BIOTECHNOLOGY & FOOD SCIENCE

DUT
DURBAN UNIVERSITY OF TECHNOLOGY
INYUVESI YASETHEKWINI YEZOBUCHWEPHESHE

FACULTY OF APPLIED SCIENCES

2024 HAND BOOK

ENVISION2030

transparency • honesty • integrity • respect • accountability
fairness • professionalism • commitment • compassion • excellence

CREATIVE. DISTINCTIVE. IMPACTFUL.

FACULTY of APPLIED SCIENCES

DEPARTMENT of BIOTECHNOLOGY and FOOD SCIENCE

The above department offers programmes in

BIOTECHNOLOGY and
FOOD SCIENCE

This handbook offers information on programmes offered

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 at any time 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 (2020 - 2030)

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 the holistic development of staff and students'. We value diversity in all forms.

DEPARTMENT OF BIOTECHNOLOGY AND FOOD SCIENCE

VISION

Li√e Science

MISSION STATEMENT

Transforming everyday lives through academic excellence, research and innovation in Biotechnology and Food Science.

VALUES

Integrity : Our behaviour is guided by sound moral and ethical principles.
Accountability : We take full responsibility for what we do, and what we don't do.
Respect : We treat all people with dignity.
Excellence : We are constantly seeking ways to improve service delivery.

CONTENTS

1. DEPARTMENT & FACULTY CONTACT DETAILS

All Department and Biotechnology Programme queries to:

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Email:	phillipp@dut.ac.za
Location:	Steve Biko Campus, S9, Level 1

All Department and Food Science Programme queries to:

Administrative Assistant:	Ms Z.P.N. Mdluli
Tel No:	031 373 6769
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Location:	Steve Biko Campus, S9, Level 1

All Faculty queries to:

Faculty Officer:	Ms G Shackleford
General Enquiries No:	031 373 2506
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Executive Dean:	Professor S Singh
Executive Dean's Secretary:	Ms N Naidoo
Telephone No:	031 373 2720
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Email:	dutfas@dut.ac.za
Location:	Between Block S6 and S7, Level 4, Steve Biko Campus

2. DEPARTMENT STAFF

Head of Department/ Professor	Prof. FM Swalaha D.Tech. (DUT)
Professor	Prof. K Permaul, Ph.D. (UKZN) Prof. T Kudanga, Ph.D. (TUGRAZ) Prof. EO Amonsou, Ph.D. (UP)
Associate Professors	Prof. JJ Mellem, D.Tech. (DUT) Prof. V Mohanlall, D.Tech. (DUT) Prof. SK Pillai, D.Tech. (DUT) Prof. Sabiu Saheed, PhD (UFS)
Senior Lecturers	Dr S Naicker, Ph.D. (DUT) Dr A Govender, PhD (UKZN)
Lecturers	Dr S Beekrum, Ph.D. (DUT) Ms ZT Nyawose, MAppSc (DUT)
Secretary	Ms P Phillips, NHD (DUT)
Administrative Assistant	Ms Z.P.N Mdluli, ADip (DUT)
Senior Technicians	Ms R Brijlal, B.Tech. (DUT) Ms S Govender, M.Tech. (DUT) Mr GM Makolomakwa MAppSc (DUT) Dr A Puri PhD (University of Delhi, India)
Technicians	Mr V Dilraj, NHD (DUT) Ms S Govender, M.Tech. (DUT) Ms P Naicker, B.Tech. (DUT) Ms K Mellem, M.Tech. (DUT) Ms SKS Mbamali, MAppSc (DUT) Ms RL Mohanlall, B.Tech. (DUT)
Technical Assistant	Mr ZE Ncayiyana, B.Tech. (DUT), Post Graduate Diploma (UKZN)
Laboratory Assistant	Mr B.F. Nkosi, ND (DUT)

3. QUALIFICATIONS OFFERED BY THE DEPARTMENT

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

- Bachelor of Applied Science (BAppSc)
- Advanced Diploma (AdvDip.)
- Bachelor of Applied Science Honours [BAppScHons]
- Master of Applied Science (MAppSci)
- Doctor of Philosophy (PhD)
- Doctor of Food Science and Technology (DFoodScTech)

Qualification	Qualification Code	Important dates	SAQA NLRDID
A. BIOTECHNOLOGY			
Bachelor of Applied Science in Biotechnology	BSBTC1	1st offered in January 2018	97809
Advanced Diploma in Biotechnology	ADBIO1	1st offered in January 2021	112999
Bachelor of Applied Science Honours in Biotechnology	BASHB1	1st offered in January 2021	112977
Master of Applied Science in Biotechnology	MSBTC1	1st offered in 2015	72168
Doctor of Philosophy in Biotechnology	DPBTC1	1st offered in 2015	72090
B. FOOD SCIENCE			
Bachelor of Applied Science in Food Science and Technology	BSFST1	1st offered in January 2018	101564
Advanced Diploma in Food Science	ADFSC1	1st offered in January 2021	115394
Bachelor of Applied Science Honours in Food Science	BHFSC1	1st offered in January 2021	111240
Master of Applied Science in Food Science and Technology	MSFST1	1st offered in 2015	72184

Doctor of Food Science and Technology	DFSCT1	1st offered in 2015	72102

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A. BIOTECHNOLOGY

4. BACHELOR OF APPLIED SCIENCE IN BIOTECHNOLOGY (BSBTC1)

Purpose of Qualification

The degree prepares students with focused knowledge, practical skills, attitudes and values necessary for the technological application of biological systems, living organisms, or derivatives thereof, to make or modify products or processes for specific use in the biotechnology workplace whilst contributing to environmental sustainability. Graduates may seek employment in industrial and research laboratories such as drug and pharmaceutical research, public funded laboratories, chemicals, environmental control, water and waste management, energy, food processing and bioprocessing industries.

4.1 PROGRAMME STRUCTURE

Code	Module	Assess- ment	Semester of Study	SAQA Credits	Pre-requisite Module	Co-requisite Module
CSRY101	Chemistry 1	EX	1a	16		
BIOL101	Biology 1	EX	1a	16		
MMTS101	Mathematics	CA	1a	12		
CSTN101	Cornerstone 101	CA	1a	12		
BCTY201	Bacteriology 2	EX	1b	16	Biology 1	
BCHS201	Biochemistry 2	EX	1b	16	Chemistry 1	
PHYS104	Physics	EX	1b	12		
MYCL101	Mycology	EX	1b	12	Biology 1	
ITCH101 TENE101	Entrepreneurial Edge (IGE 1) OR	CA	1b	8		
CLDV101	Cultural Diversity (IGE 1)	CA	1b	8		
FMIC101	Food Microbiology 1	EX	2a	16	Bacteriology 2	
MCRB301	Microbial Biochemistry 3	EX	2a	16	Biochemistry 2	
VRIM201	Virology and Immunology 2	EX	2a	16	Bacteriology 2	

FSCT201	Fermentation Science and Technology 2	EX	2a	16	Bacteriology 2	
ANBC301	Analytical Biochemistry 3	EX	2b	16	Biochemistry 2	
MCLB301	Molecular Biology 3	EX	2b	16	Bacteriology 2	
BCTY301	Bacteriology 3	EX	2b	16	Bacteriology 2	
VNVL101	Violence and NonViolence (IGE 2) OR	CA	2b	8		
SERS101	Sustainable Earth Studies (IGE 2)	CA	2b	8		
APSS101	Applied Science and Society (FGE 1)	CA	2b	12		
INDB101	Industrial Biotechnology	EX	3a	16	Bacteriology 3	
RDNT301	Recombinant DNA Technology 3	EX	3a	16	Molecular Biology 3	
PLTB301	Plant Biotechnology 3	EX	3a	8	Bacteriology 3	
MDLB101	Medical Biotechnology	EX	3a	8	Bacteriology 3	
RESP101	Research Project 1	CA	3a	8	Bacteriology 2	
WWRK101	World of Work (IGE 3) OR	CA	3a	8		
VWKP101	Values in the Workplace (IGE 3) OR	CA	3a	8		
RESP201	Research Project 2	CA	3b	16	Research Project 1	
FDBT101	Food Biotechnology	EX	3b	8	Food Microbiology 1	
BRMD101	Bioremediation	EX	3b		Industrial Biotechnology	

INDM101	Industry Management	EX	3b	8		
ASSD101	Applied Sciences for Sustainable Development (FGE 2)	CA	3b	12		

KEY: Assessment: Ex= Final Examination; CA = Continuous Assessment

TBC = To be confirmed upon approval by HEQC.
Numbers 1 to 3 indicates the year of study, "a"= Semester 1, "b"=Semester 2 (eg 2b=Second year, Semester 2)
A Pre-requisite means this module must be passed prior to registration for the subsequent module.

*IGE MODULES - STUDENTS MUST CHOOSE ONLY ONE IGE MODULE PER SEMESTER.

4.2 PROGRAMME INFORMATION

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 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 module at the back of this handbook. Assessments could include a variety of testing methods including, but not limited to, written tests, oral tests, theoretical and/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. These are stipulated in the relevant study guide. Moderation follows the DUT Assessment Policy stipulations. Refer to Programme Rule 4.3.9 below.

4.2.4.1 Continuous Assessment

Certain module/modules in this department are assessed through continuous assessment. As such, they do not have a final examination, and there are no

supplementary examinations. The results for these modules are determined through a weighted combination of assessments. Applicants are encouraged to work steadily through the period of registration in order to achieve the highest results possible. Assessment details are listed under each module at the back of this handbook. Assessments could include a variety of testing methods including, but not limited to, written tests, oral tests, practical examinations, group work and assignments. Moderation follows the DUT requirements.

4.2.4.2 Eligibility for Exams

In accordance with Rule G12 (1), to gain entrance to an examination in a particular module, a sub-minimum of a 40% course mark is required. In modules where there is a practical component, a sub-minimum of 40% applies to the practical component. Attendance at practicals are compulsory. A student who, for any reason, is absent from a particular practical or theory test, must provide proof of his/her absence to the particular lecturer concerned, within a period of **five working days** after the practical or theory test. On his/her return to class the student shall be prepared to attend a make-up test/practical as determined by the lecturer. Refusal to accept this will result in a zero mark for the missed practical or test. In the case of module with continuous assessment, i.e. 100% coursework and no final examination, any applicant failing to obtain a final result of at least 50% will have to repeat that module. The final examination for each of the examinable module consists of a three-hour written examination. The examination mark contributes 60% of the year mark. The remaining 40% comprises the course mark, which is obtained by assessment of the work done by the applicant during the course [refer to G12 (9)]. Refer to Rules G13(2) and G13(3) for supplementary and special examinations, respectively.

4.2.5 Employment

Biotechnologists or microbiologists work in the following industries or research labs: food and beverage, agriculture, medical and veterinary, forensic, pharmaceutical and water and waste management. Opportunities exist for graduates to pursue further educational qualifications.

4.3 PROGRAMME RULES

4.3.1 Minimum Admission Requirements

In addition to Rule G7, the following minimum entrance requirements and the selection criteria outlined in 4.3.2 (below) apply for applicants with:

4.3.1.1 Academic Achievement *(Programme Rule)*

4.3.1.1.1 A National Senior Certificate (NSC) with endorsement for a degree :

4.3.1.1.2 A Senior Certificate (SC) with the following module :

4.3.1.1.3 A National Certificate Vocational (NCV) Level 4 with statutory requirements for a degree:

Compulsory Subjects	NSC Rating	SC		NCV
		HG	SG	

English	**4**	**D**	**B**	**50%**
Mathematics	**4**	**D**	**B**	**50%**
Physical Science	**4**	**D**	**B**	**60%**
Life Sciences (or Biology)	**4**	**D**	**B**	**60%**

4.3.1.1.4 Scoring System

Applicants must have a minimum of 28 points in either the National Senior Certificate (NSC) or 30 points the Senior Certificate (SC). Use the tables below to calculate points. No points are allocated for ten (10) credit modules.

National Senior Certificate (NSC)	**Senior Certificate (SC)**		
	Symbol	**HG**	**SG**
7 = 80-100%	**A**	**8**	**6**
6 = 70-79%	**B**	**7**	**5**
5 = 60-69%	**C**	**6**	**4**
4 = 50-59%	**D**	**5**	**3**
3 = 40-49%	**E**	**4**	**2**

Learning assumed to be in place

It is assumed that the applicant wishing to enter the Bachelor of Applied Science degree in Biotechnology is competent in literacy, numeracy, life sciences and communication skills gained at the further education and training band.

Admission requirements based on Work Experience, Age and Maturity and Recognition of Prior Learning - The DUT General Rules G7(3), and G7(8) respectively, will apply.

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

Admission of International applicants - The DUT's Admissions Policy for International Students and General Rules G4 and G7(5) will apply.

4.3.2 Selection Criteria

In addition to the Minimum Admission Requirements (Rule 4.3.1) above, 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 may be: a) invited to undergo placement testing

b) ranked based on performance

Provisional acceptance is given to selected applicants awaiting National Senior Certificate* (NSC) results. If the final Grade 12 NSC* 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 2017/09)

4.3.3 Pass Requirements

In addition to the DUT Rules G12, G14 and G15, the following programme rule applies:

4.3.3.1 Notwithstanding DUT Rule G12(1) a sub-minimum of 40% is required for the practical component of all modules in which the semester mark is made up of theory and practical components. These are indicated in Table 4.1Programme Structure. (Approved by Senate Rules Comm wef 20174/09)

4.3.4 Re-registration Rules Promotion to a Higher Level/Progression Rules *(Previously Reregistration Rules)* (Programme Rule)

In accordance with Rule G16, the pre-requisite module must be passed before a student will be admitted to the next level of study. The pre-requisites are shown in 4.1 Programme Structure below:

Students may proceed from one semester to the next according to the following rules of progression.

4.3.4.1 Semester 1 to semester 2: The DUT Rule G16 applies.

4.3.4.2 Semester 2 to semester 3: The DUT Rule G16 applies.

4.3.4.3 Semester 3 to semester 4: The DUT Rule G16 applies.

4.3.4.4 Semester 4 to semester 5: The DUT Rule G16 applies. **4.3.4.5 Semester 5 to semester 6:** The DUT Rule G16 applies.

4.3.5 Exclusion Rules *(Programme Rule)*

In addition to DUT Rule G17, a student in study period 1 who fails three or more modules with an average of less than 40% in each module is not permitted to reregister in this programme. Deregistration from any module is subject to the provision of DUT Rule G6.

4.3.6 Interruption of Studies *(Programme Rule)*

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

4.3.7 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:

4.3.7.1 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.

4.3.7.2 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)

4.3.8 Attendance and Assessment

4.3.8.1 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.

4.3.8.2 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)

4.3.9 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. ADVANCED DIPLOMA IN BIOTECHNOLOGY - ADBIO1

Purpose of Qualification

The Advanced Diploma is suitable for continuing specialist development through the inculcation of a deep and systematic understanding of current thinking, practice, theory and methodology in an area of Biotechnology. This course prepares students with in-depth knowledge, practical skills, attitudes and values necessary for the technological application of biological systems, living organisms, or derivatives thereof, to make or modify products or processes for specific use in the biotechnology workplace whilst contributing to environmental sustainability. This qualification is designed to prepare students for postgraduate study through the deepening of their knowledge and understanding of theories, methodologies and practices in the biotechnology field, as well as the development of their ability to formulate, undertake and resolve more complex theoretical and practice-related problems and tasks through the selection and use of appropriate methods and techniques.

5.1 PROGRAMME STRUCTURE

Code	Module	Assessment	Semester Of Study	SAQA Credit	Prerequisite Module	Co-Requisite Module
INBI701	Advanced Industrial Biotechnology	EX	1a	16	N/A	N/A
RDNT701	Advanced Recombinant DNA Technology	EX	1a	16	N/A	N/A
MEBI701	Applied Medical Biotechnology	EX	1a	8	N/A	N/A
PBIO701	Advanced Plant Biotechnology	EX	1a	8	N/A	N/A
RETE701	Research Techniques	CA	1a	8	N/A	N/A
RPBI702	Research Project	CA	1b	20	N/A	N/A
FOBI702	Applications in Food Biotechnology	EX	1b	12	N/A	N/A

INMA702	Biotechnology Industrial Management	EX	1b	12	N/A	N/A
BIOR702	Environmental Bioremediation	EX	1b	16	N/A	N/A

KEY: Assessment: Ex= Final Examination; CA = Continuous Assessment; TBC = To be confirmed (Academic Data).
Numbers 1 to 3 indicates the year of study, "a"= Semester 1, "b"=Semester 2 (e.g. 2b=Second year, Semester 2) A Pre-Req (prerequisite) means this module must be passed prior to registration for the subsequent module.

5.2 PROGRAMME INFORMATION

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 5.3.6 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 5.3.7 below.

5.2.4 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 module at the back of this handbook. Assessments could include a variety of testing methods including, but not limited to, written tests, oral tests, theoretical and/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 module (a module that has no final examination/s or supplementary examination/s), 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 5.3.7 below.

5.2.4.1 Continuous Assessment/Assessment Rules

Certain module/modules in this department are assessed through Continuous Assessment. As such, they do not have a final examination, and there are no supplementary examinations. The results for these modules are determined through a weighted combination of assessments. Students are encouraged to work steadily through the period of registration in order to achieve the highest results possible. Assessment details are

listed under each module at the back of this handbook. Assessments could include a variety of testing methods including, but not limited to, written tests, oral tests, practical examinations, group work and assignments. Moderation follows the DUT requirements.

5.2.4.2 Eligibility for Exams

In accordance with Rule G12 (1), to gain entrance to an examination in a particular module, a sub-minimum of a 40% course mark is required. In modules where there is a practical component, a sub-minimum of 40% applies to the practical component. Attendance at practicals are compulsory. A student who, for any reason, is absent from a particular practical or theory test, must provide proof of his/her absence to the particular lecturer concerned, within a period of five working days after the practical or theory test. On his/her return to class the student shall be prepared to attend a make-up test/practical as determined by the lecturer. Refusal to accept this will result in a zero mark for the missed practical or test. In the case of module with continuous assessment, i.e. 100% coursework and no final examination, any applicant failing to obtain a final result of at least 50% will have to repeat that module.

The final examination for each of the examinable module consists of a three-hourwritten examination. The examination mark contributes 60% of the year mark. The remaining 40% comprises the course mark, which is obtained by assessment of the work done by the applicant during the course [refer to G12 (9)]. Refer to Rules G13(2) and G13(3) for supplementary and special examinations, respectively.

5.2.5 Employment Opportunities?

Biotechnologists or microbiologists work in the following industries or research labs: food and beverage, agriculture, medical and veterinary, forensic, pharmaceutical and water and waste management. Opportunities exist for graduates to pursue further educational qualifications.

5.3 PROGRAMME RULES

5.3.1 Minimum Admission Requirements

In addition to Rule G7, the following minimum entrance requirements and the selection criteria outlined in 5.3.2 (below) apply for applicants with:

5.3.1.1 Academic Achievement *(Programme Rule)*

The minimum admission requirements for this programme are:

- National Diploma in Biotechnology Or
- A recognised equivalent

Admission requirements based on Work Experience, Age and Maturity; and Recognition of Prior Learning - The DUT General Rules G7(3), and G7(8) respectively, will apply. Admission of transferring students - 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.
Admission of International students - The DUT's Admissions Policy for International Students and General Rules G4 and G7(5) will apply.

Learning assumed to be in place

It is assumed that the applicant wishing to enter the Advanced Diploma in Biotechnology is competent in literacy, numeracy, life sciences and communication skills gained at the further education and training band.

Admission requirements based on Work Experience, Age and Maturity and Recognition of Prior Learning - The DUT General Rules G7(3), and G7(8) respectively, will apply.

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

Admission of International applicants - The DUT's Admissions Policy for International Students and General Rules G4 and G7(5) will apply.

5.3.2 Selection Criteria

In addition to the Minimum Admission Requirements (Rule 5.3.1) above, the following selection process will determine placement in the programme a minimum of 60% in the final level module and a minimum of 60% overall aggregate.

All applicants must apply through the department Initial shortlisting for selection is based on the applicant's academic performance in the National Diploma programme.

Applicants who meet the above criteria may be:

a) invited to attend an interview upon which the student will be ranked based on performance

5.3.3 Pass Requirements

In addition to the DUT Rules G12, G14 and G15, the following programme rule applies:

5.3.3.1 Not with standing DUT Rule G12(1) a sub-minimum of 40% is required for the practical component of all modules in which the semester mark is made up of theory and practical components. These are indicated in Table 4.1Programme Structure.

5.3.4 Re-registration Rules

Promotion to a Higher Level/Progression Rules *(Previously Reregistration Rules) (Programme Rule)*

In accordance with Rule G16, the pre-requisite module must be passed before a student will be admitted to the next level of study. The pre-requisites are shown below: Students may proceed from one semester to the next according to the following rules of progression.

5.3.4.1 Progression from **Semester 1 to Semester 2:** The DUT Rule G16 applies.

5.3.5 Exclusion Rules *(Programme Rule)*

DUT Rule G17 applies. Deregistration from any module is subject to the provision of DUT Rule G6.

5.3.6 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:

5.3.6.1 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.

5.3.6.2 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.

5.3.7 Attendance and Assessment

5.3.7.1 A student who, for any valid reason (Refer to Programme Rule 5 .3.7.2 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.

5.3.7.2 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.

5.3.8 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.

6. BACHELOR OF APPLIED SCIENCE HONOURS IN BIOTECHNOLOGY - BASHB1

Purpose of Qualification

The proposed Honour's program in Biotechnology is aimed at highly motivated undergraduates. It is designed to build upon the students existing theoretical knowledge base, deepen the understanding of the field of biotechnology and enhance the application of advanced theoretical principles towards contextualised situations. Furthermore, it will allow for the students to engage in research-based postgraduate study. The Honour's Degree in Biotechnology involves specialization in Biotechnology courses, and a research project. The primary purpose of the Bachelor of Applied Science Honours in Biotechnology is to enable an applied specialisation within the Biotechnology field of study. The qualification serves to consolidate and deepen the student's engagement and application of theoretical knowledge. Intellectual independence will be developed and supported. This will be achieved through advanced reflection and a systematic survey of current thinking, practice and research. This higher degree path is especially attractive to students who plan to pursue a career as an industrial or academic leader.

6.1 PROGRAMME STRUCTURE

Code	Module	Assessment	Semester of Study	SAQA Credits	Prerequisite Module	Co-Requisite Module
AIBI801	Applied Industrial Biotechnology	EX	1a	16	N/A	N/A
SCME801	Scientific Methodology	EX	1a	16	N/A	N/A
BIRP801	Biotechnology Research Project 1	CA	1a	8	N/A	N/A
ANTQ801	Analytical Techniques	EX	1a	16	N/A	N/A
BIRP802	Biotechnology Research Project 2	CA	1b	32	N/A	N/A
ADEB802	Advances in Environmental Biotechnology	EX	1b	16	N/A	N/A

MBIO802	Molecular Biology and Bioengineering	EX	1b	16	N/A	N/A

KEY: Assessment: Ex= Final Examination; CA = Continuous Assessment
Numbers 1 to 3 indicates the year of study, "a"= Semester 1, "b"=Semester 2
A Pre-Req (prerequisite) means this module must be passed prior to registration for the subsequent module.

6.2 PROGRAMME INFORMATION

6.2.1 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.

6.2.2 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 Rules 6.3.7 ~~below~~.

6.2.3 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 Rules 6.3.8 ~~below~~.

6.2.4 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 module at the back of this handbook. Assessments could include a variety of testing methods including, but not limited to, written tests, oral tests, theoretical and/or practical examinations, group work, seminar 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 module (a module that has no final examination/s or supplementary examination/s), 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 Rules 6.3 below.

6.2.5 Continuous Assessment/Assessment Rules

Certain module/modules in this department are assessed through Continuous Assessment. As such, they do not have a final examination, and there are no supplementary examinations. The results for these modules are determined through a weighted combination of assessments. Students are encouraged to work steadily through the period of registration in order to achieve the highest results possible. Assessment details are listed under each module at the back of this handbook. Assessments could include a variety of testing methods including, but not limited to, written tests, oral tests, practical

examinations, group work, seminar and assignments. Moderation follows the DUT requirements.

6.2.5.1 Eligibility for Exams

In accordance with Rule G12 (1), to gain entrance to an examination in a particular module, a sub-minimum of a 40% course mark is required. In modules where there is a practical component, a sub-minimum of 40% applies to the practical component. Attendance at practicals are compulsory. A student who, for any reason, is absent from a particular practical or theory test, must provide proof of his/her absence to the particular lecturer concerned, within a period of five working days after the practical or theory test. On his/her return to class the student shall be prepared to attend a make-up test/practical as determined by the lecturer. Refusal to accept this will result in a zero mark for the missed practical or test. In the case of modules with continuous assessment, i.e. 100% coursework and no final examination, any applicant failing to obtain a final result of at least 50% will have to repeat that module.

The final examination for each of the examinable modules consists of a three-hour written examination. The examination mark contributes 60% of the year mark. The remaining 40% comprises the course mark, which is obtained by assessment of the work done by the applicant during the course [refer to G12 (9)]. Refer to Rules G13(2) and G13(3) for supplementary and special examinations, respectively.

6.2.6 Employment Opportunities

Biotechnologists or microbiologists work in the following industries or research labs: food and beverage, agriculture, medical and veterinary, forensic, pharmaceutical and water and waste management. Opportunities exist for graduates to pursue further educational qualifications.

6.3 PROGRAMME RULES

6.3.1 Minimum Admission Requirements

The minimum admission requirements for this programme are:

- Bachelor of Applied Science in Biotechnology OR
- A recognised equivalent

Admission requirements based on Work Experience, Age and Maturity, and Recognition of Prior Learning - The DUT General Rules G7(3), and G7(8) respectively, will apply.
Admission of transferring students - 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.
Admission of International students - The DUT's Admissions Policy for International Students and General Rules G4 and G7(5) will apply.

***Admission requirements based on Work Experience, Age and Maturity and Recognition of Prior Learning -** The DUT General Rules G7(3), and G7(8) respectively, will apply.
Admission of transferring applicants - In addition to the relevant DUT Rules a transferring applicant will only be accepted if there are places available and the applicant has met the applicable entrance requirements of the University.
Admission of International applicants - The DUT's Admissions Policy for International

Students and General Rules G4 and G7(5) will apply.

6.3.2 Selection Criteria

In addition to the Minimum Admission Requirements (Rule 6.3.1) above, the following selection process will determine placement in the programme a minimum of 60% in the final level module and a minimum of 60% overall aggregate. Applicants who meet the above criteria may be:

6.3.2.1 invited to attend an interview upon which the student will be ranked based on performance

6.3.3 Pass requirements

In addition to the DUT Rules G12, G14 and G15, the following programme rule applies:

6.3.3.1 Notwithstanding DUT Rule G12(1) a sub-minimum of 40% is required for the practical component of all modules in which the semester mark is made up of theory and practical components. These are indicated in Table 4.1Programme Structure.

6.3.4 Re-registration Rules

Promotion to a Higher Level/Progression Rules *(Previously Reregistration Rules) (Programme Rule)*

In accordance with Rule G16, the prerequisite module must be passed before a student will be admitted to the next level of study. The prerequisites are shown below: Students may proceed from one semester to the next according to the following rules of progression

6.3.4.1 Semester 1 to semester 2: The DUT Rule G16 applies.

6.3.5 Exclusion Rules *(Programme Rule)*

In addition to the DUT Rule G17, a student in study period 1 who achieves less than 50% in Biotechnology Research Project 1 will not be permitted to register for Biotechnology Research Project 2. Deregistration from any module is subject to the provision of DUT Rule G6.

6.3.6 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:

6.3.6.1 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.

6.3.6.2 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)

6.3.7 Attendance and Assessment

6.3.7.1 A student who, for any valid reason (Refer to Programme Rules 6.3.7.2), 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.

6.3.7.2 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.

6.3.8 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.

7. MASTER OF APPLIED SCIENCE IN BIOTECHNOLOGY (MSBTC1)

7.1 PROGRAMME INFORMATION

Students achieving this qualification will be able to conduct scientific research under minimal guidance in a chosen field, and to contribute to knowledge production in that field. The research problem, its justification, process and outcome are reported in a dissertation that complies with the generally accepted norms for research at this level.

7.2 PROGRAMME RULES

7.2.1 Minimum Admission Requirements

- In addition to Rule G7 and G24, an applicant must have a BAppScHons in Biotechnology (or equivalent).
- An RPL application will be required if an applicant has a BTech qualification.

7.2.2 Duration of Programme

In accordance with G24(2)(a), the minimum duration of the MAppSci is one year and the maximum is three years.

7.2.3 Instructional Programme

This qualification is offered by means of a full research project (Refer to Rule G24).

7.2.4 Proposal

Students are required to submit and present a research proposal to the Department within 3 months of registration.

7.2.5 Progress Reports

Students must present a progress report to the Department at least once annually.

7.2.6 Publications

Students are required to have ONE publication submitted to a DHET approved journal prior to completion of the degree.

8. DOCTOR OF PHILOSOPHY IN BIOTECHNOLOGY (DPBTC1)

8.1 PROGRAMME INFORMATION

Persons achieving this qualification will be competent scientific researchers who can work independently in developing and applying knowledge and skills to make an original contribution to the global knowledge or technology in the particular field chosen for study.

8.2 PROGRAMME RULES

8.2.1 Minimum Admission Requirements

In addition to Rule G7 and G24, an applicant must have a MAppSci (Biotechnology) or equivalent.

8.2.2 Duration of Programme

In accordance with G25(2)(a), the minimum duration of the Ph.D is two years and the maximum is four years.

8.2.3 Instructional Programme

This qualification is offered by means of a full research project (Refer to Rule G25).

8.2.4 Proposal

Students are required to submit and present a research proposal to the Department within 3 months of registration.

8.2.5 Progress Reports

Students must present a progress reports to the Department at least once annually.

8.2.6 Publications

Students are required to have ONE publication accepted and ONE publication submitted to a DHET approved journal prior to completion of the degree.

B. FOOD SCIENCE

9. BACHELOR OF APPLIED SCIENCE IN FOOD SCIENCE AND TECHNOLOGY (BSFST1)

Purpose of Qualification

The purpose of the programme is to focus on generation of knowledge and expertise in the emerging areas of science and technology by developing state-of-the-art knowledge and skills to produce quality manpower needed within the field of food science for societal and industrial benefit. The Food Science and Technology program is driven by the development of theoretical knowledge base as well as the business needs of the biotechnology sector. It involves a flexible model where the course content would continuously evolve with the rapid changes occurring within the field of Food Science without compromising on the basic tools in the area.

9.1 PROGRAMME STRUCTURE

Code	Module	Assess-ment	Semester of Study	SAQA Credits	Pre-requisite Module	Co-requisite Module
CSRY101	Chemistry 1	EX	1a	16		
BIOLI01	Biology 1	EX	1a	16		
MMTS 101	Mathematics	CA	1a	12		
CSTN101	Cornerstone 101	CA	1a	12		
TENE 101	Entrepreneurial Edge (IGE 1) OR	CA	1a	8		
CLDV101	Cultural Diversity (IGE 1)	CA	1a	8		
BCTY201	Bacteriology 2	EX	1b	16	Biology 1	
BCHS201	Biochemistry 2	EX	1b	16	Chemistry 1	
PHYS104	Physics	EX	1b	12		
MYCL201	Mycology	EX	1b	12	Biology 1	
FSTC101	Food Science and Technology 1	EX	2a	12		
FDCH201	Food Chemistry 2	EX	2a	12	Biochemistry 2	
FMCB301	Food Microbiology 3	EX	2a	16	Bacteriology 2	
FQMN101	Food Quality Management	EX	2a	8		
HNTR101	Human Nutrition	EX	2a	8		
FSTC201	Food Science and Technology 2	EX	2b	16	Food Science and Technology 1	
MOLB301	Molecular Biology 3	EX	2b	16	Bacteriology 2	
FDLG102	Food Legislation	EX	2b	8	Physics	
FPEN101	Food Process Engineering	EX	2b	8		
RASS101	Role of Applied Science in Society	CA	2b	12		

VNVL101	Violence and Non-Violence (IGE 2) OR	CA	2b	8		
MWMU101	Me, My World, My Universe (IGE 2)	CA	2b	8		
FSTC301	Food Science and Technology 3	EX	3a	16	Food Science and Technology 2	
RESP101	Research Project 1	CA	3a	8	Bacteriology2	Food Science and Technology 3 (Complementary)
FDCH301	Food Chemistry 3	EX	3a	16	Food Chemistry 2	
FDPD101	Food Product Development	EX	3a	12	Food Science and Technology 2	Research Project 1 (Complementary)
FBPK101	Food and Beverage Packaging	EX	3a	12		
VWKP101	Values in the Workplace (IGE 3) OR	CA	3a	8		
WWRK101	Work of Work (IGE3)	CA	3a	8		
RESP201	Research Project 2	CA	3b	16	Research Project 1	
INDM101	Industry Management	EX	3b	8		
FSTX101	Food Safety and Toxicology	EX	3b	12	Food Microbiology 3	
FDBT101	Food Biotechnology	EX	3b	12	Food Microbiology 3	
ASSD101	Applied Sciences for Sustainable Development	CA	3b	12		

KEY: Assessment: Ex= Final Examination; CA = Continuous Assessment; TBC = To be confirmed upon approval by HEQC.

Numbers 1 to 3 indicates the year of study, "a"= Semester 1, "b"=Semester 2 (eg 2b=Second year, Semester 2)

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

The module content for each module is found under section 14.1 and 14.3 of this handbook. This content must be read in conjunction with the relevant study guide.

*IGE-MODULES – STUDENTS MUST CHOOSE ONLY ONE IGE MODULE PER SEMESTER.

9.2 PROGRAMME INFORMATION

9.2.1 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.

9.2.2 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 12.3.8 below.

9.2.3 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 12.3.9 below.

9.2.4 Assessment and Moderation

Certain modules in this department are assessed through continuous assessment. As such they do not have a final examination, and there are no supplementary examinations. The results for these modules are determined through a weighted combination of assessments. Students are encouraged to work steadily through the period of registration in order to achieve the highest results possible. Assessment details are listed under each module at the back of this handbook. Assessments could include a variety of testing methods including, but not limited to, written tests, oral tests, practical examinations, group work and assignments. Moderation follows the DUT requirements.

Eligibility for Exams

In accordance with Rule G12 (1), to gain entrance to an examination in a particular module, a sub-minimum of a 40% course mark is required. In modules where there is a practical component, a sub-minimum of 40% applies to the practical component. Attendance at practicals is compulsory. A student who, for any reason, is absent from a particular practical or theory test, must provide proof of his/her absence to the particular lecturer concerned, within a period of five working days after the practical or theory test. On his/her return to class the student shall be prepared to attend a make- up test/practical as determined by the lecturer. Refusal to accept this will result in a zero mark for the missed practical or test.

In the case of modules with continuous assessment, i.e. 100% coursework and no final examination, any student failing to obtain a final result of at least 50% will have to repeat that module. The final examination for each of the examinable modules consists of a three-hour written examination. The examination mark contributes 60% of the year mark. The remaining 40% comprises the course mark, which is obtained by assessment of the work done by the student during the course [refer to G12 (9)]. Refer to Rules G13(2) and G13(3) for supplementary and special examinations, respectively.

9.2.5 Employment Opportunities

Food Technologists work predominantly in a laboratory or industrial environment and may be employed as quality inspectors, laboratory analysts, researchers, product development technologists, packaging technologists, auditors of food factories and suppliers. Food technologists may eventually specialize in one of the following areas: quality assurance or control; product re-search and development, production management and quality management. Promotion opportunities to supervisory or management positions are good, provided students are prepared to work hard, possess leadership ability and are willing to study further. Some food technologists travel extensively to inspect factories and food suppliers. Overtime and night shift work are sometimes required by those involved in production and quality control. The Degree allows students to subsequently pursue a pursue further educational qualifications.

9.3 PROGRAMME RULES

9.3.1 Minimum Admission Requirements

In addition to Rule G7, the following minimum entrance requirements and the selection criteria outlined in 12.3.2 apply for applicants with:

9.3.1.1 Academic Achievement (Programme Rule)

9.3.1.1.1 A National Senior Certificate (NSC) with endorsement for a degree:

9.3.1.1.2 A Senior Certificate (SC) with the following module:

9.3.1.1.3 A National Certificate Vocational (NCV) Level 4 with statutory requirements for a degree:

Compulsory Subjects	NSC Rating	HG	SG	NCV
English	4	D	B	50%
Mathematics	4	D	B	50%
Physical Science	4	D	B	60%
Life Sciences (or Biology)	4	D	B	60%

9.3.1.1.4 Scoring System:

Applicants must have a minimum of 28 points in either the National Senior Certificate (NSC) or 30 points the Senior Certificate (SC). Use the tables below to calculate points. No points are allocated for ten (10) credit module.

National Senior Certificate (NSC)	Senior Certificate (SC)		
	Symbol	HG	SG
7 = 80-100%	A	8	6

6 = 70-79%	**B**	**7**	**5**
5 = 60-69%	**C**	**6**	**4**
4 = 50-59%	**D**	**5**	**3**
3 = 40-49%	**E**	**4**	**2**

Learning assumed to be in place

It is assumed that the applicant wishing to enter the Bachelor of Applied Science degree in Food Science and Technology is competent in literacy, numeracy, life sciences and communication skills gained at the further education and training band. Admission requirements based on Work Experience, Age and Maturity; and Recognition of Prior Learning - The DUT General Rules G7(3), and G7(8) respectively, will apply. Admission of transferring students - 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.

Admission of International students - The DUT's Admissions Policy for International Students and General Rules G4 and G7(5) will apply.

9.3.2 Selection Criteria

In addition to the Minimum Admission Requirements (Rule 10.3.1), 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 may be
  a) invited to undergo placement testing
  b) ranked based on performance
- Provisional acceptance is given to selected applicants awaiting National Senior Certificate* (NSC) results. If the final Grade 12 NSC* results do not meet the minimum entrance requirements, this provisional ac-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 2017/09)

9.3.3 Pass Requirements

In addition to the DUT Rules G12, G14 and G15, the following programme rule applies: 12.3.3.1 Notwithstanding DUT Rule G12(1) a sub-minimum of 40% is required for the practical component of all modules in which the semester mark is made up of theory and practical components. These are indicated in Table 12.2 Programme Structure. (Approved by Senate Rules Comm wef 2017/09)

9.3.4 Re-registration Rules The DUT Rule G16 applies.

9.3.5 Exclusion Rules

In addition to DUT Rule G17, a student in study period 1 who fails three or more 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 G6.

9.3.6 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 re-register and will need to prove currency of appropriate knowledge prior to being given permission to continue with registration.

9.3.7 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:

9.3.7.1 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)

9.3.7.2 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)

9.3.8 Attendance and Assessment

9.3.8.1 A student who, for any valid reason (Refer to Programme Rules 12.2.3 above), 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)

9.3.8.2 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)***

9.3.9 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)***

10 ADVANCED DIPLOMA IN FOOD SCIENCE – ADFSC1

Purpose of Qualification

The Advanced Diploma in Food Science offers an intensive, focused and applied specialisation which meets the requirements of the Food Science Industry. The qualification will ensure specialist development through the inculcation of a deep and systematic understanding of current thinking, practice, theory and methodology in Food Science. The qualification will also prepare students for postgraduate study through the deepening of their knowledge and understanding of theories, methodologies and practices in Food Science. Students will develop their ability to formulate, undertake and resolve complex theoretical and practice-related problems and tasks through the selection and use of appropriate methods and techniques. All of which will provide the student with the requisite knowledge base and skills to engage with the Food Science Industry.

10.1 PROGRAMME STRUCTURE

Code	**Module**	*Assessment*	*Semester Of Study*	*SAQA Credit*	*Prerequisite Module*	*Co-Requisite Module*
APSC401	Applied Food Science	EX	1a	16	N/A	N/A
RETE401	Research Techniques	CA	1a	8	N/A	N/A
APFC401	Applied Food Chemistry	EX	1a	16	N/A	N/A
NPDF401	New Product Development in the Food Sector	EX	1a	12	N/A	N/A
PAFS401	Packaging in the Food Sector	EX	1b	12	N/A	N/A
REPR401	Research Project	CA	1b	20	Research Techniques	N/A
FIMA401	Food Industry Management	EX	1b	12	N/A	N/A
FOTO401	Food Toxicology	EX	1b	12	N/A	N/A
APBF401	Applied Biotechnology in Food Systems	EX	1b	12	N/A	N/A

KEY: Assessment: Ex= Final Examination; CA = Continuous Assessment; TBC = To be confirmed upon approval by HEQC.

Numbers 1 to 3 indicates the year of study, "a"= Semester 1, "b"=Semester 2 (e.g. 2b=Second year, Semester 2)
A Pre-Req (prerequisite) means this module must be passed prior to registration for the subsequent module.

10.2 PROGRAMME INFORMATION

10.2.1 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.

10.2.2 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 13.3.8 below.

10.2.3 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 13.3.9 below.

10.2.4 Assessment and Moderation

Certain modules in this department are assessed through continuous assessment. As such they do not have a final examination, and there are no supplementary examinations. The results for these modules are determined through a weighted combination of assessments. Students are encouraged to work steadily through the period of registration in order to achieve the highest results possible. Assessment details are listed under each module at the back of this handbook. Assessments could include a variety of testing methods including, but not limited to, written tests, oral tests, practical examinations, group work and assignments. Moderation follows the DUT requirements.

Eligibility for Exams

In accordance with Rule G12 (1), to gain entrance to an examination in a particular module, a sub-minimum of a 40% course mark is required. In modules where there is a practical component, a sub-minimum of 40% applies to the practical component. Attendance at practicals is compulsory. A student who, for any reason, is absent from a particular practical or theory test, must provide proof of his/her absence to the particular lecturer concerned, within a period of five working days after the practical or theory test. On his/her return to class the student shall be prepared to attend a make-up test/practical as determined by the lecturer. Refusal to accept this will result in a zero mark for the missed practical or test.

In the case of modules with continuous assessment, i.e. 100% coursework and no final examination, any student failing to obtain a final result of at least 50% will have to repeat that module. The final examination for each of the examinable modules consists of a three-hour written examination. The examination mark contributes 60% of the year mark. The remaining 40% comprises the course mark, which is obtained by assessment of the work done by the student during the course [refer to G12 (9)]. Refer to Rules G13(2) and G13(3) for supplementary and special examinations, respectively.

10.2.5 Employment Opportunities

Food Technologists work predominantly in a laboratory or industrial environment and may be employed as quality inspectors, laboratory analysts, researchers, product development technologists, packaging technologists, auditors of food factories and suppliers. Food technologists may eventually specialize in one of the following areas: quality assurance or control; product re-search and development, production management and quality management. Promotion opportunities to supervisory or management positions are good, provided students are prepared to work hard, possess leadership ability and are willing to study further. Some food technologists travel extensively to inspect factories and food suppliers. Overtime and night shift work are sometimes required by those involved in production and quality control. The Degree allows students to subsequently pursue a pursue further educational qualifications.

10.3 PROGRAMME RULES

10.3.1 Minimum Admission Requirements

The minimum admission requirements for this programme are:

- National Diploma in Food Technology Or
- A recognised equivalent

Admission requirements based on Work Experience, Age and Maturity; and Recognition of Prior Learning - The DUT General Rules G7(3), and G7(8) respectively, will apply. Admission of transferring students - 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.

Admission of International students - The DUT's Admissions Policy for International Students and General Rules G4 and G7(5) will apply.

Learning assumed to be in place

It is assumed that the applicant wishing to enter the Bachelor of Applied Science degree in Food Science and Technology is competent in literacy, numeracy, life sciences and communication skills gained at the further education and training band. Admission requirements based on Work Experience, Age and Maturity; and Recognition of Prior Learning - The DUT General Rules G7(3), and G7(8) respectively, will apply. Admission of transferring students - 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.

Admission of International students - The DUT's Admissions Policy for International Students and General Rules G4 and G7(5) will apply.

10.3.2 Selection Criteria

In addition to the Minimum Admission Requirements (Rule 13.3.1), the following selection process will determine placement in the programme a minimum of 60% in the final level module and a minimum of 60% overall aggregate.

10.3.3 Pass Requirements

In addition to the DUT Rules G12, G14 and G15, the following programme rule applies: 11.3.3.1 Notwithstanding DUT Rule G12(1) a sub-minimum of 40% is

required for the practical component of all modules in which the semester mark is made up of theory and practical components. These are indicated in Table 13.1 Programme Structure. (Approved by Senate Rules Comm wef 2017/09)

10.3.4 Re-registration Rules

The DUT Rule G16 applies.

10.3.5 Exclusion Rules

In addition to DUT Rule G17, a student in study period 1 who fails three or more 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 G6.

10.3.6 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 re-register and will need to prove currency of appropriate knowledge prior to being given permission to continue with registration.

10.3.7 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:

10.3.7.1 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.

10.3.7.2 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.

10.3.8 Attendance and Assessment

10.3.8.1 A student who, for any valid reason (Refer to Programme Rule 13.2.3 above), 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.

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.

10.3.9 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.

11 BACHELOR OF APPLIED SCIENCE HONOURS IN FOOD SCIENCE - BHFSC1

Purpose of Qualification

The proposed Honours degree in Food Science is focused on developing graduates with a strong level of conceptual knowledge, practical skills, attitudes and values necessary for the scientific application of food and water contamination, food safety and quality control - issues that significantly affect society and the economy as well as product development. The degree is designed primarily for students who wish to undertake a strong research-intensive programme of postgraduate study in food science. This higher degree path is especially attractive to students who plan to pursue an industrial or academic career.

11.1 PROGRAMME STRUCTURE

Code	Module	Assessment	Semester of study	SAQA Credit	Prerequisite Module	Co-Requisite Module
AIFS801	Advances in Food Science	EX	1a	16		
RMFS801	Research Methodology	CA	1a	16		
RTFS801	Research Techniques	EX	1a	16		
RPFS801	Research Project	CA	1a	12		
RPFS802	Research Project	CA	1b	28	Research Project	
FCAA802	Food Components and Analysis	EX	1b	16		
FMAS802	Food Microbial Assurance	EX	1b	16		

KEY: Assessment: Ex= Final Examination; CA = Continuous Assessment; TBC = To be confirmed upon approval by HEQC.

Numbers 1 to 3 indicates the year of study, "a"= Semester 1, "b"=Semester 2 (e.g. 2b=Second year, Semester 2)

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

11.2 PROGRAMME INFORMATION

11.2.1 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.

11.2.2 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 14.3.8 below.

11.2.3 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 14.3.9 below.

11.2.4 Assessment and Moderation

Certain modules in this department are assessed through continuous assessment. As such they do not have a final examination, and there are no supplementary examinations. The results for these modules are determined through a weighted combination of assessments. Students are encouraged to work steadily through the period of registration in order to achieve the highest results possible. Assessment details are listed under each module at the back of this handbook. Assessments could include a variety of testing methods including, but not limited to, written tests, oral tests, practical examinations, group work and assignments. Moderation follows the DUT requirements.

Eligibility for Exams

In accordance with Rule G12 (1), to gain entrance to an examination in a particular module, a sub-minimum of a 40% course mark is required. In modules where there is a practical component, a sub-minimum of 40% applies to the practical component. Attendance at practicals is compulsory. A student who, for any reason, is absent from a particular practical or theory test, must provide proof of his/her absence to the particular lecturer concerned, within a period of five working days after the practical or theory test. On his/her return to class the student shall be prepared to attend a make-up test/practical as determined by the lecturer. Refusal to accept this will result in a zero mark for the missed practical or test.

In the case of modules with continuous assessment, i.e. 100% coursework and no final examination, any student failing to obtain a final result of at least 50% will have to repeat that module. The final examination for each of the examinable modules consists of a three-hour written examination. The examination mark contributes 60% of the year mark. The remaining 40% comprises the course mark, which is obtained by assessment of the work done by the student during the course [refer to G12 (9)]. Refer to Rules G13(2) and G13(3) for supplementary and special examinations, respectively.

11.2.5 Employment Opportunities

Food Technologists work predominantly in a laboratory or industrial environment and may be employed as quality inspectors, laboratory analysts, researchers, product development technologists, packaging technologists, auditors of food factories and suppliers. Food technologists may eventually specialize in one of the following areas: quality assurance or control; product re-search and development, production management and quality management.

Promotion opportunities to supervisory or management positions are good, provided students are prepared to work hard, possess leadership ability and are willing to study further. Some food technologists travel extensively to inspect factories and food suppliers. Overtime and night shift work are sometimes required by those involved in production and quality control. The Degree allows students to subsequently pursue a pursue further educational qualifications.

11.3 PROGRAMME RULES

11.3.1 Minimum Admission Requirements

The minimum admission requirements for this programme are:

- Bachelor's Degree in Food Science and Technology Or
- A recognised equivalent

Admission requirements based on Work Experience, Age and Maturity; and Recognition of Prior Learning - The DUT General Rules G7(3), and G7(8) respectively, will apply.

Admission of transferring students - 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.

Admission of International students - The DUT's Admissions Policy for International Students and General Rules G4 and G7(5) will apply.

Learning assumed to be in place

It is assumed that the applicant wishing to enter the Bachelor of Applied Science degree in Food Science and Technology is competent in literacy, numeracy, life sciences and communication skills gained at the further education and training band. Admission requirements based on Work Experience, Age and Maturity; and Recognition of Prior Learning - The DUT General Rules G7(3), and G7(8) respectively, will apply. Admission of transferring students - 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.

Admission of International students - The DUT's Admissions Policy for International Students and General Rules G4 and G7(5) will apply.

11.3.2 Selection Criteria

In addition to the Minimum Admission Requirements (Rule 14.3.1), the following selection process will determine placement in the programme a minimum of 60% in the final level module and a minimum of 60% overall aggregate.

11.3.3 Pass Requirements

In addition to the DUT Rules G12, G14 and G15, the following programme rule applies: 11.3.3.1 Notwithstanding DUT Rule G12(1) a sub-minimum of 40% is required for the practical component of all modules in which the semester mark is made up of theory and practical components. These are indicated in Table 14.1 Programme Structure.

11.3.4 Re-registration Rules

The DUT Rule G16 applies.

11.3.5 Exclusion Rules

In addition to DUT Rule G17, a student in study period 1 who fails three or more 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 G6.

11.3.6 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 re-register and will need to prove currency of appropriate knowledge prior to being given permission to continue with registration.

11.3.7 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:

11.3.4.1 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.

11.3.4.2 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.

11.3.8 Attendance and Assessment

11.3.8.1 A student who, for any valid reason (Refer to Programme Rule 10.2.3 above), 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.

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.

11.3.9 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.

12 MASTER OF APPLIED SCIENCE IN FOOD SCIENCE AND TECHNOLOGY (MSFST1)

12.1 PROGRAMME INFORMATION:

Students achieving this qualification will be able to conduct scientific research under minimal guidance in a chosen field, and to contribute to knowledge production in that field. The research problem, its justification, process and outcome are reported in a dissertation which complies with the generally-accepted norms for research at this level. BT: Biotechnology (or equivalent).

12.2 PROGRAMME RULES

12.2.1 Minimum Admission Requirements

- In addition to Rule G7 and G24, an applicant must have a BAppScHons in Food Science (or equivalent).
- An RPL application will be required if an applicant has a BTech qualification.

12.2.2 Duration of Programme:

In accordance with G24(2)(a), the minimum duration of the MAppSci (Food Science and Technology) is one year and the maximum is three years.

12.2.3 Instructional Programme

This qualification is offered by means of a full research project (Refer to Rule G24).

12.2.4 Proposal

Students are required to submit and present a research proposal to the Department within 3 months of registration.

12.2.5 Progress Report

Students must present a progress report to the Department prior to graduation.

12.2.6 Publications

Students are required to have ONE publication submitted to a DHET approved journal prior to completion of the degree.

13 DOCTOR OF FOOD SCIENCE AND TECHNOLOGY (DFSCT1)

13.1 PROGRAMME INFORMATION

Persons achieving this qualification will be competent scientific researchers who can work independently in developing and applying knowledge and skills to make an original contribution to the global knowledge or technology in the particular field chosen for study.

13.2 PROGRAMME RULES

13.2.1 Minimum Admission Requirements

In addition to Rule G7 and G24, an applicant must have a MAppSci (Food Science and Technology) (or equivalent).

13.2.2 Duration of Programme

In accordance with G25(2)(a), the minimum duration of the Doctor Food Science and Technology is two years and the maximum is four years.

13.2.3 Instructional Programme

This qualification is offered by means of a full research project (Refer to Rule G25).

13.2.4 Proposal

Students are required to submit and present a research proposal to the Department within 3 months of registration.

13.2.5 Progress Report

Students must present a progress report to the Department prior to graduation.

13.2.6 Publications

Students are required to have ONE publication accepted and ONE publication submitted to a DHET approved journal prior to completion of the degree.

14 SERVICED MODULES

The following modules are serviced between the programmes in this department:

Serviced Programme	Servicing Programme	Serviced Module	Module Code
Biotechnology	Food Science	Biochemistry II Sanitation, Safety and Hygiene I	BCHE202 SASH101
Food Science	Biotechnology	Microbiology I Microbiology II Food Microbiology III	MICR101 MICR202 FMIC302

The servicing department's rules apply to all serviced modules. The following modules are serviced externally to this department

15 MODULES CONTENT

The information below must be read in conjunction with the relevant Study Guides. Modules are arranged alphabetically in each section

BACHELOR OF APPLIED SCIENCE IN BIOTECHNOLOGY - BAppSc Biotechnology

CHEMISTRY I

Contact Time: 64 hours - Theory (4), Practical (4) periods per week Assessment:
Course Mark: Refer to the study guide. Examination: 1 X 3 hour paper
Final Mark: 40% - Tests, assignments, practicals, projects etc. 60% - Exam
Syllabus: This course will equip students with grounding in chemistry that will develop a level of theoretical knowledge and practical and problem-solving skills, and to present the physical and descriptive inorganic and organic aspects of chemistry. General chemistry makes up 70% of the syllabus: Measurements, energy and matter, atoms and elements, compounds and their bonds, chemical reactions and quantities, gases, solutions, acids & bases and nuclear radiation. Organic chemistry makes up 30% of the syllabus. The organization of organic chemistry, alkanes and cycloalkanes, unsaturated hydrocarbons, organic compounds with oxygen and sulphur, carboxylic acid and esters, amines and amides. Laboratory exercises in selected topics from above.

BIOLOGY I

Contact Time: 64 hours - Theory (4), Practical (4) periods per week Assessment:
Course Mark: Refer to the study guide. Examination: 1 X 3 hour paper
Final Mark: 40% - Tests, assignments, practicals, projects etc. 60% - Exam
Syllabus: Biology as a module will assist the student to acquire fundamental and integrated knowledge of diverse life forms relevant to Biotechnology

MATHEMATICS

Contact Time: 48 hours - Theory (4) periods per week Assessment:
Course Mark: Refer to the study guide.

Examination: N/A – Continuous Assessment Final Mark: Minor Tests and assignments: 20%
Major Test 1: 40% (internally moderated)
Major Test 2: 40% (Internally moderated) A pass is 50%, Students who obtain a final mark of 45% to 49% may write Major test 1 and Major test 2 together. If a combined score of 50% or higher is obtained then students will be awarded a pass of 50% for the module. All assessments and moderation will take place in accordance with the DUT policies and procedures.
Syllabus: Elementary mathematics: simple algebraic manipulation, indices, logarithms, solution of equations, use of calculators, approximate, significant figures. Functions: polynomial, rational, exponential, logarithmic, ratio and proportion. Geometry and plane analytic geometry. Differentiation: simple techniques, use in optimization and curve sketching. Integration: simple techniques, evaluation of areas. Differential equations: first order equations, uses in Applied Science modelling.

CORNERSTONE 101

Contact Time: 40 hours per semester
Assessment:
Course Mar: Refer to the study guide
Examination: N/A
Final Mark: The approach will be one of continuous assessment. The assessment will be made up as follows :
A weekly blog written by each student 20%
Tutorial attendance (forfeited if student attends less than 80% of tutorials) 10%

- Visual artefact 15%
- Written report 30%
- Oral presentation 15%
- Peer assessment 10%

Syllabus: The module content will be developed around the concept of journeys, across time, across space, and across human relationships; the first use of the concept will take the journey of the uMngeni River (which is close to all DUT campuses) as a metaphor. The module will bring different disciplinary perspectives to this content. The module will start with the analysis of a particular issue or metaphor (one critical event or development will be and analysed; the event in focus will be selected on the basis of its connections to the theme of journeys and its relevance to the issues of ethics, diversity and critical citizenry). The final section of the module will identify and integrate learning from earlier sections, and examine implications for further learning. At each stage of the module, students will be required to engage in activities that involve reflection and build communicative practices. There will be a concluding section in which students will identify their learning and examine the implications for their roles as students and as citizens.

BACTERIOLOGY 2

Contact Time: 64 hours - Theory (4), Practical (4) periods per week Assessment:
Course Mark : Refer to the study guide. Examination: 1 X 3 hour paper
Final Mark: 40% – Tests, assignments, practicals, projects etc 60% – Exam.
Syllabus: To give the student a basic knowledge and understanding of bacterial growth, physiology and control.

BIOCHEMISTRY 2
Contact Time: 64 hours - Theory (4), Practical (4) periods per week
Assessment:
Course Mark: Refer to the study guide.
Examination: 1 X 3 hour paper
Final Mark: 40% – Tests, assignments, practicals, projects etc. 60% – Exam.
Syllabus: This module provides an introduction to the molecules and chemical reactions of living systems. Structure and function of important classes of biomolecules to the biotechnology and food technology niche areas are explored

PHYSICS
Contact Time: 48 hours - Theory (3), Practical (2) periods per week
Assessment:
Course Mark: Refer to the study guide.
Examination: 1 X 3 hour paper
Final Mark: 40% – Tests, assignments, practicals, projects etc. 60% – Exam.
Syllabus: The student will acquire knowledge of Physics and its application to the Biological and Life sciences.

MYCOLOGY
Contact Time: 48 hours - Theory (3), Practical (2) periods per week Assessment:
Course Mark: Refer to the study guide. Examination: 1 X 3-hour paper
Final Mark: 40% – Tests, assignments, practicals, projects etc. 60% – Exam.
Syllabus: To identify the characteristics of the members of the Kingdom Fungi, manipulate their growth and interpret their ecological and economic impact.

INSTITUTIONAL GENERAL EDUCATION ELECTIVE 1 (IGE 1)
REFER TO ADDENUM

FOOD MICROBIOLOGY 2
Contact Time: 64 hours - Theory (4), Practical (4) periods per week Assessment:
Course Mark: Refer to the study guide. Examination: 1 X 3-hour paper
Final Mark: 40% – Tests, assignments, practicals, projects etc. 60% – Exam
Syllabus: To study the characteristics of genera of bacteria and fungi that are found in foods, their role in foods and food spoilage and in fermentation and
development of foods. To explain methods of determining their presence and numbers in foods, factors that affect their growth and methods of preventing and controlling their presence in foods.

MICROBIAL BIOCHEMISTRY 3
Contact Time: 64 hours - Theory (4), Practical (4) periods per week Assessment:
Course Mark: Refer to the study guide. Examination: 1 X 3-hour paper
Final Mark: 40% – Tests, assignments, practicals, projects etc. 60% – Exam
Syllabus: This module is aimed at equipping a student with the knowledge of metabolic pathways involved in the breakdown of different substrates, the energies and enzymes involved during

these processes. The module further highlights the regulation of enzymes involved in the synthesis of products of industrial importance.

VIROLOGY AND IMMUNOLOGY 2

Contact Time: 64 hours - Theory (4), Practical (4) periods per week Assessment:
Course Mark Refer to the study guide. Examination: 1 X 3-hour paper
Final Mark: 40% – Tests, assignments, practicals, projects etc. 60% – Exam
Syllabus: The module deals with a general introduction to viruses and focuses on key viral diseases of KZN. It also outlines the various mechanisms of action of the human immune system and the various types of biotechnological diagnostic assays of diseases.

FERMENTATION SCIENCE AND TECHNOLOGY 2

Contact Time: 64 hours - Theory (4), Practical (4) periods per week Assessment:
Course Mark: Refer to the study guide. Examination: 1 X 3-hour paper
Final Mark: 40% – Tests, assignments, practicals, projects etc. 60% – Exam
Syllabus: This module focuses on the general isolation, morphology, growth and control of microorganisms. Fermentation Technology ties in all these aspects and demonstrates how microorganisms can be harnessed to demonstrate their real potential in producing value added products on a large scale.

INSTITUTIONAL GENERAL EDUCATION ELECTIVE 2 (IGE 2)

REFER TO ADDENDUM

ANALYTICAL BIOCHEMISTRY 3

Contact Time: 64 hours - Theory (4), Practical (4) periods per week Assessment:
Course Mark: Refer to the study guide.
Examination: 1 X 3-hour paper
Final Mark: 40% – Tests, assignments, practicals, projects etc. 60% – Exam
Syllabus: The module focuses on the application of advanced analytical methods in biochemistry and molecular biology. Students that register for this course will receive instruction not only to key biochemical concepts, but also in the chemistry underpinning these concepts and the applications of biochemistry in biotechnology

MOLECULAR BIOLOGY 3

Contact Time: 64 hours - Theory (4), Practical (4) periods per week Assessment:
Course Mark: Refer to the study guide. Examination: 1 X 3-hour paper
Final Mark: 40% – Tests, assignments, practicals, projects etc. 60% – Exam
Syllabus: This module reinforces the basic concepts of molecular biology, then introduces the genetic processes that occur in a cell, explores the transfer of genetic material between organisms, introduces methods and techniques to create or modify cells at the genetic level, and finally explores the new field of bioinformatics

BACTERIOLOGY 3

Contact Time: 64 hours - Theory (4), Practical (4) periods per week Assessment:
Course Mark: Refer to the study guide. Examination: 1 X 3-hour paper
Final Mark: 40% – Tests, assignments, practicals, projects etc. 60% – Exam
Syllabus: This module deals with the classification and identification of microorganisms, explores their symbiotic relationships with other microorganisms and other living organisms and briefly reviews the characteristics of selected antibacterial, antifungal and antiviral drugs.

FACULTY GENERAL EDUCATION ELECTIVE 1 (FGE 1)

Contact Time: 48 hours - Theory (4) periods per week Assessment:
Course Mark: Refer to the study guide
Examination: N/A
Final Mark: Class test will contribute 30% of Final Mark
Assignment will contribute 30% of Final Mark
Group project will contribute 40% of Final Mark
Syllabus: To critically evaluate the impact of key challenges of sustainable development within a Kwa-Zulu Natal and SADC context; and design strategies on how applied sciences can address these challenges

INDUSTRIAL BIOTECHNOLOGY 3

Contact Time: 64 hours - Theory (4), Practical (4) periods per week
Assessment:
Course Mark: Refer to the study guide. Examination: 1 X 3-hour paper
Final Mark: 40% – Tests, assignments, practicals, projects etc. 60% – Exam
Syllabus: The student has acquired knowledge and expertise in basic and core biotechnology areas and will be introduced to the application of biotechnology for industrial production. Different examples will be used to illustrate the various applications, strategies and techniques used in the biotechnology industry.

RECOMBINANT DNA TECHNOLOGY 3

Contact Time: 64 hours - Theory (4), Practical (4) periods per week
Assessment:
Course Mark: Refer to the study guide. Examination: 1 X 3-hour paper
Final Mark: 40% – Tests, assignments, practicals, projects etc. 60% – Exam
Syllabus: The aim of this module is to allow you to develop an in-depth knowledge and understanding of four key disciplines: biochemistry, cell biology, microbiology and molecular biology. It will show how each of these disciplines can be applied in the biotechnology, pharmaceutical and pathology industries. The module will also develop the independent learning, professional and communication skills required for the rest of the course and a future career.

PLANT BIOTECHNOLOGY

Contact Time: 32 hours - Theory (3) periods per week Assessment:
Course Mark: Refer to the study guide. Examination: 1 X 3-hour paper
Final Mark: 40% – Tests, assignments, projects etc. 60% – Exam

Syllabus: This module aims to show you how plants can be utilised in biotechnological applications. You will study key biological principles that underlie our ability to manipulate plants to yield desirable characteristics, the ecological implications of plant biotechnology and appreciate a range of laboratory techniques important for the manipulation of plants in biotechnology.

MEDICAL BIOTECHNOLOGY 3

Contact Time: 32 hours - Theory (3) periods per week
Assessment:
Course Mark: Refer to the study guide.
Examination: 1 X 3-hour paper
Final Mark: 40% – Tests, assignments, projects etc. 60% – Exam
Syllabus: This module will include the study of current and potential techniques for disease diagnosis, prevention and therapy. Students will be introduced to a host of scientific developments in medical biotechnology and its applications. The module will provide students with an insight into the fast-emerging medical biotechnology and the innovative processes that ensures the success of such endeavours. The module will also cover a host of topics that will provide the students with a springboard to develop their creative thinking and explore their ideas of new vision of medical biotechnology.

RESEARCH PROJECT 1

Contact Time: 32 hours - Theory (3) periods per week Assessment:
Course Mark: Refer to the study guide
Examination: N/A
Final Mark: Control Test 40% of final mark
Written assignment and Project Proposal 40% of final mark Oral presentation 20% of final mark
Syllabus: The course is intended for undergraduate students in preparation for research that they may undertake in industry or as postgraduates. Students who complete this course will have an understanding of formulating a research topic, reading and critically reviewing literature, research strategy, research ethics, sampling, data analysis, referencing, writing and presenting for research.

INSTITUTIONAL GENERAL EDUCATION ELECTIVE 3 (IGE 3)

REFER TO ADDENUM

RESEARCH PROJECT 2

Contact Time: 64 hours
Research Supervision = 40%,
Independent student study and Research (Laboratory, Library and Computer labs) = 60%
Assessment
Course Mark: N/A
Examination: N/A
Final Mark: The final mark for this module will be calculated as follows:
Research Project Report – 70% Research Project Presentation – 30%

Syllabus: To holistically apply knowledge acquired in the qualification to research and perform experiments on a community-based project within the biotechnology field.

FOOD BIOTECHNOLOGY

Contact Time: 32 hours - Theory (3) periods per week Assessment:
Course Mark: Refer to the study guide. Examination: 1 X 3-hour paper
Final Mark: 40% – Tests, assignments, projects etc. 60% – Exam
Syllabus: This module deals with the fundamental knowledge of biotechnology and its applications in food production. The role of food biotechnology in Food industries and Africa as well as ethical and regulatory issues will be covered.

BIOREMEDIATION

Contact Time: 64 hours - Theory (4), Practical (4) periods per week Assessment:
Course Mark: Refer to the study guide. Examination: 1 X 3-hour paper
Final Mark: 40% – Tests, Practicals, assignments, projects etc. 60% – Exam
Syllabus: Advance the basic and applied science of bioremediation as an alternative solution to environmental pollution problems in South Africa and globally

INDUSTRY MANAGEMENT

Contact Time: 32 hours - Theory (3) periods per week Assessment:
Course Mark: Refer to the study guide. Examination: 1 X 3-hour paper
Final Mark: 40% – Tests, assignments, projects etc. 60% – Exam
Syllabus: module develops a critical understanding of the commercial aspects of the biotechnology and food industry. It covers principles and policies of business and personnel management, entrepreneurship, intellectual property and government legislation currently applicable to Biotechnological industries in KZN and globally.

FACULTY GENERAL EDUCATION ELECTIVE 2 (FGE 2)

Contact Time: 48 hours - Theory (4) periods per week Assessment:
Course Mark: N/A
Examination: N/A
Final Mark: Written assignment or poster 20%
Presentations 20%
Tests 20%
Portfolio of evidence/reflective journal 20%
Project 20%
Syllabus: To explore the impact of various aspects of the applied sciences on society

FACULTY GENERAL EDUCATION ELECTIVE 3 (FGE 3)

Contact Time: Assessment:
48 hours - Theory (4) periods per week
Course Mark: N/A
Examination: N/A
Final Mark: RADICAL\CREATIVE PEDAGOGY AND ASSESSMENT
(Continuous assessment) 25%

Reflective Journal 25%
Creative presentation 50%
Practical project (25% individual portfolio; 25% group presentation)
Syllabus: The purpose of this module is to develop students through creating a holistic awareness of the variety of problems, engage in socially valuable action while critically reflecting on the nature of their action and the problems it seeks to address

General Education in the Department of Biotechnology and Food Science
Where a module is designated as an Institutional General Education Elective module the student is to select from list of modules made available at time of registration. All modules made available will be 8 credits and at NQF level 5. If a student has registered for and passed a module, he/she may not select that module again.

* Note – all modules that students will be asked to select from are 8 credits and at NQF level 5. Further, modules may be removed or added to this list, depending on availability of resources and popularity of modules.

Bachelor of Applied Science in Biotechnology

Year	Module	Level	Credits	Purpose of Module
1 –S2	Entrepreneurail Edge	5	8	The purpose of General Education is to ensure that our graduates are not only skilled professionals in their chosen area of study but also broadly educated and well-rounded local and global citizens. Toward this greater purpose, this module will introduce students to the concept and language of technopreneurship. Students will be exposed to the excitement of potentially starting their own technically related businesses, and will be able to explain the difference between small business and entrepreneurship. The current SA need for SMMEs, and the related supporting organisations will be introduced. The module
	Cultural Diversity	5	8	The purpose of this module is as follows : 1. To equip students with knowledge about human diversity issues particularly around the social constructions of race, gender, sexual orientation, spirituality and disability. 2. To prepare students to demonstrate respect and empathy for diverse cultures locally and globally. To enable students to recognize the

Year	Module	Level	Credits	Purpose of Module
2 – S4	Violence and Nonviolence	5	8	To develop student awareness of self and society through engaging with text and lived experiences related to violence and nonviolence; To develop students' practice of critical and engaged citizenry; To challenge the ways in which violence serves to deepen inequality between social groups, in particular between men and women; To develop students' understanding of the nature, extent and causes of violence; To enable students to become active leaders for
	Sustainable Earth Studies	5	8	The module provides a knowledge base to develop positive attitudes and actions that will benefit environmental sustainability on a range of levels. It stresses the importance of biodiversity as the foundation of human wellbeing and demonstrates the relevance of local biodiversity and healthy functioning ecosystems to young people living and studying in KwaZulu–Natal today. This module describes planet earth as a complex biosphere made up of living and non- living

Year	Module	Level	Credits	Purpose of Module
3 – S5	Values in the Workplace	5	8	The purpose of this module is as follows • To heighten student's awareness of their personal beliefs, values, and attitudes regarding culture, race, ethnic and other identity statuses and how it intersects with values for the workplace. • To enable students to become knowledgeable about values, gender, sexual orientation, socioeconomic status, and disability within society and resultantly within the context of values in the workplace. • To enable students to be familiar with
	World of Work	5	8	The purpose of General Education is to ensure that our graduates are not only skilled professionals in their chosen area of study but also broadly educated and well- rounded local and global citizens. Toward this greater purpose, this module is designed to introduce and develop non-technical

MODULES CONTENT

BACHELOR OF APPLIED SCIENCE IN FOOD SCIENCE AND TECHNOLOGY - BAppSc (Food Science and Technology)

CHEMISTRY I

Contact Time: 64 hours - Theory (4), Practical (4) periods per week Assessment:
Course Mark: Refer to the study guide.
Examination: 1 X 3 hour paper
Final Mark: 40% – Tests, assignments, practicals, projects etc. 60% – Exam
Syllabus: This course will equip students with grounding in chemistry that will develop a level of theoretical knowledge and practical and problem-solving skills, and to present the physical and descriptive inorganic and organic aspects of chemistry. General chemistry makes up 70% of the syllabus: Measurements, energy and matter, atoms and elements, compounds and their bonds, chemical reactions and quantities, gases, solutions, acids & bases and nuclear adiation. Organic chemistry makes up 30% of the syllabus. The organization of organic chemistry, alkanes and cycloalkanes, unsaturated hydrocarbons, organic compounds with oxygen and sulphur, carboxylic acid and esters, amines and amides. Laboratory exercises in selected topics from above.

BIOLOGY I

Contact Time: 64 hours - Theory (4), Practical (4) periods per week Assessment:
Course Mark: Refer to the study guide. Examination: 1 X 3 hour paper
Final Mark: 40% – Tests, assignments, practicals, projects etc. 60% – Exam
Syllabus: Biology as a module will assist the student to acquire fundamental and integrated knowledge of diverse life forms relevant to Biotechnology

MATHEMATICS

Contact Time: 48 hours - Theory (4) periods per week
Assessment:
Course Mark: Minor Tests and assignments: 20% of final mark
Examination: N/A (continuous assessment)
Final Mark: Minor Tests and assignments: 20%
Major Test 1: 40% (internally moderated)
Major Test 2: 40% (Internally moderated)
A pass is 50%, Students who obtain a final mark of 45% to 49% may write Major test 1 and Major test 2 together. If a combined score of 50% or higher is obtained then students will be awarded a pass of 50% for the module. All assessments and moderation will take place in accordance with the DUT policies and procedure
Syllabus: Elementary mathematics: simple algebraic manipulation, indices, logarithms, solution of equations, use of calculators, approximate, significant figures. Functions: polynomial, rational, exponential, logarithmic, ratio and proportion. Geometry and plane analytic geometry. Differentiation: simple techniques, use in optimization and curve sketching. Integration: simple techniques, evaluation of areas. Differential equations: first order equations, uses in Applied Science modellin

CORNERSTONE 101
Contact Time: 40 hours per semester Assessment:
Course Mark : N/A
Examination : N/A
Final Mark: The approach will be one of continuous assessment. The assessment will be made up as follows : A weekly blog written by each student 20% -Tutorial attendance (forfeited if student attends less than 80% of tutorials) 10% -Visual artefact 15%
-Written report 30%
-Oral presentation 15%
-Peer assessment 10%
Syllabus: The module content will be developed around the concept of journeys, across time, across space, and across Human. Relationships; the first use of the concept will take the journey of the uMngeni River (which is close to all DUT campuses) as a metaphor. The module will bring different disciplinary perspectives to this content. The module will start with the analysis of a particular issue or metaphor (one critical event or development will be and analysed; the event in focus will be selected on the basis of its connections to the theme of journeys and its relevance to the issues of ethics, diversity and critical citizenry). The final section of the module will identify and integrate learning from earlier sections, and examine implications for further learning. At each stage of the module, students will be required to engage in activities that involve reflection and build communicative practices. There will be a concluding section in which students will identify their learning and examine the implications for their roles as students and as citizens.

INSTITUTIONAL GENERAL EDUCATION ELECTIVE 1 (IGE 1)
REFER TO ADDENUM

BACTERIOLOGY 2
Contact Time: 64 hours - Theory (4), Practical (4) periods per week Assessment:
Course Mark: Refer to the study guide. Examination: 1 X 3 hour paper
Final Mark: 40% – Tests, assignments, practicals, projects etc. 60% – Exam
Syllabus: To give the student a basic knowledge and understanding of bacterial growth, physiology and control.

BIOCHEMISTRY 2
Contact Time: 64 hours - Theory (4), Practical (4) periods per week Assessment:
Course Mark: Refer to the study guide. Examination: 1 X 3 hour paper
Final Mark: 40% – Tests, assignments, practicals, projects etc. 60% – Exam
Syllabus: This module provides an introduction to the molecules and chemical reactions of living systems. Structure and function of important classes of biomolecules to the biotechnology and food technology niche areas are explored.

PHYSICS
Contact Time: 48 hours - Theory (3), Practical (2) periods per week Assessment:
Course Mark: Refer to the study guide. Examination: 1 X 3 hour paper
Final Mark: 40% – Tests, assignments, practicals, projects etc. 60% – Exam

Syllabus: The student will acquire knowledge of Physics and its application to the Biological and Life sciences.

MYCOLOGY 2

Contact Time: 48 hours - Theory (3), Practical (2) periods per week Assessment:
Course Mark: Theory: 2 x 1.5-hour theory test (30% each): Practicals (40%)
Examination: 1 X 3-hour paper
Final Mark: 40% – Tests, assignments, practicals, projects etc. 60% – Exam
Syllabus: To identify the characteristics of the members of the Kingdom Fungi, manipulate their growth and interpret their ecological and economic impact.

FOOD SCIENCE AND TECHNOLOGY 1

Contact Time: 64 hours
Assessment:
Course Mark: Refer to the study guide. Examination: 1 X 3-hour paper
Final Mark: 40% – Tests, assignments, practicals, projects etc. 60% – Exam.
Syllabus: To introduce physical, chemical and biological principles of food processing and preservation as well as processing techniques of different food commodities (e.g. cereals, legumes, fruits and vegetables, meat and dairy).

FOOD CHEMISTRY 2

Contact Time: 64
Assessment:
Course Mark: Refer to the study guide. Examination: 1 X 3-hour paper
Final Mark: 40% – Tests, assignments, practicals, projects etc. 60% – Exam
Syllabus: The purpose of this module is to introduce students to the biochemical composition of foods; elucidation of chemical structures of compounds and metabolic processes that produce energy after the food has been consumed.

FOOD MICROBIOLOGY 3

Contact Time: 64 hours Assessment:
Course Mark: Refer to the study guide. Examination: 1 X 3-hour paper
Final Mark: 40% – Tests, assignments, practicals, projects etc. 60% – Exam
Syllabus: To study the characteristics of genera of bacteria and fungi that are found in foods, their role in foods and food spoilage and in fermentation and development of foods. To explain methods of determining their presence and numbers in foods, factors that affect their growth and methods of preventing and controlling their presence in foods.

FOOD QUALITY MANAGEMENT

Contact Time: 32 hours Assessment:
Course Mark: Refer to the study guide. Examination: 1 X 3-hour paper
Final Mark: 40% – Tests, assignments, practicals, projects etc. 60%– Exam.
Syllabus: To introduce the student to the basic concepts and principles of quality control and quality assurance, sanitation, hygiene, and quality systems used in the food industry.

HUMAN NUTRITION

Contact Time: 32 hours Assessment:
Course Mark: Refer to the study guide. Examination: 1 X 3-hour paper
Final Mark: 40% – Tests, assignments, practicals, projects etc. 60% – Exam
Syllabus: Introduction to Nutrition: Global Perspective on Food and Nutrition

- Digestion, Absorption and Transport of Food
- Energy Metabolism
- Role of Macronutrients: Nutrition and metabolism of carbohydrate, lipid, protein
- Role of Micronutrients: Vitamins and minerals
- Food function, grouping and measurement of food intake
- Dietary reference standards
- Phytochemicals as Food Components
- Substitutions for Sugar and Fat
- Diet, Chronic Disease and Nutritional Problems
- Food Allergy and Intolerance
- Food nutrition: policy and regulatory issues.
- Current issues in Nutrition (Case study)

FOOD SCIENCE AND TECHNOLOGY 2

Contact Time: 64 hours Assessment:
Course Mark: Refer to the study guide. Examination: 1 X 3-hour paper
Final Mark: 40% – Tests, assignments, practicals, projects etc. 60% – Exam
Syllabus: To introduce physical, chemical and biological principles of food processing and preservation as well as processing techniques of different food commodities (e.g. cereals, legumes, fruits and vegetables, meat and dairy).

MOLECULAR BIOLOGY 3

Contact Time: 64 hours - Theory (4), Practical (4) periods per week Assessment:
Course Mark: Refer to the study guide. Examination: 1 X 3-hour paper
Final Mark: 40% – Tests, assignments, practicals, projects etc. 60% – Exam
Syllabus: This module reinforces the basic concepts of molecular biology, then introduces the genetic processes that occur in a cell, explores the transfer of genetic material between organisms, introduces methods and techniques to create or modify cells at the genetic level, and finally explores the new field of bioinformatics

FOOD LEGISLATION

Contact Time: 32 hours Assessment:
Course Mark: Refer to the study guide. Examination: 1 X 3-hour paper
Final Mark: 40% – Tests, assignments, practicals, projects etc. 60% – Exam
Syllabus: To introduce students to the large number of Acts and other legislation that controls the production and sale of food products in the South African and International Markets.

FOOD PROCESS ENGINEERING

Contact Time: 32 hours Assessment:
Course Mark: Refer to the study guide. Examination: 1 X 3-hour paper
Final Mark: 40% – Tests, assignments, practicals, projects etc. 60% – Exam

Syllabus: Provides students with an understanding of the importance of designing and maintaining a sanitary food holding facility, as well as the environmental impact caused by the production and processing of foods and how to mitigate the effect on people, profit and plan

FACULTY GENERAL EDUCATION ELECTIVE (FGE 1)

Contact Time: 48 hours - Theory (4) periods per week Assessment:
Course Mark: N/A
Examination: N/A
Final Mark: Class test will contribute 30% of Final Mark
Assignment will contribute 30% of Final Mark
Group project will contribute 40% of Final Mark
Syllabus: To critically evaluate the impact of key challenges of sustainable development within a Kwa-Zulu Natal and SADC context; and design strategies on how applied sciences can address these challenges

INSTITUTIONAL GENERAL EDUCATION ELECTIVE 2 (IGE 2)

SEE ATTACHED ADDENDUM

FOOD SCIENCE AND TECHNOLOGY 3

Contact Time: 64 hours Assessment:
Course Mark: Refer to the study guide. Examination: 1 X 3-hour paper
Final Mark: 40% – Tests, assignments, practicals, projects etc. 60% – Exam
Syllabus: The general aim of the module is to provide a sound knowledge of the theoretical background of Food Technology preparing the student for entry in to the Food Industry with specific emphasis on product research and development Upon completion of this module students should be able to:

- Describe human nutritional requirements and problems arising from diet
- Explain the factors leading to food deterioration and its restraint
- Distinguish between the different radiation formats that can be applied to food and their respective effects
- Elucidate how microorganisms may be used to add value to foods and create new foods
- Describe the Importance of food packaging to modern food processing industry
- Explain the mechanisms of forming and maintaining emulsions
- Describe the potential problems that may occur during mixing operation

RESEARCH PROJECT 1

Contact Time: 32 hours - Theory (3) periods per week Assessment:
Course Mark: N/A
Examination: N/A
Final Mark: Control Test 40% of final mark
Written assignment and Project Proposal 40% of final mark Oral presentation 20% of final mark
Syllabus: The course is intended for undergraduate students in preparation for research that they may undertake in industry or as postgraduates. Students who complete this course will have an understanding of formulating a research topic, reading and critically reviewing literature, research strategy, research ethics, sampling, data analysis, referencing, writing and presenting for research.

FOOD CHEMISTRY 3

Contact Time: 64

Assessment:

Course Mark: Refer to the study guide. Examination: 1 X 3-hour paper

Final Mark: 40% – Tests, assignments, practicals, projects etc. 60% – Exam

Syllabus:
- human nutritional requirements and problems arising from diet
- factors leading to food deterioration and its restraint
- radiation formats that can be applied to food and their respective effects
- how microorganisms may be used to add value to foods and create new foods
- Importance of food packaging to modern food processing industry
- mechanisms of forming and maintaining emulsions
- potential problems that may occur during mixing operation

FOOD PRODUCT DEVELOPMENT

Contact Time: 48 hours Assessment:

Course Mark: Refer to the study guide. Examination: 1 X 3-hour paper

Final Mark: 40% – Tests, assignments, practicals, projects etc. 60% – Exam

Syllabus: Examine the different stages of the food product development process from idea generation to product launch. It also contextualises the relationship between packaging, engineering, manufacturing, and quality in the development of food products.

FOOD AND BEVERAGE PACKAGING

Contact Time: 48 hours Assessment:

Course Mark: Refer to the study guide. Examination: 1 X 3-hour paper

Final Mark: 40% – Tests, assignments, practicals, projects etc. 60% – Exam

Syllabus: • Modify the micro-atmosphere in packaged food products to safely preserve them and extend their shelf lives.

- Critically analyse the large range of packaging and packaging machinery available today to package foods and beverages
- Effectively demonstrate the construction of metal cans, glass and plastic containers and the role played by each in packaging foods and beverages.
- Evaluate the role and functions of paper and paperboard in the packaging of food products.
- Effectively demonstrate logistical packaging for food marketing systems.
- Critically analyse the considerable environmental issues concerning packaging waste.

INSTITUTIONAL GENERAL EDUCATION ELECTIVE 3 (IGE 3)

SEE ATTACHED ADDENDUM

RESEARCH PROJECT 2
Contact Time: 64 hours
Research Supervision = 40%,
Independent student study and Research (Laboratory, Library and
Computer labs) = 60%
Assessment:
Course Mark: N/A
Examination: N/A
Final Mark: The final mark for this module will be calculated as follows:
Research Project Report - 70%
Research Project Presentation - 30%
Syllabus: To holistically apply knowledge acquired in the qualification to research and perform experiments on a community-based project within the biotechnology field.

INDUSTRY MANAGEMENT
Contact Time: 32 hours - Theory (3) periods per week Assessment:
Course Mark: Refer to the study guide. Examination: 1 X 3-hour paper
Final Mark: 40% – Tests, assignments, projects etc. 60% – Exam
Syllabus: This module develops a critical understanding of the commercial aspects of the biotechnology and food industry. It covers principles and policies of business and personnel management, entrepreneurship, intellectual property and government legislation currently applicable to Biotechnological industries in KZN and globally.

FOOD SAFETY AND TOXICOLOGY Contact Time: 64 hours Assessment:
Course Mark: Refer to the study guide. Examination: 1 X 3-hour paper
Final Mark: 40% – Tests, assignments, practicals, projects etc.
60% – Exam
Syllabus: Essentials of food safety and toxicology. The module will also inform the students about public health risks of hazards and toxins. Students should be able to :

- Critically evaluate food biological hazards with conventional methods, molecular techniques and other rapid methods
- Effectively distinguish natural and synthetic toxicants in foods
- Critically analyse the role of biofilm formation and stress adaptation in persistent pathogens.
- Identify and implement processes to prevent food hazards and toxicants contaminations in the food system
- Predict food hazards and toxicants with risk analysis tools.

FOOD BIOTECHNOLOGY
Contact Time: 32 hours - Theory (3) periods per week Assessment:
Course Mark: Refer to the study guide. Examination: 1 X 3-hour paper
Final Mark: 40% – Tests, assignments, projects etc. 60% – Exam
Syllabus: This module deals with the fundamental knowledge of biotechnology and its applications in food production. The role of food biotechnology in Food industries and Africa as well as ethical and regulatory issues will be covered.

FACULTY GENERAL EDUCATION ELECTIVE 2 (FGE 2)

Contact Time: 48 hours - Theory (4) periods per week
Assessment:
Course Mark: N/A
Examination: N/A
Final Mark: Written assignment or poster: 20%
Presentations 20%
Tests 20%
Portfolio of evidence/reflective journal 20%
Project 20%
Syllabus: To explore the impact of various aspects of the applied sciences on society

FACULTY GENERAL EDUCATION ELECTIVE 3 (FGE 3)

Contact Time: 48 hours - Theory (4) periods per week Assessment:
Course Mark: N/A
Examination: N/A
Final Mark: RADICAL\CREATIVE PEDAGOGY AND ASSESSMENT(Continuous assessment) : 25% Reflective
Journal 25% Creative presentation
50% Practical project (25% individual portfolio; 25% group presentation)
Syllabus: The purpose of this module is to develop students through creating a holistic awareness of the variety of problems, engage in socially valuable action while critically reflecting on the nature of their action and the problems it seeks to address

General Education in the Department of Biotechnology and Food Technology

Where a module is designated as an Institutional General Education Elective module the student is to select from list of modules made available at time of registration. All modules made available will be eight credits and at NQF level 5. If a student has registered for and passed a module, he/she may not select that module again.
* Note – all modules that students will be asked to select from are 8 credits and at NQF level 5. Further, modules may be removed or added to this list, depending on availability of resources and popularity of modules. Bachelor of Applied Science in Food Science and Technology.

Year	Module	Level	Credit	Purpose of Module
I –SI	Entrepreneurial Edge	5	8	The purpose of General Education is to ensure that our graduates are not only skilled professionals in their chosen area of study but also broadly educated and well-rounded local and global citizens. Toward this greater purpose, this module will introduce students to the concept and language of technopreneurship. Students will be exposed to the excitement of potentially starting their own technically related businesses, and will be able to explain the difference between small business and entrepreneurship. The current SA need for SMMEs and the related supporting organisations will be introduced. The module scope is designed to provide breadth rather than depth. Students would be advised to

				seek the depth necessary for the success of their potential small businesses in subsequent modules.
	Cultural Diversity	5	8	The purpose of this module is as follows : 4. To equip students with knowledge about human diversity issues particularly around the social constructions of race, gender, sexual orientation, spirituality and disability. 5. To prepare students to demonstrate respect and empathy for diverse cultures locally and globally. To enable students to recognize the importance of critical reflection of the stereotypes one holds of other groups.

Year	Module	Level	Credit	Purpose of Module
2 –S4	Me, My World, My Universe	5	8	I. The module inducts students at level 5 across all Programmes into the awareness of the role of quantitative reasoning in critical, insightful and meaningful reasoning applied to self, world and universe. 2. The module is designed to enable learners in a quantitative and data dense world to extend and develop their ability to solve quantitative problems, understand and construct valid arguments supported by quantitative evidence and analysis and to communicate arguments in a variety of appropriate mathematical and verbal formats. The module will contribute to the development of "knowledge, attitudes and values" within the themes indicated thereby contributing to the purpose of General Education.
	Violence and Non-violence	5	8	To develop students' awareness of self and society through engaging with text and lived experiences related to violence and nonviolence; To develop students' practice of critical and engaged citizenry; To challenge the ways in which violence serves to deepen inequality between social groups, in particular between men and women; To develop students' understanding of the nature, extent and causes of violence; To enable students to become active leaders for nonviolence within their roles as students and citizens.

Year	Module	Level	Credit	Purpose of Module
3 – S5	Values in the Workplace	5	8	The purpose of this module is as follows: • To heighten student's awareness of their personal beliefs, values, and attitudes regarding culture, race, ethnic and other identity statuses and how it intersects with values for the workplace. • To enable students to become knowledgeable about values, gender, sexual orientation, socioeconomic status, and disability within society and resultantly within the context of values in the workplace. • To enable students to be familiar with methods to develop effective values, ethics and leadership in the workplace, thereby developing a level of social responsibility.
	World of Work	5	8	The purpose of General Education is to ensure that our graduates are not only skilled professionals in their chosen area of study but also broadly educated and well-rounded local and global citizens. Toward this greater purpose, this module is designed to introduce and develop non-technical working related competencies and values within students in order to facilitate easier adapting to the workplace in Work Integrated Learning (WIL) placements, and/or their future careers.

E & OE