) documenting plant profiles and material used in landscape and nursery projects

11.3 ADVANCED DIPLOMA: SUSTAINABLE HORTICULTURE

SUSTAINABLE HORTICULTURE 4A (SUHO401)

CONTACT TIME: Theory and prac (4)

ASSESSMENT

Course Mark:	Theory:	50%
	Assignment:	10%
	Practicals:	40%
Examination:	1 x 3 hour paper	
Final Mark:	Course Mark (40%) + Examination Mark (60%)	

SYLLABUS These modules will equip students with an integrated knowledge of Mendelian genetics, selection breeding, crossbreeding and backcrossing. Students will also be introduced to modern tools of breeding such as genetic engineering and marker assisted breeding. Foster a deeper understanding of the tissue culture techniques and protocols and how tissue culture can be used as a tool for breeding and intensive plant production..

SUSTAINABLE HORTICULTURE 4B (SUHO402)

CONTACT TIME: Theory and prac (4)

ASSESSMENT

Course Mark:	Theory:	50%
	Assignment:	10%
	Practicals:	40%
Examination:	1 x 3 hour paper	
Final Mark:	Course Mark (40%) + Examination Mark (60%)	

SYLLABUS This module follows Conservation Horticulture 4A. It will equip students with an integrated and deeper knowledge of intensive plant production. Students will also be equipped with both theoretical and practical knowledge of different hydroculture and aquaculture techniques, the factors influencing their choice and their management in order to reap highest returns, while practicing horticultural activities towards environmental sustainability and encouraging community participation in natural resource management and conservation.

RESEARCH METHODOLOGY (RSMT401)

CONTACT TIME: Theory and prac (4)

ASSESSMENT

Course Mark:	Theory:	50%
	Assignment:	10%
	Practicals:	40%
Examination:	1 x 3 hour paper	
Final Mark:	Course Mark (40%) + Examination Mark (60%)	

SYLLABUS Research Methodology will introduce students to research problem; research design and study scope; the research process: definition of the problem, formulation of objectives and hypotheses, literature review, methodology, sampling procedures and instruments, data collection and analysis,

results presentation and interpretation, conclusions and recommendation; report and abstract writing. The purpose of this module is to introduce students to a range of research methods, data collection tools and ethical guidelines to research.

RESEARCH PROJECT (RPJT401)

CONTACT TIME: Theory and prac (4)
Course Mark: Research Project (100%)
Examination: Continual Assessment
Final Mark: Course mark (100%)
SYLLABUS The Research Project module involves research on a topic selected by the student in consultation with the departmental supervisor. Research may include field, laboratory, and/or library component and is carried out under the supervisor's guidance. The student is required to collect data, interpret it and write up a report that will be examined.

HORTICULTURAL OPERATIONS MANAGEMENT 4A (HOMA401)

CONTACT TIME: Theory and prac (4)
ASSESSMENT

Course Mark:	Theory:	50%
	Assignment:	10%
	Practicals:	40%

Examination: **1** x 3 hour paper

The purpose of this module is to effectively enable a student to effectively manage, control and direct a horticultural enterprise within the corporate, community or institutional sector to ensure optimal profit through the maximisation of human capital together with environmental sustainability (the triple bottom line). Horticultural Operations Management 4A has a holistic approach to Macro and Micro economic environment and greenhouse/nursery production and management. This module includes international and local socio political, ecological and technological factors that impact modern horticultural enterprise with in a developing nation; project planning and management. Students will be equipped to effectively bid for a range of horticultural projects and control and administrate these effectively and profitably. They will be able to identify horticultural business opportunities and submit credible business plans to secure financial support.

HORTICULTURAL OPERATIONS MANAGEMENT 4B (HOMA402)

CONTACT TIME: Theory and prac (4)
ASSESSMENT

Course Mark:	Theory:	50%
	Assignment:	10%
	Practicals:	40%

Examination: **1** x 3 hour paper
Final Mark SM (40%) + EM (60%)

The purpose of this module is to enable students to identify horticultural business opportunities and submit credible business plans to secure financial support. Horticultural Operations Management 4B uses the features and principles of project management to develop a fundable project, strategy and operations design, service design. Students will be equipped to effectively bid for a range of horticultural projects and control and administrate these effectively and profitably. They will be able to identify horticultural business opportunities and submit credible business plans to secure financial support.

CONSERVATION HORTICULTURE 4A (CUHO401)

CONTACT TIME: Theory and prac (4)

ASSESSMENT

Course Mark:	Theory:	50%
	Assignment:	10%
	Practicals:	40%
Examination:	1 x 3 hour paper	
Final Mark:	Course Mark (40%) + Examination Mark (60%)	

Conservation Horticulture 4A will develop horticultural field practitioners who will be able to identify, conserve and cultivate threatened or protected plants using a range of methodologies and techniques in accordance with international and regional best practise. This module will inform students of national and global policies that govern sustainable use, conservation, equitable sharing and exchange of plant genetic resources. The student will acquire the technical and theoretical skills for conservation of rare, endangered, indigenous and medicinal horticultural plants through sustainable production techniques. Further, the student will develop a good understanding of sound environmental conservation techniques through sustainable horticultural practices.

CONSERVATION HORTICULTURE 4A (CUHO402)

CONTACT TIME: Theory and prac (4)

ASSESSMENT

Course Mark:	Theory:	50%
	Assignment:	10%
	Practicals:	40%
Examination:	1 x 3 hour paper	
Final Mark:	Course Mark (40%) + Examination Mark (60%)	

Conservation Horticulture 4B will develop competent horticultural practitioners who are able to actively contribute to the biodiversity economy through the management of protected areas, listed commercial developments and community based natural resource projects. This module will inform students of national and global policies that govern sustainable use, conservation, equitable sharing and exchange of plant genetic resources. The student will acquire the technical

and theoretical skills for conservation of rare, endangered, indigenous and medicinal horticultural plants through sustainable production techniques. Further, the student will develop a good understanding of sound environmental conservation techniques through sustainable horticultural practices.

11.4 BACHELOR OF TECHNOLOGY: HORTICULTURE (BTHRT1)

RESEARCH METHODOLOGY (RSER101)

CONTACT TIME: Theory (4)

ASSESSMENT

Course Mark:	Theory:	25%
	Two Assignments:	50%
	Project proposal:	25%
	Project Report:	25%
Examination:	Continuous assessment	
Final Mark:	Average mark of five assessments	
SYLLABUS:	Criteria for good research. Problem Statements. Identify variables. Justify study. Define the terms. Construct hypothesis. Discuss Qualitative/ Quantitative research. Forms of research. Ethical research. Literature search. Referencing. Collect / analyse data. Construct data capture tools (questionnaire), Write a proposal. Reliability and Validity. Sample populations. Develop critical approach, implement project, and write project report.	

HORTICULTURAL PRODUCTION MANAGEMENT IV (HPRM401)

CONTACT TIME: Theory (4)

ASSESSMENT

Course Mark:	Theory:	50%
	Assignment:	50%
Examination:	2 x 3 hour papers	
Final Mark:	Course Mark (40%) + Examination Mark (60%)	
SYLLABUS:	Operations management, Enhancing competitiveness in operations, principles of quality and Total Quality Management in operations, Project management and basic features of successful projects, Use the features and principles of Project Management to develop an fundable project, Strategy and operations strategy, Product design, Process design, Service design, Supply chains and Supply Chain management, the financial administration aspects, Compile a comprehensive business plan.	

HORTICULTURAL PRODUCTION TECHNIQUES IV (HPTC401)

CONTACT TIME: Theory (4)

ASSESSMENT

Course Mark:	Theory:	50%
	Assignments:	50%
Examination:	2 x 3 hour papers	
Final Mark:	Course Mark (40%) + Examination Mark (60%)	
SYLLABUS:	Mendelian Genetics. Genetics exploitation (Classical Plant Breeding), Modern Plant Breeding techniques, Intellectual Property Rights, Intensive Plant Production Techniques: Micro-propagation (tissue culture). Hydroculture (hydroponics), greenhouse forcing techniques.	