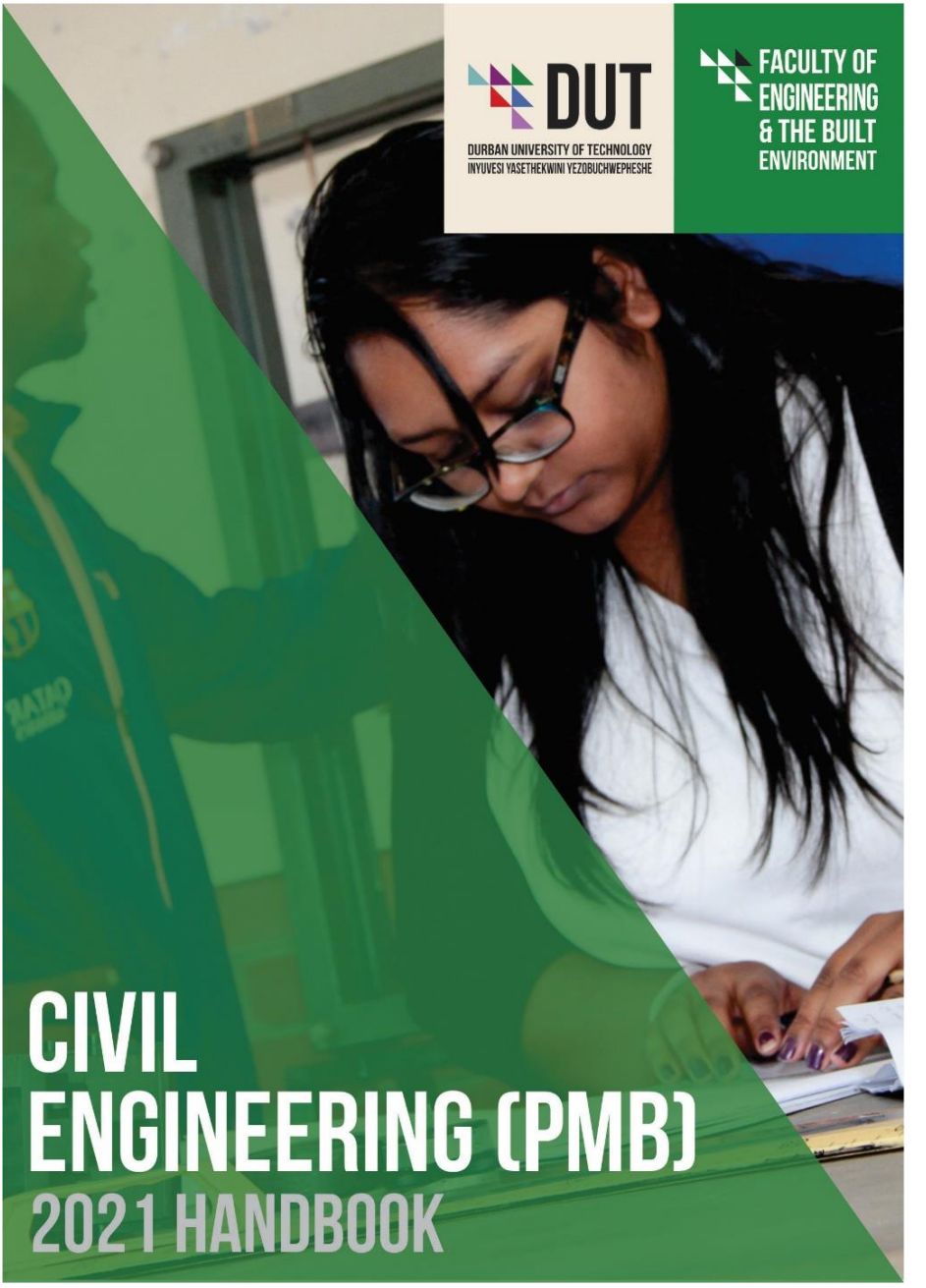

DUT
DURBAN UNIVERSITY OF TECHNOLOGY
INYUVESI YASETHEKWINI YEZOBUCHWEPHESHE

FACULTY OF ENGINEERING & THE BUILT ENVIRONMENT

CIVIL ENGINEERING (PMB)

2021 HANDBOOK

HANDBOOK FOR 2021

FACULTY of ENGINEERING AND THE BUIILT ENVIRONMENT

DEPARTMENT of CIVIL ENGINEERING

Pietermaritzburg

MISSION STATEMENT

As a progressive department, our mission is to contribute innovatively to the socio-economic development of South Africa by:

Offering a portfolio of relevant programmes

- Producing well-rounded graduates who are attuned to the needs of the profession
- Generating, integrating and applying knowledge to stimulate socio-economic development
- Partnering stake holders in sustainable development
- Acting as an incubator for advanced study in clearly defined areas of strength
- Being student centered and quality driven
- Providing an enabling environment for continued staff development.

VISION OF THE DEPARTMENT OF CIVIL ENGINEERING

To be a quality driven department of Civil Engineering that provides a well-rounded, professional education that ensures that graduates are innovative and have a competitive edge.

What is a University of Technology?

A university of technology is characterized by being research informed rather than research driven where the focus is on strategic and applied research that can be translated into professional practice. Furthermore, research output is commercialized thus providing a source of income for the institution. Learning programmes, in which the emphasis on technological capability is as important as cognitive skills, are developed around graduate profiles as defined by industry and the professions.

QUALIFICATION PURPOSE

The purpose of the Diploma in Engineering Technology: Civil Engineering is to train civil engineering technicians who will meet the criteria for registration as a candidate professional technician by the Engineering Council of South Africa (ECSA), and who will display competence as part of the engineering team in the execution of technical tasks under remote supervision by using and applying their knowledge in independent judgement in the identification and solution of civil engineering problems.

The purpose of the Diploma in the Built Environment in Construction Studies

a) For students to assimilate the necessary knowledge, understanding, abilities and skills required for further learning towards becoming a competent practicing construction manager or quantity surveyor. This combined with a period of post qualification mentored work experience will enable them to become competent practicing technologists, able to apply judgment and work independently and responsibly.

b) To provide students with a sound knowledge base which emphasizes general principles and application in a particular field or discipline, and the ability to apply their knowledge and skills to particular career or professional contexts, while equipping them to undertake more specialised

and intensive learning. Programmes leading to this qualification tend to have a strong professional or career focus and holders of this qualification are normally prepared to enter a specific niche in the labour market.

c) To provide students:
    - with the preparation required for careers in construction management and/or quantity surveying,
    - the ability to make a contribution to the economy and national development, and
    - entry to NQF level 6 programs, e.g. bachelors programs must be a completed Diploma

To contribute to the critical mass of construction industry professionals educated specifically for the world of work, and who also play a pivotal role in the infrastructure development of our country.

The purpose of the Baccalaureus Technologiae: Engineering: Civil is to train civil technologists who will meet the criteria for registration as a candidate professional technologist by the Engineering Council of South Africa (ECSA), in the chosen field of

specialisation. The technologist, by a combination of education, training and experience, will be able to display a high level of technical competence and ethical conduct, which enable them to apply engineering principles and techniques independently to problems of varying complexity within their specialist discipline.

On analysis, the purpose as outlined here has good alignment with the institutional mission and vision statements. Students qualifying with these qualifications have little or no problem in gaining meaningful employment and with the construction boom that the country has experienced over the last few years, they are much in demand.

CONTENTS

IMPORTANT NOTICES

The departmental rules in this handbook must be read in conjunction with the Durban University of Technology's General Rules contained in the current General Handbook for Students

Please note that due to National legislation, signed into effect by the Minister of Higher Education in the Government Gazette no. 40123 of 6th July 2016, the last permitted enrolment for any non-HEQSF aligned programme will be the 31st December 2019. This means that you will not be able to enrol in a Bachelor of Technology (BTech) degree at DUT, or at any other institution in South Africa after this date.

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

1. CONTACT DETAILS

All departmental queries to:

Secretary:	Mrs Nicky Erasmus
Telephone No:	033 845 9000
Fax No:	033 845 8941
Location of Department:	Administrative Building, F J Sithole Road, Imbali, Pietermaritzburg

All academic administrative queries to:

Faculty officer:	Ms Nelisiwe Ndlovu 033
Telephone No:	8458818
Fax No:	033 845 8840
Location of Student Administration:	Block D, Riverside Campus, Pietermaritzburg

Executive Dean:	Prof Bheki Twala 031 373
Telephone No:	2720
Fax No:	031 373 2724
Location of Executive Dean's office:	Block S6 Level 4, Steve Biko Campus

2. STAFFING

Acting Head of Dept	Mr S Hay, Pr Tech Eng M.Tech (CE) (DUT) MSAICE
Senior Lecturer	Dr. J.O Ikotun, PhD: Civil Engineering (WITS) AMSAICE
Lecturers	Mr. J. A Adedeji. MTech: Civil Engineering,(CUT) AMSAICE
	Mrs. A Chetty, MSc. Eng (UKZN) AMSAICE
	Mr D D de Kock, B.Tech, MEnv Dev (UKZN), AMSAICE
	Mr. C.D Ikegwuoha, MSc: Eng: (Wits)
	Mr L.N.Jele Msc Geology (UKZN) AMSAICE
	Mr. S Lufele, MTech: Construction Management
	Mr. R G Muthelo, Mtech- Quantity Surveying
	Ms Z.Ngubane Pr Sci Nat Bsc Hons Hydrogeology (UKZN) AMSAICE
	Mr M. Patrick (N.Dip. Indust. Design) AMSAICE Contract
	Dr P. Perumal PhD (Maths) (UN) AMSAICE
	Mr O Rowe, B.Tech (Civil/Sur) (DIT) MEnv Dev (UKZN), AMSAICE
	Dr M.M.Tchoukougno, PhD (Physics) Contract
Junior Lecturers	Ms X.B.Cebekhulu B.Tech Civil (VUT) AMSAICE
	Mr E.Floris B.Tech Civil (DUT) AMSAICE
Senior Technician	Mr N E Hlalukane, B.Tech (CE) (DUT) AMSAICE
Technicians	Mr N. Dladla, B.Tech (CE) (DUT) AMSAICE
	Mr M Letyeku, B Tech (IT) (DUT)
	Ms T Maseko, Btech: Civil Engineering (Urban) (VAAL)
	Mr. S E Nzama, BTech: Civil Engineering (Urban) (DUT)
	Mr E O Tchakubuta, B.Tech (CE) (DUT) AMSAICE
Departmental Secretary	Mrs N Erasmus NDip OMT (DUT)
Admin Assistant	Ms. N.S Mkhize, BTech: OMT (DUT)
General Assistant	Mr S Mtshali

3. PROGRAMMES OFFERED BY THE DEPARTMENT

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

Qualification	SAQA NLRD Number
Diploma in Engineering Technology: Civil Engineering	99026
Diploma in the Built Environment in Construction Studies	112383
National Diploma: Engineering: Civil	72226 (academic component of the qualification phased out end of 2019)
B. Tech: Engineering: Civil	72128
M. Eng	96827
Master of Built Environment	96844
D. Eng	96812

4. PROGRAMME INFORMATION AND RULES

On the basis of a variety of placement assessments, successful applicants for study towards a Diploma will be accepted into the two-year minimum programme of study. An Engineering Access programme is also available for applicants who do not automatically meet the entrance requirements for the Diploma programme.

MINIMUM ADMISSION REQUIREMENTS
DIPLOMA in ENGINEERING TECHNOLOGY: CIVIL ENGINEERING

In addition to the relevant General Rules pertaining to Registration (e.g. Rules G3, G4, G5, G6, G7, G8, G9 & G10); persons must, as a minimum, have obtained the following Senior Certificate, or equivalent, subject results:

- Maths & Science (E) on Higher Grade, or (C) on Standard Grade and a pass in English. In addition, a learner must obtain a minimum of a total score of 35 when using the following scoring system for Senior Certificate subject results in order to be accepted into the programme.

Scoring system: Using the table below determine the scores associated with each Senior Certificate subject result obtained, multiply the mathematics and science scores by two and add all the scores together to obtain a total.

Symbol	A	B	C	D	E	F
Higher Grade	8	7	6	5	4	3
Standard Grade	6	5	4	3	2	1

Thereafter selection is made at the full discretion of the Head of the Department, based on the senior certificate or equivalent results and the number of students, which the department can accommodate during any one registration period. An interview may also be required.

For students who matriculate with the NSC Rating:
In addition to the relevant General Rules pertaining to Registration (eg. Rules G3-G10); learners must, as a minimum, have obtained the following NSC, or equivalent, subject results:

	Result
Mathematics	4 (Adequate achievement)
Science	4 (Adequate achievement)
English (Primary)	4 (Adequate achievement)
English (First additional)	4 (Adequate achievement)

In addition, a learner must obtain a minimum of a total score of 28 when using the following scoring system for NSC subject results in order to be conditionally accepted into the programme.

Scoring system: using the table below, determine the scores associated with each NSC subject result obtained, multiply the mathematics and science scores by two and add all the scores together to obtain a total.

NSC Rating Code	7	6	5	4	3	2	1
Score	7	6	5	4	3	2	1

No points are allocated for the subject "Life Orientation"

Or
National Technical Certificate (N4) with passes at 50% in four (4) relevant subjects including Engineering Mathematics and Engineering Science or an equivalent SAQA NQF Level 4 qualification, as well as compliance with the English language requirements as stated in the General rules.

For students who matriculate with NCV Level 4 Rating (FET)
A student must have obtained a 60% or higher pass in all of the following subjects;

English
Life Orientation
Mathematics
Physical Science or equivalent
Plus two vocational subjects

Note: This Department only considers 1st and 2nd choice CAO applicants.

MINIMUM ADMISSION REQUIREMENTS
DIPLOMA in BUILT ENVIRONMENT : CONSTRUCTION STUDIES

This programme only has one intake per annum which is usually in January.

In addition to the relevant General Rules pertaining to Registration (e.g. Rules G3, G4, G5, G6, G7, G8, G9 & G10); The minimum entry requirement is the National Senior Certificate or the National Certificate (Vocational) with appropriate subject

combinations and levels of achievement as defined in the Government Gazette, Vol 751, No 32131 of 11 July 2008, and in the Government Gazette, Vol. 533, No. 32743, November 2009. In addition the minimum admission requirements, rule G7, is stipulated in the General Rules Handbook.

Further to the above, the following are required for admission into Diploma of the Built Environment (Construction Studies):

1. NSC, NCV, SC :

Compulsory Subjects	**NSC**	**SC**		**NCV**
	Rating (25 points)	**HG**	**SG**	
English home Language / English First additional Language	**4** 5	50% 60%	60% 70%	English (70%)
Mathematics (Not Lit.)	4	50%	60%	70%
Physical Science	4	50%	60%	70%
Two more 20 credit NSC subjects	4			
Two other relevant NCV vocational subjects				70 %

- NOTE: English Home Language, Mathematics and Physical Science are required at a minimum performance of level 4. English First Additional Language is required at a minimum performance of level 5.
- The subject NSC Mathematical Literacy will not be accepted as a substitute for the subject NSC Mathematics.
- Applicants will be ranked according to the sum of subject NSC Mathematical and Physical Science marks to a minimum combination of 100%.
- Prospective applicants should present an NQF level 4 certificate in Construction in the Built Environment / Engineering for entry into the Diploma programme. The NSC certificate of the candidate must qualify the candidate for diploma study at an institution of higher learning.

2) Other:

- Prospective students, that qualify for diploma study at an institution of higher learning, but do not meet the departmental mathematics and/or physics requirements, may present the following N4 subjects, for consideration for entry to the Dip. (Construction Studies) programme.

- Mathematics and Engineering Science, plus:
- Building and Structural Construction
- Building and Structural Surveying
- English language as required above

The above are all to be passed, in the maximum of two sittings, with a minimum of 60%. Students will then be ranked, alongside the NSC students, according to the sum of their marks for N4.

Note: This Department only considers 1st and 2nd choice CAO applicants.

BACCALAUREUS TECHNOLOGIAE: ENGINEERING: CIVIL

Please note that due to National legislation, signed into effect by the Minister of Higher Education in the Government Gazette no. 40123 of 6th July 2016, the last permitted enrolment for any non-HEQSF aligned programme will be the 31st December 2019. This means that it is no longer possible to register for a Bachelor of Technology (B Tech) degree at DUT, or at any other institution in South Africa.

EC2 GENERAL RULES

Except where otherwise laid down in Rules EC3 to EC9 and in the rules for specific instructional programmes, the General Rules for all courses shall apply to instructional programmes in this department.

EC3 REGISTRATION

In addition to the General Rules pertaining to Registration a student whose fees are being paid by an employer shall provide a letter of authority to this effect.

EC4 ENTRANCE REQUIREMENTS

In addition to the General Rules pertaining to Entrance Requirements specific requirements apply to all of the revised instructional programmes offered in this department and these are set out in the rules for the instructional programmes.

EC5 WORK DONE DURING THE SEMESTER

In addition to Rule G12 the following specific rules apply to all modules:

1. The determination of the year/semester mark, where applicable, for each module for the purpose of issuing a certificate in terms of the General Rules is indicated with the syllabus for each module.
2. A student who for any reason is absent from a particular practical or laboratory practical/test, must provide proof of his/her reason for absence to the particular lecturer concerned in accordance with Rule EC10 using the appropriate form available from the Departmental reception. Failure to do so will result in a zero mark being recorded for the practical or laboratory practical/test.
3. In the case where a module is evaluated by a continuous or 100% course work system, then any student failing to obtain a final result of 50% or higher, and any sub-minimum stipulated for such module (including GA's), will have to repeat that module.
4. Where a module year mark has a project or practical component, then the mark for such component may not be carried over to a subsequent semester where the module is failed, unless so stipulated in the module specific rules.

EC6 CONDUCT OF STUDENT IN LABORATORY

Rules of conduct pertaining to the specific laboratory, as approved by the department, shall apply to all students registered for the particular module.

EC7 SUPPLEMENTARY EXAMINATIONS

The provisions as contained in the General Rules will apply to all examinable modules/subjects in this department.

EC8 PROMOTION TO HIGHER LEVEL

Diploma in Engineering Technology: Civil Engineering

For each of the programmes in this department standard module combinations for the semesters of University attendance (semesters 1, 2, 3 and 4) are prescribed in the Programme Structure (see section 5).

In addition to the requirements of the General Rules no student shall be permitted to register:

(a) for any second level module (ie NS2) when more than three modules from the standard first semester module combination are outstanding;

(b) for any module of the standard third semester module combination (i.e NS3) when more than three modules from the standard first and second semester module combination (ie NS1 & NS2) are outstanding.

(c) for any module of the standard fourth semester module combination (i.e. NS4) when more than three modules from the standard first, second and third semester module combination (i.e. NS1, NS2 & NS3) are outstanding;

(d) furthermore, students who are repeating a module will only be offered a place subject to the availability of space where laboratory or specialised equipment is involved.

Note:

Students transferring from other institutions and entering the programme at second semester level or higher will be accepted only if they have already passed all of the equivalent modules from the first semester level (i.e. the standard S1). Students who have already passed Drawing - Introduction to CAD (or equivalent) at another institution may be required to undergo and pass a proficiency test before they will be granted an exemption from the module or be permitted to register for any of the standard third or fourth semester modules. A student who applies for admission through the CAO, and who has completed equivalent modules through another tertiary institution will only be granted an exemption for equivalent modules if prior disclosure of these modules has been made and confirmation thereof has been given in writing by the departmental HOD prior to registration.

EC9 MINIMUM INSTRUCTIONAL PROGRAMME

Notwithstanding anything to the contrary in the General Rules, the minimum instructional programme for each qualification in this department shall be as set out under the rules for that instructional programme.

EC10 SPECIAL TESTS

A special test may be granted by the Head of Department to a student who has been prevented from taking a test:

(1) by illness on the day of the test or immediately before it, provided that he submits a medical certificate **on the prescribed form** (available from the Departmental reception) on which a medical practitioner, registered by the Health Professions Council of SA, homoeopath or chiropractor, registered with the South African Associated Health Board, specifies the exact nature and duration of illness and that for health reasons it was impossible or undesirable for the student to sit for the test, and that he submits such certificate to the head of department on the day as determined by the practitioner that the student should return to lectures immediately following such illness, or on one of the two following working days;

or

(2) by circumstances which in the opinion of the head of department were beyond his control at the time of the test provided that satisfactory evidence of such circumstances is provided. Such circumstances shall not include:

(i) any misinterpretation by him of the date, time or venue of the test,

(ii) transportation difficulties, where his residential term time address is within the area serviced by a scheduled bus or commuter train service to the central Pietermaritzburg area, and provided otherwise that he informs the head of department of such difficulty prior to the time of commencement of the test,

(iii) failure by him to bring to the test venue any equipment normally required for that module as specified in the study guide for the particular module.

For the purpose of this rule test shall mean any written, oral or practical test, set for the purpose of determining or contributing towards a semester mark for a module, and shall include tests set for modules which are evaluated by continuous evaluation.

Any student who misses a test and who does not qualify for a special test, and any student who qualifies for a special test but fails to write it, shall be awarded a zero mark for the missed test.

Special tests for all modules shall be written, either immediately on submitting the medical certificate, or alternatively, within the last two weeks of official lectures of each semester and in which case may be based on the entire semesters work. There will only be one special test set per semester, and should a student miss this test then they will not be afforded a further opportunity to write and will thus be awarded zero.

EC11 REFUSAL OF RE-REGISTRATION

11.1 A student who fails any module for the first time shall be placed on an academic warning and may be allowed to re-register with special conditions.

11.2 A student who has not successfully completed any module after two periods of registration for that module shall only be permitted to re-register full-time for that module at the discretion of the Departmental Appeal Committee.

11.3 A student who has been refused permission to re-register for a module in terms of Rule 11.2 will not be permitted to register for any other module in that qualification. A student will thereby be unable to complete the qualification unless the outstanding modules/subjects are attended and passed at another institution and exemptions granted in accordance with the General Rules.

11.4 A student who has not completed the National Diploma within five years of the first registration (including experiential learning), or The Diploma in Engineering Technology: Civil Engineering within three years of the first registration, may be refused permission to register, or, at the discretion of the Departmental Appeal Committee, may be accepted subject to special conditions.

11.5 A student wishing to appeal to the Faculty Board of Engineering and the Built Environment against the application of this rule must submit an on-line appeal via the student portal in which he/she explains the reasons for his/her appeal. This on-line appeal must be submitted within five (5) University working days of being officially notified in writing that he/she has not been permitted to re-register. No on-line appeals will be considered after this.

11.6 Where a student has appealed against exclusion in terms of these rules or rule G17, and such appeal has been refused, then said student may not submit a further appeal until the conditions of the refused appeal have been fully met.

EC12 EXPERIENTIAL LEARNING

Although the University undertakes to assist the student/candidate in obtaining suitable experiential learning placement, the onus is on the student/candidate to find an employer. The employer must be accredited by the University for the purposes of experiential learning. An experiential learning agreement creates a separate contract between the employer and the student/candidate.

The Diploma in Engineering Technology: Civil Engineering programme requires no experiential work to be undertaken for the qualification.

EC13 LATE REGISTRATION

13.1 No student will be permitted to register for any module offered by this department later than one week after the official commencement of full-time semester lectures. Students who have not registered within this time frame will only be permitted to register in the subsequent semester.

13.2 No student will be permitted to add or delete any module later than one week after the commencement of full-time semester lectures, except where the result of a supplementary examination has delayed such change or addition, or as a result of an administrative error by the University.

13.3. Where a student is unable to register by the published departmental late registration date referred to in 13.1, for reasons deemed acceptable to the HOD, then such student will only be permitted to register if they have obtained and had approved, an Application for Late Registration form, by the published late registration closing date.

EC14 TIMETABLE CLASHES

No student will be permitted to register for any module combination where there will be any timetable or test clashes. In the event of there being a clash then the student will be required to register for the module from the lowest level of the qualification for which they are registering.

Furthermore, it is the students' responsibility to check prior to registration that there are no clashes as no special arrangements will be made to accommodate such instances. In the event of a student missing a test/practical/deadline as a result of a clash a zero mark will be awarded for that component of the work missed.

EC15 STUDENT DRESS

Closed shoes and protective clothing must be worn for the duration of the time spent in any departmental laboratory. Appropriate safety equipment needs to be worn where applicable, or as detailed in the laboratory practical manual. Students are required to adhere to the provisions of the Occupational Health and Safety Act at all times.

EC16 ACCESS TO DEPARTMENTAL COMPUTER LABORATORIES

No student is permitted to have access to any of the dedicated departmental computer laboratories unless he/she has been granted the necessary authority to do so, and:

16.1 the module lecturer or an approved departmental tutor is present;

or

16.2 the Departmental Computer Technician is present;

EC17 COMPETENCY MODULES

Where a module comprises more than one sub-module, and one of the sub-modules includes a competency based assessment, then such competency sub-module **must** also be passed before a student will be permitted to register for any module for which the modularized sub-module is a prerequisite.

EC18 AWARDING OF DIPLOMA/DEGREE

18.1. Diplomas/Degrees are not automatically awarded to candidates who have satisfied all of the requirements for each instructional programme. The onus is on the student to apply to the University for the award of the Diploma/Degree. In this regard the candidate should obtain the necessary forms from the Secretary of the Department.

18.2. Duly completed experiential learning log books, reports and any other documentation must accompany the application. Alternate documentation may be submitted to the Department for approval.

18.3. A certified copy of a valid identity document must be attached to the diploma application.

EC19 ACADEMIC INTEGRITY

The Department expects students to adhere to a strict code of ethics, and the following principles regarding academic integrity apply;

- **Know your rights** – do not allow other students in your class to diminish the value of your achievement by taking unfair advantage. Report and academic dishonesty you see to the HOD.
- **Acknowledge your sources** – whenever you use words or ideas that are not your own when writing a paper or assignment, use quotation marks where appropriate and cite your source in a footnote, and back it up at the end with a list of references consulted.
- **Protect your work** – in examinations, do not allow your neighbours to see what you have written, you are the only one who should receive credit for what you know.
- **Avoid suspicion** – do not put yourself in a position where you can be suspected of having copied another person's work, or having used unauthorised notes in an examination. Even the appearance of dishonesty may undermine your lecturer's confidence in your work.
- **Do your own work -** the purpose of assignments is to develop your skills and measure your progress. Letting someone else do your work defeats the purpose of your education, and may lead to serious charges against you.

- **Never falsify a record** or permit another person to do so - academic records are regularly audited and students whose results have been altered put their entire academic record at risk.
- **Never fabricate data, citations, or experimental results** - many professional careers have ended in disgrace, even years after the fabrication first took place.
- **Always tell the truth when discussing your work with your instructor** - any attempt to deceive may destroy the relation of teacher and student.

EC20. REQUIREMENT TO PASS THE EXIT LEVEL OUTCOME

In modules where Exit Level Outcomes (ELO) are assessed, the student must achieve a final minimum pass mark of 50% (or higher if so stipulated) in that module as well as being deemed competent in achieving the ELO requirements, as specified in the relevant study guide, in order to pass that module, and therefore graduate.

EC21. TEST/EXAMINATION VENUE RULES

In addition to the requirements of the General Rule G13 (1) (p), No student shall be permitted to have ANY cell phone or mobile electronic device in a departmental test or examination venue. Calculators required as stipulated on the question paper are permitted.

Lockers have been provided within the Civil Engineering Building to enable a student to safely secure their phone/s mobile electronic device prior to entering the test/examination venue.

Where a student is found to have in their possession ANY cell phone mobile electronic device, then such device shall be confiscated, the student will be instructed to leave the test/examination venue, and where appropriate disciplinary charges will be laid.

5. PROGRAMME STRUCTURE

5.1. DIPLOMA in ENGINEERING TECHNOLOGY: CIVIL ENGINEERING (DICVE1)

The instructional programme shall have a minimum duration of four (4) semesters of full-time study and shall consist of the modules listed below.

Name of module	Module Code*	Semester	NQF Level	Module Credits	C/F	Pre-Req.	Exam**
Computer Applications A	CMAA101	1	5	12	C	Nil	No
Computer Applications B	CMAB101	1	5		C	Nil	No
Cornerstone 101	CSTN101	1	5	12	C	Nil	No
Drawing Applications	DRAP101	1	5	8	C	Nil	No
Intro to Construction Materials	ICMT101	1	5	8	C	Nil	No
Law for life	LWLF101	1	5	8	C	Nil	No
Mathematics A	MMTA101	1	5	12	C	Nil	No
Physics A	PSCA101	1	5	8	C	Nil	Yes
Civil Engineering methods	CEMT101	2	5	12	C	Nil	No
Civil Mechanics 1	CIVM101	2	5	8	C	Nil	Yes
Drawing (intro to CAD)	DICD101	2	5	8	C	CMAA101 DRAP101	No
Mathematics B	MMTB101	2	5	12	C	MMTA101	No
Physics B	PSCB101	2	5	8	C	Nil	Yes
Surveying for Civil Engineering	SVCE201	2	6	12	C	Nil	No
Technical Literacy	TLIT101	2	5	8	C	Nil	No
Contract Management	CNTM201	3	6	8	C	TLIT101	Yes
Intro to Water Engineering A	IWEA201	3	6	12	C	Nil	Yes
Mathematics C	MMTC101	3	5	12	C	MMTB101	No
Physics C	PSCC101	3	5	8	C	Nil	Yes
Soil Mechanics A	SLMA201	3	6	8	C	ICMT101	Yes
Structural Mechanics	STME201	3	6	8	C	CIVM101 PSCA101 PSCB101	Yes
Transport Technology A	TRNA201	3	6	12	C	DICD101	Yes
Contract Administration	CTAD201	4	6	8	C	CNTM201	Yes
Design Project	DSGP201	4	6	1 2	C	CNTM201 IWEA201 MMTC101 PSCC101 SLMA201 STME201 TRNA201	No
Intro to Structural Design	INSD201	4	6	8	C	PSCC101 STME201	No
Intro to Water Engineering B	IWEB201	4	6	8	C	IWEA201	Yes
Soil Mechanics B	SLMB201	4	6	8	C	SLMA201	Yes
Structural Analysis	STRA201	4	6	12	C	STME201	Yes
Structural Detailing	STDT201	4	6	8	C	DICD101	No
Transport Technology B	TRNB201	4	6	12	C	TRNA201	Yes

Note: A student who registers for Design Project (DSGP201) will have a choice of three specialist design fields, but may only select the design field provided that, they are concurrently registered for or have previously passed the modules indicated below;

Specialist Area	Co-requisite Modules
Structural Engineering	CTAD201, SLMB201 & STRA201
Transportation Engineering	CTAD201, SLMB201 & TRNB201
Water Engineering	CTAD201, IWEB201 & SLMB201

In addition, where a student elects the Structural option, they must already have passed INSD201 and STDT201.

Engineering students completing this qualification will demonstrate competence in all of the following Graduate Attributes indicated below:

- **Graduate Attribute 1: Problem Solving:**
  Students will be required to apply engineering principles to systematically diagnose and solve *well-defined* engineering problems in subjects at all levels.
- **Graduate Attribute 2: Application of scientific and engineering knowledge**
  Students will be required to apply knowledge of mathematics, natural science, and engineering sciences to defined and applied engineering procedures, processes, systems and methodologies to solve *well-defined* engineering problems.

Graduate Attribute 3: Engineering Design Students will be required to perform design tasks in Projects at all levels. Work will be more of a procedural nature at the first level, and will increased in complex- ity through the levels. In the Civil Design Project, the preliminary part of the design will be carried out in phase I, while phase II will see to the project completion. The project will include one or more of the following impacts: social, economic, legal, health, safety, and environmental. Civil Design Project is therefore one large project.

- **Graduate Attribute 4: Investigation**
  Students will conduct investigations of *well-defined* problems through locating, searching and selecting relevant data from codes, data bases and literature, designing and conducting experiments, analysing and interpreting results to provide valid conclusions.
- **Graduate Attribute 5: Engineering methods, skills, tools, including Information technology**
  Use of appropriate techniques, resources, and modern engineering tools, including information technology, prediction and modelling, for the solution of *well-defined* engineering problems, with an understanding of the limitations, restrictions, premises, assumptions and constraints will be embedded in all subjects.

- **Graduate Attribute 6: Professional and Technical Communication** Students will be required to demonstrate the ability to communicate effectively, by submitting research assignments and deliver oral presentations, with engineering audiences and the affected parties.
- **Graduate Attribute 7: Impact of Engineering Activity** Demonstrate knowledge and understanding of the impact of engineering activity will be embedded in many courses as well as specifically in the subject of Environ- mental Engineering.
- **Graduate Attribute 8: Individual and Teamwork** Knowledge and understanding of engineering management principles will be specifically covered in the Subject of Entrepreneurship Skills. Individual and teamwork competency will be addressed in other subjects as well.

  The ability to manage a project will be demonstrated in the subject Design Project.
- **Graduate Attribute 9: Independent Learning** Engage in independent and life-long learning through well-developed learning skills. *Range Statement:* The learning context is varying and unfamiliar. Some information is drawn from the technological literature.
- **Graduate Attribute 10: Engineering Professionalism** Students will be assessed on their comprehension and application of ethical principles and commitment to professional ethics, responsibilities and norms of engineering technology practice.

Graduate Attributes

The Graduate Attributes are developed throughout the qualification and are cross referenced there to the ECSA Exit Level Outcomes which are outlined above. In order to measure the effectiveness of this development, assessment is only undertaken in some of the modules (those marked *) to track progress at a basic (B), intermediate (I) and advanced (A) level.

Name of module	Module Code*	ELO's									
		1	2	3	4	5	6	7	8	9	10
Computer Applications A	CMAA101	I	I			I*				I	
Computer Applications B	CMAB101										
Cornerstone 101	CSTN101	I	I		I	I	I		I		
Drawing Applications	DRAP101	I	I			I					
Intro to Construction Materials	ICMT101	I*B				I	1*		I	I	
Law for life	LWLF101										
Mathematics A	MMTA101	I	I								
Physics A	PSCA101		I								
Civil Engineering Methods	CEMT101					I		I*I		I	
Civil Mechanics 1	CIVM101	I	I*B		1*B	I			I	I	
Drawing (intro to CAD)	DICD101	I	I	I		I*I	I		I	I	
Mathematics B	MMTB101	I	I								
Physics B	PSCB101		I								
Surveying for Civil Engineering	SVCE201	I	I	I		I			I*B	I*B	
Technical Literacy	TLIT101						I*I			I	I
Contract Management	CNTM201					I		I*		I	I*A
Intro to Water Engineering A	IWEA201	I	I		I*I	I			I	I	
Mathematics C	MMTC101	I	I								
Physics C	PSCC101		I								
Soil Mechanics A	SLMA201	I*I	I			I				I*I	
Structural Mechanics	STME201	I	I*I	I		I	I		I*I	I	
Transport Technology A	TRNA201	I	I	I*I							
Contract Administration	CTAD201	I	I						I*A		I
Design Project	DSGP201	I*	I*	I*	I*	I*	I*			I*A	
Intro to Structural Design	INSD201	I	I	I		I					
Intro to Water Engineering B	IWEB201	I	I				I		I	I	
Soil Mechanics B	SLMB201	I	I						I	I	I
Structural Analysis	STRA201	I	I			I				I	
Structural Detailing	STDT201	I	I	I		I	I		I	I	
Transport Technology B	TRNB201	I	I	I							

5.2. DIPLOMA IN THE BUILT ENVIRONMENT IN CONSTRUCTION STUDIES

The instructional programme shall have a minimum duration of four (4) semesters of full-time study and shall consist of the modules listed below. Please note that not all modules for each semester are available every semester.

Name of module	Module Code*	Semester	NQF Level	Module Credits	C/F	Pre-Req.	Exam**
Construction Methods 1A	CMDS101	1	5	8	C	Nil	No
Construction Organisation 1A	CORG101	1	5	8	C	Nil	No
Cornerstone	CSTN101	1	5	12	C	Nil	No
Information & Communication & Literacy & Skill	ICTL101	1	5	8	C	Nil	No
Mathematics (Built Environment) 1A	MFBE101	1	5	12	C	Nil	No
Physics (Built Environment) 1A	PFBE101	1	5	12	C	Nil	No
Quantity Surveying 1A	QUSU101	1	5	8	C	Nil	No
Construction Management 1B	CMNA101	2	5	8	C	Nil	No
Construction Technology 1B	CTCE101	2	5	8	C	Nil	No
Interpretation of Documentation 1B	INDO101	2	5	8	C	Nil	No
Materials 1B	MTRS101	2	5	12	C	Nil	No
Quantities & Documentation 1B	QUDO101	2	5	8	C	Nil	No
Statistics 1B	MFBE101	2	5	12		Nil	No
Technical Literacy 1B	TLIT101	2	5	8	C	Nil	No
Construction Management 2A	CMNA201	3	6	8	C	CORG101 CNMA101	No
Construction Technology 2A	COTEC202	3	6	8	C	CM DS 101 CT EC 101 MT RS 101	No
Health & Safety 2A	HEAS201	3	5	8	C	Nil	No
Introduction to Price Analysis 2A	INPA201	3	5	8	C	Nil	No
Labour Relations 2A	LARE201	3	6	8	C	Nil	No
Mechanics (Built Environment) 2A	MFBE201	3	6	12	C	Nil	No
Quantities & Documentation 2A	QUDO201	3	6	8	C	INDO101 QUSU101 QUDO101	No
Site Surveying 2A	SSRV201	3	6	8	C	Nil	No
Capstone Project	CPRO201	4	6	20	C	Nil	No
Construction Management 2B	CMNA201	4	6	8	C	Nil	No
Construction Technology 2B	COTEC201	4	6	8	C	Nil	No
Entrereneurship 2B	ENPR201	4	6	8	C	Nil	No
Environmental Management 2B	ENVM202	4	6	8	C	Nil	No
Quantities & Documentation 2B	QUDO201	4	6	8	C	Nil	No

5.3 BACCALAUREUS TECHNOLOGIAE: ENGINEERING: CIVIL

Please note that due to National legislation, signed into effect by the Minister of Higher Education in the Government Gazette no. 40123 of 6th July 2016, the last permitted enrolment for any non-HEQSF aligned programme will be the 31st December 2019. This means that you will not be able to enrol in a Bachelor of Technology (BTech) degree at DUT, or at any other institution in South Africa after this date.

This instructional programme has a minimum duration of four (4) semesters and is only available on a part-time basis and may be offered in four specialist options listed below:

A student may not change disciplines or campuses during the course of his/her B. Tech studies without prior written permission from the HOD.

A student will be required to pass the Theoretical and project component of a module to obtain a credit for the module. This need not necessarily happen in the same semester, but the project component cannot be registered for unless the theory is concurrently registered or has already been passed.

Where a student fails the project component, but obtains a mark of 45% or more, such student will be permitted to re-submit the project for re-assessment within a minimum stipulated period. Should the final result of such re-submitted project be a pass, then the student will be awarded a mark of 50% irrespective of the mark actually achieved.

The last opportunity for a student to register for this programme for the first time will be July 2019.

Construction Management Discipline

Students who wish to register with ECSA will be required to do three (3) engineering subjects from any of the other specialist disciplines. Project Management (Civil) IV is a compulsory module for this option.

Code	Subjects	C/O	Assessment Method	NQF
CTRM411	Contract Management: Civil IV (Module 1 - Theory)	C	3 hr exam - restricted open book	7
CTRM421	Contract Management: Civil IV (Module 2 - Project)	C	100% year mark	7
IDRN211	Industrial Relations & Negotiation II (Module 1 - Theory)	C	3 hr exam - restricted open book	7
IDRN221	Industrial Relations & Negotiation II (Module 2 - Project)	C	100% year mark	7
MPPC411	Management Principles & Practice IV (Module 1 - Theory)	C	3 hr exam	7
MPPC421	Management Principles & Practice IV (Module 2 - Project)	C	100% year mark	7
PREM311	Principles of Management Economics III (Module 1 - Theory)	C	3 hr exam	7
PREM321	Principles of Management Economics III (Module 2 - Project)	C	100% year mark	7
PRCV411	Project Management: Civil IV (Module 1 - Theory)	C	3 hr exam	7
PRCV421	Project Management: Civil IV (Module 2 - Project)	C	100% year mark	7

Plus, any three electives from the other specialist disciplines

Geotechnical Discipline (not offered by DUT)

Structural Discipline (only available in Durban)

Transportation Discipline

GMTD411	Geometric Design IV (Module 1 Theory)	C	4 hr exam – restricted open book	7
GMTD421	Geometric Design IV (Module 2 Project)	C	100% year mark	7
PVMT411	Pavement Technology IV (Module 1 Theory)	C	3 hr exam	7
PVMT421	Pavement Technology IV (Module 2 Project)	C	100% year mark	7
TFEN411	Traffic Engineering IV (Module 1 Theory)	C	3 hr exam	7
TFEN421	Traffic Engineering IV (Module 2 Project)	C	100% year mark	7
TRNP411	Transport Planning IV (Module 1 Theory)	C	3 hr exam	7
TRNP421	Transport Planning IV (Module 2 Project)	C	100% year mark	7
TRNT411	Transportation Technology IV (Module 1 Theory)	C	3 hr exam	7
TRNT421	Transportation Technology IV (Module 2 Project)	C	100% year mark	7

Plus, any three electives from the other specialist disciplines.

Urban Engineering Discipline

CSTM411	Construction Materials Technology IV (Module 1 Theory)	C	3 hr exam	7
CSTM421	Construction Materials Technology IV (Module 2 Project)	C	100% year mark	7
GMTD411	Geometric Design IV (Module 1 Theory)	C	4 hr exam – restricted open book	7
GMTD421	Geometric Design IV (Module 2 Project)	C	100% year mark	7
PVMT411	Pavement Technology IV (Module 1 Theory)	C	4 hr exam – restricted open book	7
PVMT421	Pavement Technology IV (Module 2 Project)	C	100% year mark	7
RDMN411	Reticulation Design & Management IV (Module 1 Theory)	C	3 hr exam	7
RDMN421	Reticulation Design & Management IV (Module 2 Project)	C	100% year mark	7
SLWM411	Solid Waste Management IV (Module 1 Theory)	C	3 hr exam	7
SLWM421	Solid Waste Management IV (Module 2 Project)	C	100% year mark	7
UPLD411	Urban Planning & Design IV (Module 1 Theory)	C	3 hr exam	7
UPLD421	Urban Planning & Design IV (Module 2 Project)	C	100% year mark	7

Plus, any two electives from the other specialist disciplines.

Water Engineering Discipline

HYDL411	Hydraulics IV (Module 1 Theory)	C	3 hr exam	7
HYDL421	Hydraulics IV (Module 2 Project)	C	100% year mark	7
HDLY411	Hydrology IV (Module 1 Theory)	C	3 hr exam	7
HDLY421	Hydrology IV (Module 2 Project)	C	100% year mark	7
RDMN411	Reticulation Design & Management IV (Module 1 Theory)	C	3 hr exam	7
RDMN421	Reticulation Design & Management IV (Module 2 Project)	C	100% year mark	7
WSTT411	Waste Water Treatment Technology IV (Module 1 Theory)	C	3 hr exam	7
WSTT421	Waste Water Treatment Technology IV (Module 2 Project)	C	100% year mark	7
WTRT411	Water Treatment Technology IV (Module 1 Theory)	C	3 hr exam	7
WTRT421	Water Treatment Technology IV (Module 2 Project)	C	100% year mark	7

Plus, any three electives from the other specialist disciplines.

Note:

1. A total of eight modules (must include theoretical and project components) must be selected from those listed above, such that at least five modules are selected from the chosen specialist option, and such that a minimum of four modules are at Level IV.
2. Construction Materials Technology IV may not be selected in combination with Concrete Technology IV and/or Asphalt Technology IV.
3. Not all of the specialist options and not all of the modules within those options will necessarily be available at any particular time.

Phase out information for the Baccalaureus Technologiae: Engineering: Civil

Important information for current and prospective students (effective from 2019).

The last cohort of first-time entering students admitted to the Baccalaureus Technologiae qualification will be July 2019.

Notwithstanding all the current rules (both General rules and Departmental rules) that regulate this degree, the last semester in which any student may register for each of the subjects is listed as follows:

1. Baccalaureus Technologiae: Engineering: Civil

Disciplines: Construction Management, Transport, Urban and Water options.

Module Name	**Last Possible Semester of Registration**
Hydrology IV	July 2021
Industrial Relations & Negotiations II	July 2021
Pavement Technology IV	July 2021
Principles of Management Economics III	July 2021
Project Management (Civil) IV	July 2021
Reticulation Design & Management IV	July 2021
Traffic Engineering IV	July 2021
Transportation Planning IV	July 2021
Urban Planning & Design IV	July 2021
Wastewater Treatment Technology IV	July 2021
Contract Management IV	January 2022
Construction Materials Technology IV	January 2022
Geometric Design IV	January 2022
Hydraulics IV	January 2022
Management Principles & Practice IV	January 2022
Solid Waste Management IV	January 2022
Transport Technology IV	January 2022
Water Treatment Technology IV	January 2022

5.4 MASTER of ENGINEERING
ENTRANCE REQUIREMENTS

Every candidate for this qualification shall have:

1. completed the requirements for the BEng Hons or equivalent;

Or

2. have completed a post graduate Diploma in Civil Engineering Technology,

Or

3. have been granted a conferment of status for the above-mentioned qualification.

INSTRUCTIONAL PROGRAMME

This is a research-based qualification requiring advanced studies on behalf of the student in any modules related to the specific field of study. Students are required to undertake research under the guidance of a supervisor.

(*Amended wef 2015/08)*

5.5. MASTER OF THE BUILT ENVIRONMENT
ENTRANCE REQUIREMENTS

Every candidate for this qualification shall have:

1. completed the requirements for the BEng Hons in Geomatics or equivalent;
   or
2. have been granted a conferment of status for the above-mentioned qualification.

INSTRUCTIONAL PROGRAMME

This is a research-based qualification requiring advanced studies on behalf of the student in any modules related to the specific field of study. Students are required to undertake research under the guidance of a supervisor.

(*Amended wef 2015/08)*

5.6 DOCTOR OF ENGINEERING
ENTRANCE REQUIREMENTS

Every candidate for this qualification shall have:

1. completed the requirements for the MEng or equivalent
   or
2. have been granted a conferment of status for the above-mentioned qualification.

INSTRUCTIONAL PROGRAMME

This is a research-based qualification requiring advanced studies on behalf of the student in any modules related to the specific field of study. Students are required to undertake research under the guidance of a supervisor.

(*Amended wef 2015/08)*

5.7 ENGINEERING ACCESS PROGRAMME
(Short Course)
ENTRANCE REQUIREMENTS

1.1. Students who do not meet the entrance requirements for the National Diploma programme, will be considered for the Engineering Access programme, the following minimum requirements (or their equivalent) shall apply:

1.2	**Senior Certificate**	**SG**	**NSC**
	Mathematics	E	3
	Science	E	3
	English	Pass	4

1.3 have obtained an N3 or equivalent Certificate with passes (>50%) in four approved subjects (two of which must be Mathematics and Science) and have passed one of the official languages at least on First Language Standard Grade and the other official language at least on Second Language Standard Grade.

INSTRUCTIONAL PROGRAMME

The instructional programme shall have a duration of one semester of full-time study, and shall consist of the modules listed below.

FCMS10P Communications Skills IA
CPSA112 Computer Skills I
(Module 1)
CPSA122 Computer Skills I (Module
2)
FMTH10P Foundation Mathematics I
FSCI10P Foundation Science

A student is required to pass **all** modules from the Engineering Access programme to guarantee access to the Diploma in Engineering Technology: Civil Engineering. In this event credits for Technical Literacy, Computer Applications A, Computer Applications B and Mathematics A and Physics A will be granted. Should a student intend to register for any Engineering programme other than Civil, then they will be required to apply in writing to the HOD of that programme for access from the Engineering Access programme, such access is NOT guaranteed.

No student will be permitted to register for the Diploma in Engineering Technology: Civil Engineering from the Engineering Access Programme where they have not settled the cost of the Access programme in full. A student will only be permitted to attempt the access programme once.

6. ASSESSMENT RULES

The method of assessment for each module is indicated in the indicative content (see section 8).

See also General Rules G12 to G16

7. RE-REGISTRATION RULES

See Rule EC11

8. INDICATIVE CONTENT
NOTE:

8.1. Except where otherwise stated all modules have a required sub-minimum of 40% of the overall semester mark and 40% of the examination mark respectively.

8.2. The allocation of periods for each module is based on a contact time of 50 minutes with classes commencing at 60 minute intervals.

CIVIL ENGINEERING METHODS (CEMT101)

Theory: 3 periods per week
Semester Mark: One test - 30%
One test - 30% (subminimum of 50% assessing GA7)
Control Test - 40%
No Examination; 100% course mark

SYLLABUS

1. Earthworks
2. Structures
3. Road Engineering
4. Dams
5. Bridges
6. Tunnels
7. Harbours
8. Railways
9. Airports
10. Drainage
11. Safety

CIVIL MECHANICS I (CIVM101) (80703)

Theory: 2 periods per week
Tutorial; 2 periods per week
Practical: 1 period per week
Semester Mark: Two tests - 15% each
Two Practicals - 5% each (subminimum of 50% on each assessing GA2 & GA4)
Control Test - 60% (subminimum of 40%)No Examination; 100% course mark

SYLLABUS

1. Forces and Loads
2. Moment Equilibrium
3. Support Types/Reactions
4. Triangulated pin-jointed Frames and Trusses

COMPUTER APPLICATIONS A (CMAA101) (60101)

Theory: 2 periods per week
Tutorial: 1 period per week
Semester Mark: Four practical tests

- Computer utilization - 10%
- Operating systems - 15%
- Spreadsheets and word processing - 40% (will include assessment of GA5 sub-minimum of 50%)

Control test - 35% (sub-minimum of 14%, i.e. 40% of 35%)
Examination: No examination

SYLLABUS

1. Computer Utilisation and Hardware
2. Operating Systems – Windows
3. Word Processing
4. Spreadsheets

COMPUTER APPLICATIONS B (CMAB101) (60101)

Practical: 2 periods per week
Semester Mark: 100% - The semester mark is made up of a number of computer based numeracy tests subminimum of 90% is required to pass the module.
Examination: No examination

CONSTRUCTION MATERIALS TECHNOLOGY IV MODULE 1 THEORY (CSTM411) (0806107060)

Theory: 4 periods per week
Semester Mark: Two tests - 20 % each
Control Test - 60% (subminimum of 40%)
No Examination; 100% course mark

SYLLABUS

1. Concrete technology
2. Asphalt & Bitumen technology
3. Other materials
4. Testing

CONSTRUCTION MATERIALS TECHNOLOGY IV MODULE 2 PROJECT (CSTM421) (0806107060)

Project: 1 period per week
Semester Mark: One industry based project - 100%

SYLLABUS

Students will be required to investigate and produce an appropriate industry related design project.

CONTRACT ADMINISTRATION (CTAD201)

Theory: 3 periods per week
Tutorial; 1 period per week
Practical: 1 period per week
Semester Mark: Two tests - 10% each
Practical - 20% (assessing GA 8 at exit level & GA10 subminimum of 50%)
Control Test - 60% (subminimum of 40%)
No Examination; 100% course mark

SYLLABUS

1. Measurement of Civil Engineering Works
2. Bills of Quantities
3. Specifications
4. Estimating and Tendering
5. General Conditions of Contract (latest edition)
6. Software Applications

CONTRACT MANAGEMENT (CNTM201)

Theory: 3 periods per week
Tutorial; 1 period per week
Practical: 1 period per week
Semester Mark: Two tests - 15% each
Two assignments - 5% each (50% subminimum on each assessing GA7 and GA10 respectively at exit level)
Control Test - 60% (subminimum of 40%)
No Examination; 100% course mark

SYLLABUS

1. Contract Administration
2. Planning Techniques
3. Financial Planning
4. Labour and Safety Legislation

CONTRACT MANAGEMENT (CIVIL) IV MODULE 1 THEORY (CNTM411) (20426707)

Theory: 4 periods per week
Semester Mark: Two tests - 20 % each
Control Test - 60% (subminimum of 40%)
No Examination; 100% course mark

SYLLABUS

1. Contract Documentation
2. Contract Specifications
3. Pre-Tender Procedures
4. Tender Preparation
5. Tender Award
6. Commencement of Contract/Project
7. Measurement and Payment
8. Subcontract Work
9. Contractual Dispute Management
10. Cost Control and Productivity
11. Quality Management

CONTRACT MANAGEMENT (CIVIL) IV MODULE 2 PROJECT (CNTM421) (20426707)

Project: 1 period per week
Semester Mark: One industry based project - 100%

SYLLABUS

Students will be required to investigate and produce an appropriate industry related design project.

CORNERSTONE 101 (CSTN101)

Theory: 2 periods per week
Tutorial; 2 periods per week
Semester Mark: Weekly Tasks - 10%
Tutorial attendance - 10%
Two assignments - 40% each
No Examination; 100% course mark

SYLLABUS

The module content will be developed around the concept of journeys, across time, across space, and across human relationships. The module will bring different disciplinary perspectives to this content – environmental, historical and sociological in particular.

DESIGN PROJECT (DSGP201)

Theory: 2 periods per week (these would be consultation sessions)
Practical: 2 periods per week
Semester Mark: One Industry based Project - 100% (50% subminimum assessing GA1 GA2, GA3, GA4, GA5, GA6 & GA9 at exit level)
Preliminary Design Phase – 30% (subminimum of 50%)
Final Design Phase – 50% (subminimum of 50%)
Oral Presentation – 20% (subminimum of 50%)
No Examination; 100% course mark

SYLLABUS

The student will be required to identify a discipline specific industry project which they will then undertake a detailed design of, sourcing the necessary materials, specifications and technology applications to complete the project, guided by discipline specialist staff.

DRAWING APPLICATIONS (DRAP101)

Theory:	3 periods per week	
Tutorial;	2 periods per week	
Semester Mark:	Three Assignments	- 12% each
	GA5) One Test	- 24%
	One Control Test	- 40% (50% subminimum)
No Examination;	100% course mark	

SYLLABUS

1. Drawing Standards as per SANS latest code
2. Basic Instrument Drawing Skills
3. Using Scales
4. Dimensioning Standards
5. Isometric Drawings
6. Orthographic Drawings
7. House Plans.
8 Basic Road Design Drawings

DRAWING (INTRODUCTION TO CAD) (DICD101)

Theory:	3 periods per week	
Tutorial;	1 period per week	
Semester Mark:	One test	- 20%
	One test	- 20% (subminimum of 50% assessing GA5)
	Control Test	- 60% (subminimum of 60%)
No Examination;	100% course mark	

SYLLABUS

1. Basic CAD operation
2. Basic Architectural Drawings
3. Basic Reinforced Concrete Element Drawings
4. Basic Road and Construction Detail Drawings

FOUNDATION MATHEMATICS (FMTH10P)

Theory:	5 periods per week	
Tutorial;	2 periods per week	
Semester Mark:	Three tests (best two)	- 10% each
	Two Control tests	- 40% each
No Examination;	100% course mark	

SYLLABUS

1. Numbers and Algebra
2. Areas and Volumes
3. Trigonometry
4. Graphs and Functions
5. Complex Numbers
6. Series: Maclaurin Series

FOUNDATION SCIENCE (FSCI10P)

Theory: 3 periods per week
Tutorial; 1 period per week
Semester Mark: Two tests -13, 33 each
Practicals - 13, 33 (total)
Examination: One three-hour paper - 60%

SYLLABUS

1. Kinematics: vectors & scalars
2. Kinematics: motion with constant acceleration
3. Newtons Law of Motion
4. Application of Newtons Law
5. Torque
6. Work Energy and Power
7. Solid State Physics
8. Fluids
9. Direct current circuits

SYLLABUS

1. Administration
2. Drawing
3. Surveying
4. Design
5. Contracts
6. Construction
7. Materials testing

And the completion of industry based engineering investigation which may be orally assessed.

GEOMETRIC DESIGN IV MODULE 1 THEORY (GMTD411) (0806111060)

Theory: 4 periods per week
Semester Mark: Two tests - 20% each
Control Test - 60% (subminimum of 40%)
No Examination; 100% course mark

SYLLABUS

1. Principles & practice of Road Alignment
2. Environmental impact control
3. Design control and criteria
4. Elements of design (Geometrics, Safety)
5. Intersection & interchange design
6. Drainage design
7. Earthworks design

GEOMETRIC DESIGN IV MODULE 2 PROJECT (GMTD421) (0806111060)

Project: 1 period per week
Semester Mark: One industry based project - 100%

SYLLABUS

Students will be required to investigate and produce an appropriate industry related design project.

HYDRAULICS IV MODULE 1 THEORY (HYDL411) (0806112060)

Theory: 4 periods per week
Semester Mark: Two tests - 20% each
Control Test - 60% (subminimum of 40%)
No Examination; 100% course mark

SYLLABUS

1. Hydrodynamics
2. Hydraulic machinery (Pumps, Turbines, etc.)
3. Hydraulic models
4. Open channel hydraulics
5. Fluvial hydraulics
6. Wave hydraulics

HYDRAULICS IV MODULE 2 PROJECT (HYDL421) (0806112060)

Project: 1 period per week
Semester Mark: One industry based project - 100%

SYLLABUS

Students will be required to investigate and produce an appropriate industry related design project.

HYDROLOGY IV MODULE 1 THEORY (HDLY411) (0806113060)

Theory: 4 periods per week
Semester Mark: Two tests- 20% each
Control Test - 60% (subminimum of 40%)
No Examination; 100% course mark

SYLLABUS

1. Introduction to meteorology
2. Groundwater
3. Surface water
4. Flood analysis
5. Water resources analysis
6. South African hydrology

HYDROLOGY IV MODULE 2 PROJECT (HDLY421) (0806113060)

Project: 1 period per week
Semester Mark: One industry based project - 100%

SYLLABUS

Students will be required to investigate and produce an appropriate industry related design project.

INDUSTRIAL RELATIONS & NEGOTIATIONS II MODULE 1 THEORY (IDRN211) (0411062220)

Theory: 4 periods per week
Semester Mark: Two tests - 20% each (restricted open book)
Control Test - 60% (subminimum of 40% restricted open book)
No Examination; 100% course mark

SYLLABUS

1. Industrial relations
2. Negotiations and dispute handling in:
   - Contractor/Client & Contractor/Sub-contractor relations
   - Contractor/Professional team relations
   - Contractor/Supplier relations
   - Management/Personnel relations
   - Project Manager/Other Parties relations
3. Strike management

INDUSTRIAL RELATIONS & NEGOTIATIONS II MODULE 2 PROJECT (IDRN221) (0411062220)

Project: 1 period per week
Semester Mark: One industry based project - 100%

SYLLABUS

Students will be required to investigate and produce an appropriate industry related design project.

INTRODUCTION TO CONSTRUCTION MATERIALS (ICMT101)

Theory: 2 periods per week
Tutorial; 1 period per week
Practical: 2 periods per week
Semester Mark: Two tests - 20% each
One Control Test - 35% (50% subminimum)
Two Practicals - 7, 5% each
One Practicals - 10% (50% subminimum, consisting of group work (60%) and an individual practical test (40%) assessing GA1 & GA6)
No Examination; 100% course mark

SYLLABUS

1. Soils
2. Bitumen
3. Concrete
4. Laboratory Practicals

INTRODUCTION TO STRUCTURAL DESIGN (INSD201)

Theory: 2 periods per week
Tutorial; 2 periods per week
Practical: 2 periods per week
Semester Mark: Two tests - 15% each
Control test - 40% (40% subminimum)
Three Practicals - 10% each (50% subminimum on total)
No Examination; 100% course mark

SYLLABUS

1. Loading, Analysis and Design of determinate structures
2. Introduction to the design of steel sections and members
3. Introduction to the design of concrete sections and members
4. Structural Design software applications

INTRODUCTION TO WATER ENGINEERING A (IWEA201)

Theory: 3 periods per week
Tutorial; 1 period per week
Practical: 2 periods per week
Semester Mark: Two tests - 12% each
Four practicals - 2% each (subminimum of 40% on total)
One assignment - 8% (subminimum of 50% assessing GA4)
Control Test - 60% (subminimum of 40%)
No Examination; 100% course mark

SYLLABUS

1. Properties of Fluids
2. Static pressure and head
3. Buoyancy and flotation
4. Liquids in motion
5. Momentum and fluid flow
6. Forces on reducers and bends
7. Weirs, flumes and notches
8. Losses of energy in pipelines
9. Pipelines
10. Open channel flow, energy and hydraulic jump.
11. Potable water distribution, pumping and storage.
12. Sewage reticulation
13. Water software applications

INTRODUCTION TO WATER ENGINEERING B (IWEB201)

Theory: 2 periods per week
Tutorial; 2 periods per week
Semester Mark: One test - 20%
One test - 10%
One assignment - 10%
Control Test - 60% (subminimum of 40%)
No Examination; 100% course mark

SYLLABUS

1. Introduction to Public Health
2. Overview of wastewater collection
3. Overview of the characterisation of waters and waste waters including environmental pollution.
4. Introduction to treatment processes
5. Physical treatment processes
6. Chemical treatment processes
7. Biological treatment processes
8 Sludge treatment and disposal
9. Water treatment
10. Wastewater treatment

LAW FOR LIFE (LWLF101)

Theory: 1 period per week
Tutorial; 1 period per week
Semester Mark: Three assignments - 33, 33% each
No Examination; 100% course mark

SYLLABUS

1. Introduction to Law
2. Civil and Criminal Law
3. Law of Insurance
4. Road Accident Fund5. Law of Contract
5. Marriage Law
6. Succession

MANAGEMENT PRINCIPLES & PRACTICE IV MODULE 1 THEORY (MPPC411) (0409226060)

Theory: 4 periods per week
Semester Mark: 2 tests - 20% each
Control Test - 60% (subminimum of 40%)
No Examination; 100% course mark

SYLLABUS

1. Management approaches
2. The business environment
3. The functions of management
4. Decision making & problem solving
5. Strategic management
6. Management by objectives
7. Corporate communications
8. Small business management
9. International management
10. Politics, ethics and social responsibility
11. Case studies

MANAGEMENT PRINCIPLES & PRACTICE IV MODULE 2 PROJECT (MPPC421) (0409226060)

Project: 1 period per week
Semester Mark: One industry based project - 100%

SYLLABUS

Students will be required to investigate and produce an appropriate industry related design project.

MATHEMATICS A (MMTA101)

Theory: 3 periods per week
Tutorial; 2 periods per week
Semester Mark: Three tests (best two) - 10% each
Two Control tests - 40% each
No Examination; 100% course mark

SYLLABUS

1. Numbers and Algebra
2. Areas and Volumes
3. Trigonometry
4. Graphs and Functions
5. Complex Numbers
6. Series: Maclaurin Series

MATHEMATICS B (MMTB101)

Theory: 3 periods per week
Tutorial; 2 periods per week
Semester Mark: Three tests (best two) - 10% each
Two Control tests - 40% each
No Examination; 100% course mark

SYLLABUS

1. Calculus - Differentiation
2. Calculus - Integration
3. Linear Algebra
4. Statistics and Probability

MATHEMATICS C (MMTC101)

Theory:	3 periods per week	
Tutorial;	2 periods per week	
Semester Mark:	Three tests (best two)	- 10% each
	Two Control tests	- 40% each
No Examination;	100% course mark	

SYLLABUS

1. Advanced Calculus - Differentiation
2. Advanced Calculus - Integration
3. Differential Equations

Note:

A full-time student who obtained a FINAL RESULT of between 45% and 49% for any Mathematics Module will be allowed to write a special 3-hour make-up test covering the whole syllabus during the week after semester examinations end. If the mark obtained is used in place of the major test marks and these results in the student passing, a final result of 50% will be allocated.

PAVEMENT TECHNOLOGY IV MODULE 1 THEORY (PVMT411) (0806114060)

Theory:	4 periods per week	
Semester Mark:	Two tests	- 20% each
	Control Test	- 60% (subminimum of 40% restricted open book)
No Examination;	100% course mark	

SYLLABUS

1. Pavement design (Factors, gravel, flexible, rigid)
2. Pavement construction (Gravel, flexible, rigid)
3. Pavement evaluation & rehabilitation
4. Pavement management

PAVEMENT TECHNOLOGY IV MODULE 2 PROJECT (PVMT421) (0806114060)

Project:	1 period per week	
Semester Mark:	One industry based project	- 100%

SYLLABUS

Students will be required to investigate and produce an appropriate industry related design project.

PHYSICS A (PSCA101)

Theory:	2 periods per week	
Tutorial;	1 period per week	
Practical:	2 periods per week	
Semester Mark:	Two tests	- 14% each
	Practicals	- 3, 6%
	One Practical Test	- 8, 4%
	Control Test	- 60% (subminimum of 40%)
No Examination;	100% course mark	

SYLLABUS

1. Units, Physical Quantities, Vectors
2. Equilibrium of a particle
3. Newton's Second law, Gravitation
4. Work and Energy
5. Impulse and Momentum
6. Torque

7. Elasticity
8. Periodic Motion

PHYSICS B (PSCB101)

Theory:	2 periods per week	
Tutorial;	1 period per week	
Practical:	2 periods per week	
Semester Mark:	Two tests	- 14% each
	Practicals	- 3, 6%
	One Practical Test	- 8, 4%
	Control Test	- 60% (subminimum of 40%)
No Examination;	100% course mark	

SYLLABUS

1. Thermodynamics
2. Mechanical Waves
3. Vibrating Bodies
4. Acoustic Phenomena
5. Coulomb's Law
6. Current, Resistance and Capacitance

PHYSICS C (PSCC101)

Theory:	2 periods per week	
Tutorial;	1 period per week	
Practical:	2 periods per week	
Semester Mark:	Two tests	- 14% each
	Practicals	- 3, 6%
	One Practical Test	- 8, 4%
	Control Test	- 60% (subminimum of 40%)
No Examination;	100% course mark	

SYLLABUS

1. The Magnetic Field
2. Inductance
3. Maxwell's Equations
4. Electromagnetic Waves
5. The Nature and Propagation of Light
6. Atomic and Molecular Structure

PRINCIPLES OF MANAGEMENT ECONOMICS III MODULE I THEORY (PREM311) (2202006030)

Theory:	4 periods per week	
Semester Mark:	Two tests	- 20% each
	Control Test	- 60% (subminimum of 40%)
No Examination;	100% course mark	

SYLLABUS

1. Introduction to micro economics
2. The market
3. Elasticity

4. Market forms
5. A practical macro-economic framework
6. Economic policy

PRINCIPLES OF MANAGEMENT ECONOMICS III MODULE 2 PROJECT (PREM321) (2202006030)

Project: 1 period per week
Semester Mark: One industry based project - 100%

SYLLABUS

Students will be required to investigate and produce an appropriate industry related design project.

PROJECT MANAGEMENT IV (CIVIL) MODULE 1 THEORY (PRCV411) (0204027060)

Theory: 4 periods per week
Semester Mark: Two tests - 20% each
Control Test - 60% (subminimum of 40%)
No Examination; 100% course mark

SYLLABUS

1. Planning of projects (Civil & Building)
2. Management of projects
3. Quality and time management
4. Management systems
5. Computer applications

PROJECT MANAGEMENT IV (CIVIL) MODULE 2 PROJECT (PRCV421) (0204027060)

Project: 1 period per week
Semester Mark: One industry based project - 100%

SYLLABUS

Students will be required to investigate and produce an appropriate industry related design project.

RETICULATION DESIGN & MANAGEMENT IV MODULE 1 THEORY (RDMN411) (0806119060)

Theory: 4 periods per week
Semester Mark: Two tests - 20% each
Control Test - 60% (subminimum of 40%)
No Examination; 100% course mark

SYLLABUS

1. Hydraulic principles
2. Design parameters
3. Ancillary works
4. Pumping installations
5. System operation
6. Water management
7. Waste management
8. Environmental aspects

RETICULATION DESIGN & MANAGEMENT IV MODULE 2 PROJECT (RDMN421) (0806119060)

Project: 1 period per week
Semester Mark: One industry based project - 100%

SYLLABUS

Students will be required to investigate and produce an appropriate industry related design project.

SOIL MECHANICS A (SLMA201)

Theory: 2 periods per week
Tutorial; 1 period per week
Practical: 2 periods per week
Semester Mark: Two tests - 15% each
Practical - 10% (subminimum of 50% assessing GA1 & GA9)
Control Test - 60% (subminimum of 40%)
No Examination; 100% course mark

SYLLABUS

1. Geology
2. Soil and Geology practicals
2. Soil Mechanics

SOIL MECHANICS B (SLMB201)

Theory: 2 periods per week
Tutorial; 2 periods per week
Practical: 2 periods per week
Semester Mark: Two tests - 12% each
Two practicals - 2% each
One practical - 4% (subminimum of 40% on combined pracs)
Two assignments - 4% each (subminimum of 50%)
Control Test - 60% (subminimum of 40%)
No Examination; 100% course mark

E

SYLLABUS

1. Permeability
2. Stresses in soil
3. Compressibility and consolidation of soils
4. Shear strength of soils
5. Stability of slopes
6. Shallow foundations and bearing capacity
7. Site investigation
8. Laboratory practicals
9. Software applications

SOLID WASTE MANAGEMENT IV MODULE 1 THEORY (SLWM411) (0806120060)

Theory: 4 periods per week
Semester Mark: One test - 20% Examination:
Control Test - 60% (subminimum of 40%)
No Examination; 100% course mark

SYLLABUS

1. Characteristics of waste
2. Solid waste disposal methods
3. Design operation & management of landfill sites
4. Operation & management of solid waste removal systems
5. Third World applications
6. Waste recycling
7. Emergency waste management
8. Legal aspects

SOLID WASTE MANAGEMENT IV MODULE 2 PROJECT (SLWM421) (0806120060)

Project: 1 period per week
Semester Mark: One industry based project - 100%

SYLLABUS

Students will be required to investigate and produce an appropriate industry related design project.

STRUCTURAL ANALYSIS (STRA201)

Theory: 3 periods per week
Tutorial; 1 period per week
Practical: 2 periods per week
Semester Mark: Two tests - 12% each

	Practical	- 8% (subminimum of 40%)
	Assignment	- 8% (subminimum of 50%)
	Control Test	- 60% (subminimum of 40%)

No Examination; 100% course mark

SYLLABUS

1. Statistically determinate and indeterminate structures
2. Free body diagrams of beams and simple frames
3. Shear Stress
4. Combined bending and direct stress
5. Retaining walls
6. Software applications

STRUCTURAL DETAILING (STDT201)

Theory:	2 periods per week	
Tutorial;	2 periods per week	
Practical:	1 period per week	
Semester Mark:	Two tests	- 20% each
	One assignment	- 10%
	One control test	- 50% (subminimum of 50%)
No Examination;	100% course mark	

SYLLABUS

1. Fundamental concept of structural detailing
2. Detailing procedure
3. Detailing of concrete structures - reinforcement
4. Detailing of steel structures
5. Software applications

STRUCTURAL MECHANICS (STME201)

Theory:	3 periods per week	
Tutorial;	2 periods per week	
Practical:	2 periods per week	
Semester Mark:	Two tests	- 12% each
	Practical	- 8% (subminimum of 40%)
One assignment		- 8% (subminimum of 50% assessing GA2)
	Control Test	- 60% (subminimum of 40%)
No Examination;	100% course mark	

SYLLABUS

1. Shear force and bending moments of beams
2. Deflections in beams
3. Stress in beams
4. Sectional properties
5. Stress and strain
6. Stability of columns
7. Software applications

SURVEYING FOR CIVIL ENGINEERING (SVCE201)

Theory:	3 periods per week	
Tutorial;	2 periods per week	
Practical:	3 periods per week	
Semester Mark:	Two tests	- 10% each
	One practical	- 15% (subminimum of 50%)
	One practical	- 15% (subminimum of 50% assessing GA8 & GA9)
	Competency test	- 10% (subminimum of 70%)
	Control test	- 40% (subminimum of 40%)
No Examination;	100% course mark	

SYLLABUS

1. Basic principles of surveying
2. Map projections and survey calculations
3. Horizontal control
4. Vertical control
5. Topographical surveying
6. Horizontal and vertical alignment introduction
7. Setting out of engineering works
8. Areas and volumes
9. Surveying computer applications

TECHNICAL LITERACY (TLIT101)

Theory:	2 periods per week	
Tutorial;	2 periods per week	
Semester Mark:	One tests	- 40%
	One project	- 40% (subminimum of 50% assessing GA6 & GA10)
	One assignment	- 20%
No Examination;	100% course mark	

SYLLABUS

1. Written Communication
2. Visual Communication
3. Oral Communication

TRAFFIC ENGINEERING IV MODULE 1 THEORY (TFEN411) (0806126060)

Theory: 4 periods per week
Semester Mark: Two tests - 20% each
Control Test - 60% (subminimum of 40%)
No Examination; 100% course mark

SYLLABUS

1. Traffic surveys
2. Traffic characteristics & flow theory
3. Traffic design
4. Traffic management & urban works
5. Traffic safety
6. Statistical methods
7. Parking studies. system & structures
8. TSM, TDM traffic impact studies
9. Traffic control & forms of signing
10. Interchange & intersection capacities

TRAFFIC ENGINEERING IV MODULE 2 PROJECT (TFEN421) (0806126060)

Project: 1 period per week
Semester Mark: One industry based project - 100%

SYLLABUS

Students will be required to investigate and produce an appropriate industry related design project.

TRANSPORTATION PLANNING IV MODULE 1 THEORY (TRNP411) (0806127060)

Theory: 4 periods per week
Semester Mark: Two tests - 20% each
Control Test - 60% (subminimum of 40%)
No Examination; 100% course mark

SYLLABUS

1. Planning theory & techniques
2. Transport models
3. Data collection
4. Evaluation
5. Land use planning & characteristics
6. Development control
7. Operation studies
8. Environmental route selection
9. Traffic impact assessment

TRANSPORTATION PLANNING IV MODULE 2 PROJECT (TRNP421) (0806127060)

Project: 1 period per week
Semester Mark: One industry based project - 100%

SYLLABUS

Students will be required to investigate and produce an appropriate industry related design project.

TRANSPORT TECHNOLOGY A (TRNA201)

Theory: 3 periods per week
Tutorial; 2 periods per week
Practical: 1 period per week
Semester Mark: Two tests - 10% each
One Practical - 10% (subminimum of 50%)
One Computer Assignment – 10% (subminimum of 50% assessing GA3)
Control Test - 60% (subminimum of 40%)
No Examination; 100% course mark

SYLLABUS

1. Traffic Engineering
2. Route Location
3. Basic Design Criteria
4. Horizontal Alignment
5. Vertical Alignment
6. Access Design
7. Drainage Design
8. Earthworks Design

TRANSPORT TECHNOLOGY B (TRNB201)

Theory: 3 periods per week
Tutorial; 1 period per week
Practical: 2 periods per week
Semester Mark: Two tests - 10% each
Five Practicals - 2% each (subminimum of 40% on total)
One Computer Assignment – 10% (subminimum of 50%)
Control Test - 60% (subminimum of 40%)
No Examination; 100% course mark

SYLLABUS

1. Material Specifications and Tests
2. Pavement Design
3. Seal Design
4. Pavement Rehabilitation

TRANSPORTATION TECHNOLOGY IV MODULE 1 THEORY (TRNT411) (0806128060)

Theory: 4 periods per week
Semester Mark: Two tests - 20% each
Control Test - 60% (subminimum of 40%)
No Examination; 100% course mark

SYLLABUS

1. Transport policies
2. Transportation systems
3. Terminals
4. Public transport
5. Private transport
6. Freight transport
7. Vehicle & driver characteristics

TRANSPORTATION TECHNOLOGY IV MODULE 2 PROJECT (TRNT421) (0806128060

Project: 1 period per week
Semester Mark: One industry based project - 100%

URBAN PLANNING & DESIGN IV MODULE 1 THEORY (UPLD411) (0211012060)

Theory: 4 periods per week
Semester Mark: Two tests - 20% each
Control Test - 60% (subminimum of 40%)
No Examination; 100% course mark

SYLLABUS

1. Planning
   - 1.1 Historical perspective
   - 1.2 Modern trends
   - 1.3 Land use
   - 1.4 Legal procedure
   - 1.5 Urban infrastructure management, maintenance & finance
2. Design
   - 2.1 Structure
   - 2.2 Residential layouts

2.3 Informal settlements
2.4 Design project with emphasis on the engineering aspects of urban planning & design
3. Terminals
4. Public transport
5. Private transport
6. Freight transport
7. Vehicle & driver characteristics

URBAN PLANNING & DESIGN IV MODULE 2 PROJECT (UPLD421) (021101

Project: 1 period per week
Semester Mark: One industry based project - 100%

SYLLABUS

Students will be required to investigate and produce an appropriate industry related design project.

WASTE WATER TREATMENT TECHNOLOGY IV MODULE 1 THEORY (WSTT411) (0806129060)

Theory: 4 periods per week
Semester Mark: Two tests - 20% each
Control Test - 60% (subminimum of 40%)
No Examination; 100% course mark

SYLLABUS

1. Waste water properties
2. Treatment processes
3. Treatment plant design
4. Environmental aspects
5. Plant operation

WASTE WATER TREATMENT TECHNOLOGY IV MODULE 2 PROJECT (WSTT421) (0806129060)

Project: 1 period per week
Semester Mark: One industry based project - 100%

SYLLABUS

Students will be required to investigate and produce an appropriate industry related design project.

WATER TREATMENT TECHNOLOGY IV MODULE 1 THEORY (WTRT411) (0806130060)

Theory: 4 periods per week
Semester Mark: Two tests - 20% each
Control Test - 60% (subminimum of 40%)
No Examination; 100% course mark

Examination: One three-hour paper - 60%

SYLLABUS

1. Water properties
2. Treatment processes
3. Treatment plant design
4. Water recycling, re-use, recovery & conservation
5. Environmental aspects
6. Plant operation & management

WATER TREATMENT TECHNOLOGY IV MODULE 2 PROJECT (WTRT421) (0806130060)

Project: 1 period per week
Semester Mark: One industry based project - 100%

SYLLABUS

Students will be required to investigate and produce an appropriate industry related design project.

E&OE