



2017 HANDBOOK HORTICULTURE



HANDBOOK FOR 2017

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 (2015-2019)

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

To be the preferred provider of career-focused Horticulture and Landscaping programmes at the higher education level for the African Region.

MISSION

To provide quality teaching, research and community engagement in the context of career-focused education within the green industry. To enable graduates and communities to contribute meaningfully at all levels in the creation and development of sustainable environments and partnerships, both locally and internationally.

To empower staff and students to succeed in all their endeavours.

To contribute meaningfully to the stability and future progress of the institution.

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I. DEPARTMENTAL AND FACULTY CONTACT DETAIL

All departmental queries to:

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41-43 Centenary Road	

All Faculty queries to:

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2. DEPARTMENTAL STAFF

Head of Department	Dr L Gitonga-Kariuki, BSc. Agric. (Hons) (UON); MSc. Hort. (Adelaide); PhD (Plant genet.) (JKUAT); Postdoc (Mol. Biol.) (Wits); Pr Sci Nat.
Secretary	Ms T Masondo, ND: Office Management (UNISA)
Lecturers	<p>Mrs A Badenhorst, ND: Horticulture (CPUT); BTech: Horticulture (CPUT); MSc Envir. Mngt. (UNISA)</p> <p>Mrs I Govender, BSc (Hons) (UDW); MSc (Env. Sc.) (UN); HED (Postgrad) (UNISA); Pr Sci Nat</p> <p>Mr JB Foley, MTech: Tourism & Hospitality; PGD: Environment and Development (UN); NHD: Horticulture (TN); ND: Graphic Design (TN)</p> <p>Mr DM Govender, B Tech: Horticulture (TSA); B Tech: Business Administration (DUT); M Tech: Human Resource Management (DUT); IERM (Africa)</p>
Senior Technical Assistant:	Mr T Anumanthoo, BTech: Horticulture (DUT); BTech Business Admin (DUT)
General Assistants:	Mr H Naicker, BTech: Horticulture (DUT); BTech Business Admin (DUT) Ms N Nokwindla Mr B Khanyile

3. QUALIFICATIONS OFFERED BY THE DEPARTMENT

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

- National Diploma (ND)
- Bachelor of Technology (BT)

Qualification	Qualification Code	Important dates	SAQA NLRD ID
ND: Horticulture	NDHRT2		72238
ND: Horticulture (ECP)	NDHTFI	1st offered Jan 2013	72238
BTech: Horticulture	BTHRTI		72139

4. 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.

4.1 PROGRAMME STRUCTURE (3 YEAR)

4.1 NDIP PROGRAMME STRUCTURE (3 YEAR)

Code	Subjects	Year/Sem of Study	Assessment Method	NATED Credits	Pre-requisite Subjects
GMET101	Growth Media Technology I	1a	Ex	0.070	
HORT102*	Horticulture I	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 II
HRT201/2	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

(Approved by Senate Rules Comm wef 2016/10)

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.

4.2.2. 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 4.3.8 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 4.3.9 below.

4.2.4 Work Integrated Learning (WIL)

The compulsory WIL component of this programme comprises 12 months. Refer to Programme Rule 4.3.7 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 4.3.9 below.

4.2.6. Employment Opportunities

The Horticulture sector is broad, diverse and multidisciplinary. In an emerging developing country such as South Africa 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 First Year (ND and ND (ECP)) Part I students

ND (ECP) Second Year Part I students

ND Year 2 students

All 3rd year experiential learning students

All BTech Students:

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

July - The following groups will register in July:

All First Year (ND and ND (ECP)) Part II students

ND (ECP) Second Year Part II 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 4.3.2 apply for applicants with reference to:-

4.3.1.1 Academic Achievement

In line with the above, applicants' school leaving academic achievement must comply with one of the following:-

- i) a National Senior Certificate (NSC) with endorsement for diploma/degree entry with the following subjects at the stated minimum ratings:

Compulsory Subject	NSC Rating
English (Home) OR English (1 st Additional)	4
Mathematics OR Mathematical Literacy	3 or 4*
Life Sciences OR Physical Science	4 or 3*

***NB:** In addition, the Head of Department reserves the right to allow the registration of a student who meets the following requirements:

- (i) The sum of the student's total achievement level for Mathematics/Mathematics Literacy + Life Sciences/Physical Science must be greater than or equal to 7.
- (ii) Neither Mathematics/Mathematics Literacy and Life Sciences/ Physical Sciences achievement levels are to be less than Level 3.

In addition to the above, an applicant who has a minimum achievement rating of 5 for Geography OR Agricultural Science will receive more favourable consideration for admission.

(Approved by Senate wef 2011/05)

- (iii) a Senior Certificate is matriculation exemption with the following subjects at the stated minimum ratings *(approved by Senate Rules Comm wef 2014/10)*:

Compulsory Subject	HG	SG
English	E	D
Physical Science or Biology	D	C

- (iv) a National Certificate (Vocational) Level 4 with statutory requirements for a diploma entrance and the following subjects at the stated minimum ratings *(approved by Senate wef 2013/08)*:

Compulsory Subjects	Minimum
English	50%
Mathematics / Mathematical Literacy	50%
Physical Science or Life Sciences (or recognised equivalents)	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.

(Approved by Senate Rules Comm wef 2014/10)

4.3.1.3 Admission of International Students

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

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

(Approved by Senate Rules Comm wef 2014/10)

4.3.1.4 Admission of Students from other Institutions

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

(Approved by Senate Rules Comm wef 2014/10)

4.3.2 Selection Criteria

In addition to the Minimum Admission Requirements (Rule 4.3.1), the following selection process will determine placement in 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:

- a) invited to undergo placement testing.
- b) ranked based on performance according to the table below:-

Assessment	Weighting
Academic achievement	70%
• Average percentage of all compulsory subjects (refer to 4.3.1.1)	
Placement testing	30%

Provisional acceptance is given to selected applicants awaiting National Senior Certificate* (NSC) results. If the final Grade 12

Provisional acceptance is 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, as well as available places (refer to DUT Rule G5).

**(or SC / NC(V)) (Approved by Senate Rules Comm wef 2014/10)*

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 subject. Refer to Table 4.1

Programme Structure.

- 4.3.3.2** 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)

4.3.4 Re-registration Rules

In addition to the DUT Rule G16, and all prerequisite subjects as identified in the Programme Structure (4.1), the following programme rules apply:-

4.3.4.1 Promotion from Semester 1 to Semester 2:

Students must pass a minimum of 4 out of the 6 first semester subjects of which two must be major subjects (Refer to Table 4.1 Programme Structure). *(Approved by Senate Rules Comm wef 2016/10)*

4.3.4.2 Promotion from Semester 2 to Year 2:

Students must pass a minimum of 4 out of the 5 second semester subjects of which two must be major subjects. (Refer to Table 4.1 Programme Structure) *Approved by Senate Rules Comm wef 2016/10*

4.3.4.3 Promotion from Year 2 to Year 3 (WIL):

A student must pass

- (i) all first year subjects (Semester 1 and 2), and
- (ii) a minimum of three second year subjects of which two must be major subjects. *(Approved by Senate Rules Comm wef 2016/10)*

4.3.4.4 A student not complying with the above may be permitted to re-register for outstanding first and second semester subjects with the approval of the departmental assessment committee. *(Approved by Senate Rules Comm wef 2016/10)*

4.3.5 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)

4.3.6 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)

4.3.7 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.)

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 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.

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 subjects and the prescribed Work Integrated Learning component 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 will assist the student in obtaining suitable Work Integrated Learning placement.

4.3.7.5 Work Integrated Learning Rules

In addition to Rule 4.3.4.3 above, a student who is registering for the requisite one semester of structured Work Integrated Learning at DUT School of Horticulture will not be allowed to register at DUT for outstanding second year subjects whilst registered for structured work integrated learning. (*Approved by Senate Rules Comm wef 2016/10*)

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. (*Approved by Senate Rules Comm wef 2014/10*)

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. (*Approved by Senate Rules Comm wef 2014/10*)

4.3.9 Attendance and Assessment

4.3.9.1 A student who, for any valid reason (Refer to Programme Rule 4.3.9.2 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)

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. *(Approved by Senate Rules Comm wef 2014/10)*

4.3.10 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)

5. NATIONAL DIPLOMA: HORTICULTURE (EXTENDED CURRICULUM) (NDHTFI)

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.

5.1 NDIP (ECP) PROGRAMME STRUCTURE (4 YEAR)

Code	Subjects	Year/Sem of Study	Assessment Method	NATED Credits	Pre-requisite Subjects
PMAS101*	Plant Material Studies I	1 annual	Ex	0.045	
SUMN102*	Supervisory Management I	1 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 I I	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

TGCL101	Turf-grass Culture I	2b	Ex	0.035	
PLPR201	Plant Protection II	3	Ex	0.050	
ESTD201	Environmental Studies II	3	Ex	0.050	Environmental Studies II
HORT302*##	Horticulture III	3	Ex	0.149	Horticulture II
PMAS301*##	Plant Material Studies III	3	Ex	0.075	Plant Materials Studies II
HPRM301*##	Horticultural Production Management III	3	Ex	0.176	Horticultural Management II
HRT201/2	Horticulture Practice II A/B	4	CA	0.500	See Rule 5.3.7.5
HTPS201/2	Horticulture Practice II A/B4 (SoH)	4	CA	0.500	See Rule 5.3.7.5

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.

(Approved by Senate Rules Comm wef 2016/10)

5.2 PROGRAMME INFORMATION

Refer to 4.2 Programme Information under the ND: Horticulture.

5.3 PROGRAMME RULES

Refer to 4.3 Programme Rules under the ND: Horticulture and the following rules which apply specifically to ND: Horticulture (ECP).

5.3.1 Minimum Admission Requirements

Refer to Rule 4.3.1 which is applicable to both the ND and ND(ECP), with the following exception:

In addition to Rule G7, the following minimum entrance requirements apply for applicants with a National Senior Certificate (NSC) with endorsement for diploma entry with the following subjects at the stated minimum ratings:	NSC Rating
Compulsory Subject	
English (Home) OR English (1 st Additional)	4
Mathematics OR Mathematical Literacy	3
Life Sciences OR Physical Science	3

5.3.2 Selection Criteria

Refer to Rule 4.3.2 which is applicable to both the ND and ND(ECP).

In addition to the above, on the basis of the selection process, successful applicants for study towards the National Diploma will be accepted into either the three (3) year, or four (4) year (Extended Curriculum) programme of study.

5.3.3 Pass Requirements

Refer to Rule 4.3.3 which is applicable to both the ND and ND(ECP).

5.3.4 Re-registration Rules

In addition to the DUT Rule G16, and all prerequisite subjects as identified in the Programme Structure (5.1), the following programme rules apply:-

5.3.4.1 Promotion from Year 1 (ECP) to Year 2: Semester 1 (ECP):

The following subjects must be passed before proceeding to the next level:

- Horticulture Techniques II (HTTQ201)
- (Approved by Senate Rules Comm wef 2016/10)

In addition, at least two of the subjects listed below must also be passed:

- Horticulture I (HORT102)
 - Supervisory Management I (SUMN102)
 - Plant Material Studies I (PMAS101)
- (Approved by Senate Rules Comm wef 2016/10)

5.3.4.2 Promotion from Year 2 Semester 1 (ECP) to Year 2 Semester 2 (ECP):

A student must pass two out of the three subjects:

- Growth Media Technology I
- Horticultural Mechanization I
- Site Planning I

to proceed to the next level.

(Approved by Senate Rules Comm wef 2016/10)

5.3.4.3 Promotion from Year 2 Semester 2 (ECP) to Year 3 Semester 1 (ECP):

The student must pass a minimum of two out of four subjects, one of which must be a major subject. (Approved by Senate Rules Comm wef 2016/10)

5.3.4.4 Promotion from Year 3 Semester 1 (ECP) to Year 3 Semester 2 (ECP)(WIL):

A student must pass:-

- (i) All first and second year subjects

In addition to (i) a student must pass three third year subjects, two of which must be major subjects. (Approved by Senate Rules Comm wef 2016/10)

5.3.7.5 Work Integrated Learning Rules

In addition to Rule 5.3.4.4 above, a student who is registering for the requisite one semester of structured Work Integrated Learning at DUT School of Horticulture will not be allowed to register at DUT for outstanding third year subjects whilst registered for structured work integrated learning. (Approved by Senate Rules Comm wef 2016/10)

5.3.6 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)

5.3.7 Work Integrated Learning Rules

Refer to Rule 4.3.7 which is applicable to both the ND and ND(ECP).

5.3.8 Code of Conduct

Refer to Rule 4.3.8 which is applicable to both the ND and ND(ECP).

5.3.9 Attendance and Assessment

Refer to Rule 4.3.9 which is applicable to both the ND and ND(ECP).

5.3.10 Health and Safety

Refer to Rule 4.3.10 which is applicable to both the ND and ND(ECP).

6. BACHELOR OF TECHNOLOGY: HORTICULTURE (BTHRT1) 6.1 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.

6.2 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.

6.3 PROGRAMME RULES

6.3.1 Minimum Admission Requirements

In addition to Rule G7 and G23A(a)(1), applicants without the subjects Horticultural Production Management III and Horticulture III, are required to complete these subjects prior to registration for the BTech: Horticulture.

(Approved by Senate Rules Comm wef 2014/10)

6.3.2 Selection Criteria

In addition to the Minimum Admission Requirements (Rule 6.3.1), the following selection process will determine placement in the programme:

- Applicants who meet the above criteria will be invited to undergo an interview.
- Final selection for placement will be based on performance in the National

Diploma, the interview and available places (refer to DUT RuleG5).

(Approved by Senate Rules Comm wef 2014/10)

6.3.3 Pass Requirements

The DUT Rules G12, G14 and G15 apply.

6.3.4 Re-registration Rules

The DUT Rule G16 applies.

6.3.5 Exclusion Rules

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

6.3.6 Interruption of Studies

In accordance with Rule G23A(a), the minimum duration for this programme will be 1 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.

6.3.7 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	HPRM301
	Management 3	
	Supervisory Mgt I	SUMN102
TBA	Research Methodology	RSMT101

6.3.8 SHORT COURSES

This programme does not currently offer any short courses.

6.3.9 SUBJECT CONTENT

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

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. Arboricultural 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, repair, 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, interseeding, use of biostimulants, 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 (ESTDI02)

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

PLANT 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 (HMECI01)

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 tines and verticutters. Task specific mowing equipment —hand/ self- propelled mowers, ride on mowers, brush cutters. Safety aspects

SITE PLANNING I (SPLNI01)

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.

9.2 BACHELOR OF TECHNOLOGY: HORTICULTURE (BTHRT1)

RESEARCH METHODOLOGY (RSER101)

CONTACT TIME: Theory (4)

ASSESSMENT **Course Mark:** Theory: 60% Assignment: 30% Presentation: 10%

Examination: 1 x 3 hour paper

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

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/analyze data. Construct data capture tools (questionnaire), Write a proposal. Reliability and Validity. Sample populations. Develop critical approach

HORTICULTURAL PRODUCTION MANAGEMENT IV (HPRM401)

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: Project management. Management Information Systems, Organisational Structure and Behaviour, Environmental aspects. The Green Industry. Macro /micro economical environmental systems (PESTEL). Basic horticultural calculations - stock solutions for fertigation; chemical concentrations for pest control; water delivery and water quality specifications. Productivity of capital, labour and equipment. Mentoring, Consultants. The financial administration aspects - Income statement, balance sheet; financial ratios; cash-flow; budgets; working capital; margins; costing and crop profitability; creditor and debtor management and business plans. Compile and execute a comprehensive business plan in spreadsheet software.

HORTICULTURAL PRODUCTION TECHNIQUES IV (HPTC401)

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: Genetics. Genetics exploitation (Plant Breeding). Micro-propagation (tissue culture). Hydroculture (hydroponic) Intensive Plant Production Techniques.