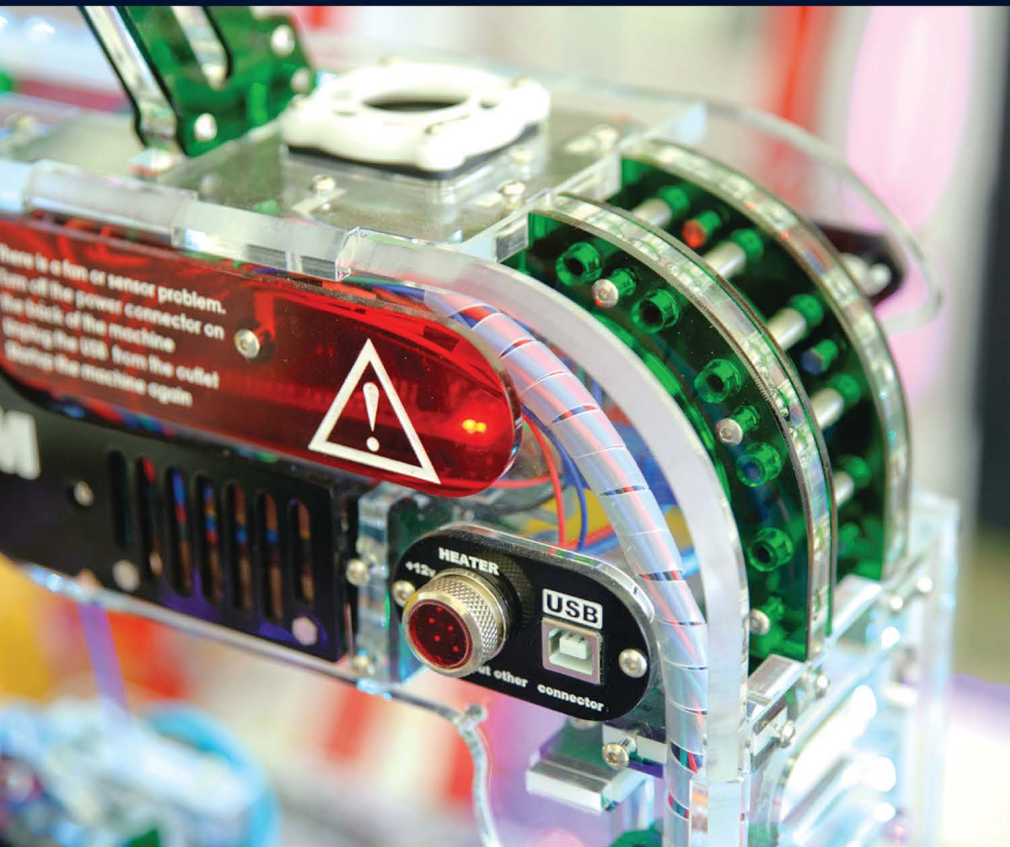


NELSON MANDELA UNIVERSITY



Faculty of Engineering,
the Built Environment
& Information Technology

Prospectus 2019

100 YEARS OF MANDELA

NELSON MANDELA UNIVERSITY

**FACULTY OF ENGINEERING,
THE BUILT ENVIRONMENT AND
INFORMATION TECHNOLOGY**

PROSPECTUS 2019

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Although the information contained in this Prospectus has been compiled as accurately as possible, the Council and the Senate of Nelson Mandela University accept no responsibility for any errors or omissions. This Prospectus is applicable only to the 2019 academic year. Information on syllabus and module outcomes is available on the Nelson Mandela University website.

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TABLE OF CONTENTS

1	VISION AND MISSION	1
2	STAFF	2
3	GENERAL INFORMATION AND REGULATIONS	12
3.1	PROFESSIONAL STATUS AND RECOGNITION OF DEGREES	12
3.2	DISTINGUISHED SCHOLARS IN THE FACULTY	16
3.3	SPECIAL PRIZES AND AWARDS.....	16
3.4	PART-TIME LECTURES (WHERE APPLICABLE)	22
3.5	RE-ADMISSION POLICY	22
3.6	EXPERIENTIAL LEARNING REQUIREMENTS (WHERE APPLICABLE)	22
3.7	GENERAL ADMISSION REQUIREMENTS	24
3.8	MAXIMUM PERIOD OF STUDY	25
3.9	READMISSION REQUIREMENTS FOR UNDERGRADUATE PROGRAMMES....	26
3.10	STATEMENT ON THE UNIVERSITY'S INTERVENTION IN THE EVENT OF POSSIBLE DISRUPTIONS TO ACADEMIC ACTIVITIES	30
4	NATIONAL DIPLOMA (ENGINEERING: ELECTRICAL) (EXTENDED) (3369) (NO NEW INTAKE)	31
5	HIGHER CERTIFICATES	37
5.1	HIGHER CERTIFICATE IN INFORMATION TECHNOLOGY IN USER SUPPORT SERVICES (70003)	37
5.2	HIGHER CERTIFICATE IN MECHATRONIC ENGINEERING (70005)	38
6	DIPLOMAS	40
6.1	NATIONAL DIPLOMA (BUILDING) (NO NEW INTAKE) (3262).....	40
6.2	DIPLOMA IN BUILDING (7226).....	42
6.3	NATIONAL DIPLOMA (ENGINEERING: CIVIL) (3323) (NO NEW INTAKE)	45
6.4	NATIONAL DIPLOMA (ENGINEERING: ELECTRICAL) (3366) (NO NEW INTAKE)	49
6.5	NATIONAL DIPLOMA (ENGINEERING: INDUSTRIAL) (3706) (NO NEW INTAKE)	54
6.6	NATIONAL DIPLOMA (ENGINEERING: MECHANICAL) (3718) (NO NEW INTAKE)	58
6.7	NATIONAL DIPLOMA (INFORMATION TECHNOLOGY: COMMUNICATION NETWORKS) (3227)	63
6.8	NATIONAL DIPLOMA (INFORMATION TECHNOLOGY: SOFTWARE DEVELOPMENT) (3224)	66
6.9	NATIONAL DIPLOMA (INFORMATION TECHNOLOGY: SUPPORT SERVICES) (3228).....	69
6.10	NATIONAL DIPLOMA (OPERATIONS MANAGEMENT) (3584) (NO NEW INTAKE)	72
6.11	DIPLOMA IN OPERATIONS MANAGEMENT (7755)	75
7	ADVANCED DIPLOMA IN QUALITY MANAGEMENT (71500)	79
8	BACHELOR OF ENGINEERING	82
8.1	BACHELOR OF ENGINEERING IN MECHATRONICS (4722) (NO NEW INTAKE)	82
8.2	BACHELOR OF ENGINEERING IN MECHATRONICS (71055).....	86
9	BACHELOR OF ENGINEERING TECHNOLOGY	92
9.1	BACHELOR OF ENGINEERING TECHNOLOGY IN CIVIL ENGINEERING (71010).....	92
9.2	BACHELOR OF ENGINEERING TECHNOLOGY IN ELECTRICAL ENGINEERING (71020)	97
9.3	BACHELOR OF ENGINEERING TECHNOLOGY IN INDUSTRIAL ENGINEERING (71030)	103
9.4	BACHELOR OF ENGINEERING TECHNOLOGY IN MARINE ENGINEERING (71060)	109

9.5	BACHELOR OF ENGINEERING TECHNOLOGY IN MECHANICAL ENGINEERING (71040)	112
10	BACHELOR OF HUMAN SETTLEMENT DEVELOPMENT (71000)	118
11	BACHELOR OF INFORMATION TECHNOLOGY (72001)	122
12	BACHELOR OF SCIENCE	126
12.1	BACHELOR OF SCIENCE IN CONSTRUCTION ECONOMICS (47002) (NO NEW INTAKE)	126
12.2	BACHELOR OF SCIENCE IN CONSTRUCTION ECONOMICS (72020) (NO NEW INTAKE)	128
12.3	BACHELOR OF SCIENCE IN CONSTRUCTION ECONOMICS: QUANTITY SURVEYING WITH FINANCIAL AND BUSINESS MANAGEMENT (72021)	131
12.4	BACHELOR OF SCIENCE IN CONSTRUCTION STUDIES (45603)	133
13	BACHELOR OF TECHNOLOGY	136
13.1	BACHELOR OF TECHNOLOGY (CONSTRUCTION MANAGEMENT) (4281)	136
13.2	BACHELOR OF TECHNOLOGY (ENGINEERING: CIVIL SPECIALISING IN TRANSPORTATION ENGINEERING) (4333).....	137
13.3	BACHELOR OF TECHNOLOGY (ENGINEERING: CIVIL SPECIALISING IN URBAN ENGINEERING) (4335).....	141
13.4	BACHELOR OF TECHNOLOGY (ENGINEERING: ELECTRICAL) (4365)	145
13.5	BACHELOR OF TECHNOLOGY (ENGINEERING: INDUSTRIAL) (4702).....	148
13.6	BACHELOR OF TECHNOLOGY (ENGINEERING: MECHANICAL) (4712).....	149
13.7	BACHELOR OF TECHNOLOGY (INFORMATION TECHNOLOGY: COMMUNICATION NETWORKS) (4213).....	151
13.8	BACHELOR OF TECHNOLOGY (INFORMATION TECHNOLOGY SOFTWARE DEVELOPMENT) (4206)	152
13.9	BACHELOR OF TECHNOLOGY (OPERATIONS MANAGEMENT) (4584)	154
13.10	BACHELOR OF TECHNOLOGY (QUALITY) (4731) (NO NEW INTAKE)	155
13.11	BACHELOR OF TECHNOLOGY (QUANTITY SURVEYING) (4261)	156
14	BACHELOR OF SCIENCE HONOURS	158
14.1	BACHELOR OF SCIENCE HONOURS IN CONSTRUCTION MANAGEMENT (45601)	158
14.2	BACHELOR OF SCIENCE HONOURS IN QUANTITY SURVEYING (47003) (NO NEW INTAKE).....	159
14.3	BACHELOR OF SCIENCE HONOURS IN QUANTITY SURVEYING (NO NEW INTAKE) (73003)	161
14.4	BACHELOR OF SCIENCE HONOURS IN QUANTITY SURVEYING (73004)	162
15	MASTER OF TECHNOLOGY	164
15.1	MASTER OF TECHNOLOGY (CONSTRUCTION MANAGEMENT) (RESEARCH) (5281) (NO NEW INTAKE)	164
15.2	MASTER OF TECHNOLOGY (ENGINEERING: CIVIL) (RESEARCH) (5332) (NO NEW INTAKE).....	165
15.3	MASTER OF TECHNOLOGY (ENGINEERING: ELECTRICAL) (RESEARCH) (6352) (NO NEW INTAKE)	165
15.4	MASTER OF TECHNOLOGY (ENGINEERING: INDUSTRIAL) (RESEARCH) (6731) (NO NEW INTAKE)	166
15.5	MASTER OF TECHNOLOGY (ENGINEERING: MECHANICAL) (RESEARCH) (6721) (NO NEW INTAKE)	167
15.6	MASTER OF TECHNOLOGY (INFORMATION TECHNOLOGY) (RESEARCH) (6203) (NO NEW INTAKE)	168
15.7	MASTER OF TECHNOLOGY (OPERATIONS MANAGEMENT) (RESEARCH) (6582) (NO NEW INTAKE)	169
15.8	MASTER OF TECHNOLOGY (OPERATIONS: QUALITY) (RESEARCH) (5731) (NO NEW INTAKE)	170
15.9	MASTER OF TECHNOLOGY (QUANTITY SURVEYING) (RESEARCH) (5261) (NO NEW INTAKE)	171

16	MASTER QUALIFICATIONS	172
16.1	MASTER OF ENGINEERING (CIVIL) (RESEARCH) (75057).....	172
16.2	MASTER OF ENGINEERING (ELECTRICAL) (RESEARCH) (75058).....	172
16.3	MASTER OF ENGINEERING (INDUSTRIAL) (RESEARCH) (75060).....	173
16.4	MASTER OF ENGINEERING (MECHANICAL) (RESEARCH) (75059)	174
16.5	MASTER OF ENGINEERING IN MECHATRONICS (RESEARCH) (75001) (NO NEW INTAKE).....	174
16.6	MASTER OF ENGINEERING IN MECHATRONICS (RESEARCH) (75055).....	175
16.7	MASTER OF INFORMATION TECHNOLOGY (RESEARCH) (75052)	176
16.8	MASTER OF OPERATIONS MANAGEMENT (RESEARCH) (75053)	177
16.9	MASTER OF PHILOSOPHY IN INFORMATION TECHNOLOGY GOVERNANCE (COURSE WORK AND RESEARCH) (75050).....	177
16.10	MASTER OF SCIENCE IN CONSTRUCTION ECONOMICS (47101) (NO NEW INTAKE)	178
16.11	MASTER OF SCIENCE IN CONSTRUCTION ECONOMICS (RESEARCH) (75010).....	179
16.12	MASTER OF SCIENCE IN CONSTRUCTION MANAGEMENT (RESEARCH) (47600) (NO NEW INTAKE)	180
16.13	MASTER OF SCIENCE IN CONSTRUCTION MANAGEMENT (RESEARCH) (75011).....	181
17	MASTER OF SCIENCE IN THE BUILT ENVIRONMENT	182
17.1	MASTER OF SCIENCE IN THE BUILT ENVIRONMENT (CONSTRUCTION HEALTH AND SAFETY MANAGEMENT) (47654) (NO NEW INTAKE)	183
17.2	MASTER OF SCIENCE IN THE BUILT ENVIRONMENT (CONSTRUCTION HEALTH AND SAFETY MANAGEMENT) (75024).....	185
17.3	MASTER OF SCIENCE IN THE BUILT ENVIRONMENT (CONSTRUCTION MANAGEMENT) (47653) (NO NEW INTAKE)	187
17.4	MASTER OF SCIENCE IN THE BUILT ENVIRONMENT (CONSTRUCTION MANAGEMENT) (75023).....	189
17.5	MASTER OF SCIENCE IN THE BUILT ENVIRONMENT (FACILITIES MANAGEMENT) (47650) (NO NEW INTAKE)	191
17.6	MASTER OF SCIENCE IN THE BUILT ENVIRONMENT (FACILITIES MANAGEMENT) (75020).....	193
17.7	MASTER OF SCIENCE IN THE BUILT ENVIRONMENT (PROJECT MANAGEMENT) (47652) (NO NEW INTAKE)	195
17.8	MASTER OF SCIENCE IN THE BUILT ENVIRONMENT (PROJECT MANAGEMENT) (75022).....	197
17.9	MASTER OF SCIENCE IN THE BUILT ENVIRONMENT (PROPERTY ECONOMICS AND VALUATION) (47651) (NO NEW INTAKE))	199
17.10	MASTER OF SCIENCE IN THE BUILT ENVIRONMENT (PROPERTY ECONOMICS AND VALUATION) (75021).....	201
18	DOCTOR OF TECHNOLOGY	203
18.1	DOCTOR OF TECHNOLOGY (ENGINEERING: ELECTRICAL) (RESEARCH) (7350) (NO NEW INTAKE)	203
18.2	DOCTOR OF TECHNOLOGY (ENGINEERING: MECHANICAL) (RESEARCH) (7721) (NO NEW INTAKE)	204
18.3	DOCTOR OF TECHNOLOGY (OPERATIONS MANAGEMENT) (RESEARCH) (7581) (NO NEW INTAKE)	205
19	DOCTOR OF ENGINEERING	206
19.1	DOCTOR OF ENGINEERING (RESEARCH) (76007)	206
19.2	DOCTOR OF ENGINEERING (RESEARCH) (76009)	206
20	DOCTOR OF PHILOSOPHY	208
20.1	DOCTOR OF PHILOSOPHY IN CONSTRUCTION ECONOMICS (RESEARCH) (47201) (NO NEW INTAKE)	208

20.2	DOCTOR OF PHILOSOPHY IN CONSTRUCTION ECONOMICS (RESEARCH) (76004).....	209
20.3	DOCTOR OF PHILOSOPHY IN CONSTRUCTION MANAGEMENT (RESEARCH) (47700) (NO NEW INTAKE).....	210
20.4	DOCTOR OF PHILOSOPHY IN CONSTRUCTION MANAGEMENT (RESEARCH) (76003).....	211
20.5	DOCTOR OF PHILOSOPHY IN ENGINEERING (MECHANICAL) (RESEARCH) (76010).....	212
20.6	DOCTOR OF PHILOSOPHY IN ENGINEERING (MECHATRONICS) (RESEARCH) (76002).....	212
20.7	DOCTOR OF PHILOSOPHY IN INFORMATION TECHNOLOGY (RESEARCH) (76001) (NO NEW INTAKE)	213
20.8	DOCTOR OF PHILOSOPHY IN INFORMATION TECHNOLOGY (RESEARCH) (76005).....	214
20.9	DOCTOR OF PHILOSOPHY (OPERATIONS MANAGEMENT) (RESEARCH) (76008).....	214

1 VISION AND MISSION***FACULTY VISION***

Our vision is to be the preferred provider of professional and career-oriented education and research in the fields of engineering, the built environment and information technology.

FACULTY MISSION

We are a people-centred faculty offering internationally recognised academic programmes, delivering competent graduates and providing innovative solutions and services to industry and community.

WELCOMING MESSAGE FROM THE DEAN

Welcome to the Faculty of Engineering, the Built Environment and Information Technology. In this faculty we combine top facilities, state-of-the-art technology and stimulating training to produce highly sought-after graduates in the fields of Civil, Electrical, Industrial and Mechanical Engineering, Mechatronics, Information Technology, Quality and Operations Management, Quantity Surveying, and Construction Management.

The Faculty comprises three schools which include the Schools of Engineering, the Built Environment and Information and Communication Technology. All programmes, where applicable, are accredited by relevant professional bodies, which is an indication of the quality of education in this faculty.

The BSc (Construction Studies), BSc (Hons) (Construction Management) and MSc (Built Environment) are accredited by the Chartered Institute of Building (CIOB-UK) and the South African Council for the Project and Construction Management Professions (SACPCMP). The BSc Construction Economics and BSc (Hons) Quantity Surveying are accredited by the Royal Institution of Chartered Surveyors (RICS). The two latter programmes as well as the National Diploma in Building and the BTech degree (Quantity Surveying) in the School of Built Environment are accredited by the South African Council for the Quantity Surveying Profession (SACQSP). The BEng Mechatronics and all the National Diplomas and BTech engineering programmes are accredited by the Engineering Council of South Africa (ECSA). The engineering qualifications are internationally recognised in terms of the Washington, Sydney and Dublin Accords. All the undergraduate and BTech programmes in the School of ICT, which hosts the Sub-Saharan Africa Cisco Academy Training Centre, contain a selection of Cisco-certified courses which allows us to provide internationally recognised IT specialists.

Apart from the academic departments, various institutes, centres and units are also housed in each school to promote their research, technology transfer, non-formal teaching, community service and outreach initiatives.

The faculty has established links with major industrial partners in the region, province and country. Industrial partners include major manufacturers and suppliers in the automotive and supplier industry, power utilities, large companies in the field of ICT, major construction companies, and large consulting businesses in South Africa. These partnerships provide a number of opportunities for contract research and collaborative research projects.

World-class research is being conducted in this faculty, ranging from friction stir welding, manufacturing technology and automotive manufacturing, to information security, telecommunications, communication networks, and construction health and safety. There are strong links with a number of leading international partners which ensure active student exchange programmes abroad.

The faculty welcomes you into this vibrant environment where you will be part of a diverse student body in which students are holistically developed as confident, innovative and knowledgeable professionals.

Enjoy your studies!

Executive Dean

2 STAFF

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	Prof T I van Niekerk NH Dip (CDP) (PET), BSc (Elec Eng) (UCT), MTech (IT) (PET), DTech (Elec Eng) (PET), PrEng, MSAIIE
<i>Laboratory Technician</i>	Mr R Herselman NDip (Elec Eng) (NMMU), BTech (Elec Eng) (NMMU)
<i>Administrative Professional</i>	Ms Z Joubert BTech (PRM) (NMMU)

REGISTERED ENTITIES

Chair VWSA-DAAD International Chair in Automotive Engineering

<i>Chair (Acting)</i>	Prof T I van Niekerk NH Dip (CDP) (PET), BSc (Elec Eng) (UCT), MTech (IT) (PET), DTech (Elec Eng) (PET), Pr Eng, MSAIIE
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GMSA Chair of Mechatronics

<i>Chair</i>	Prof I A Gorch BSc Mech Eng (Wits), MSc Ind Eng (Wits), PhD Mech Eng (Potch), NH Dip Ed (TWR), PrEng, MSAIIE
<i>Project Engineer</i>	Vacant
<i>Secretary</i>	Ms M Snyders NDip (Tourism) (PET)

MerSETA

<i>Chair</i>	Mr K H du Preez NDip (Mech Eng) (PET), NH Dip (Mech Eng) (PET), MDip Tech (Mech Eng) (PET), Pr Tech Eng, MSAIMechE, MSAIRAC
<i>MerSETA Project Manager</i>	Ms M Naidoo BCom (Eco and BM) (UPE)

Women in Engineering Leadership Association (WELA)

<i>Project Manager</i>	Dr A S Lourens NDip (Prod Mgt) (PET), NH Dip (Prod Mgt) (PET), BTech (Bus Mgt) (PET), MBA (PET), DBA (NMMU), MSAIIE, ASEE
<i>Project Co-ordinator</i>	Ms N Truter NDip (PRM) (NMMU)

eNtsa – Innovation Through Engineering (a Technology Innovation Agency Technology Station)

<i>Director</i>	Prof D G Hattingh NDip (Mech Eng) (PET), NH Dip (Mech Eng) (PET), MDip Tech (Mech Eng) (PET), PhD (Plymouth), Pr Tech Eng, MSAIMechE
<i>Acting Director: Uyilo E-mobility Programme</i>	Mr H Parmar MTech (Elec Eng) (NMMU), SAIEE

Advanced Mechatronics Technology Centre (AMTC)

<i>Director</i>	Mr K H du Preez NDip (Mech Eng) (PET), NH Dip (Mech Eng) (PET), MDip Tech (Mech Eng) (PET), Pr Tech Eng, MSAIMechE, MSAIRAC
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VWSA-DAAD International Chair in Automotive Engineering (Acting)

Prof U Becker Dr. Ing. Automotive (Univ Rostock, Germany)

VWSA-DAAD Project Co-ordinator

Ms L Stowman BTech (PRM) (NMMU)

MerSETA Project Manager

Ms M Naidoo BCom (Econ and BM) (UPE)

AMTC SLP Programmes and Operations Manager

Ms E Marx NDip (NMMU), BTech (PRM) (NMMU)

Marine Engineering Project Co-ordinator

Ms P Hobongwana NDip (HRM) (NMMU)

Marine Engineering Project Manager

Mr H Theunissen NDip (Mech Eng) (PET), BTech (Mech Eng) (PET), MTech (Mech Eng) (PET), Pr Tech Eng

Marine Engineering Project Developer and Lecturer

Mr S Giannotti Ch. Eng. Class 1 Chief Engineer CoC STCW 111/2

Marine Lecturer Automation And Electrical

Mr J Fernandes BTech (Elec Eng) (NMMU), M Eng (Mechatronics), Candidate PR Tech Eng

<i>Marine Engineering Lecturer</i>	Mr B Douse (AMRINA), MSc Naval Architecture (Univ of South Hampton), BTech (Mech Eng) (NMMU)
<i>Naval Architecture</i>	
<i>Administrative Assistant</i>	Ms J Daya

STEM in Action

<i>Programme Manager</i>	Ms I van Gend BSc, HDE (UNISA)
<i>Operations Manager</i>	Ms T Roberts BSc, PGCE
<i>Lecturers</i>	Ms V Campbell BSc, PGCE (RU) Mr M Sonnekus MSc (Botany) (NMMU)
<i>Administrative Support</i>	Ms V Koenatie BA (Tourism) (UWC)
<i>Project Co-ordinator</i>	Mr J P Stoffberg BTech (PRM) (NMMU)
<i>Interns</i>	Mr C Mukasvanga MSc (Chemistry) (NMMU) Mr T Mjungulu

Wind Energy Research Group (WERG)

<i>Manager</i>	Prof R L Phillips NDip (Mech Eng) (PET), NH Dip (Mech Eng) (PET), MDip Tech (Mech Eng) (PET), DTech (Mech Eng) (NMMU), Reg Eng Tech, MSAIMechE
<i>MerSETA Chair Industry Project Co-ordinator</i>	Dr S Poole PhD (Mech Eng) (NMMU)
<i>Administrative Assistant</i>	Ms J Daya

SCHOOL OF THE BUILT ENVIRONMENT

<i>Director of School</i>	Prof W M W Shakantu BSc (Building) (Copperbelt), MSc (CM) (Reading), PhD (CM) (Glasgow Caledonian), Pr.CM (SACPCMP), MCIOB (UK), AEIZ (Zambia), MSIZ (Zambia)
<i>Secretary</i>	Ms N Sam NDip (Office Mgt and Tech) (PET)
<i>Postgraduate Programmes Co-ordinator</i>	Mr T Quinn BSc (CS) (NMMU), BScHons (CM) (NMMU)

Department of Building and Human Settlement Development

<i>Head of Department</i>	Dr F L Geminiani N Dip (Constr Supervision) (PET), HED Technical (UNISA), NHD (Constr Supervision) (PET), MDip Tech (CM) (PET), DTech (CM) (NMMU), Pr CPM, AMISM, SACPCMP
<i>Professor</i>	Prof S L Mbanga B Admin (UNISA), PGCert in Housing Policy Management (Wits), MPA <i>Cum Laude</i> (NMMU), PhD (Admin) (NMMU) SAAPAM, GISSA, SAPI, AAPS, SAMEA
<i>Principal Lecturer</i>	Mr D Vosloo BBuild Arts (UPE), BSc (QS) (UPE), MSc (BE) (UPE), PrQS, PMAQS
<i>Senior Lecturer</i>	Mr J P Bekker NDip (Bldg Surv) (PET), NH Dip (Bldg Surv) (PET), MSc (BE) (UPE), Pr CPM
<i>Lecturers</i>	Ms E Ayesu-Koranteng ND (Bldg), BTech (CM), B Tech (QS), IOSH, MAQS, IoSM Mr W Draai NDip (Bldg Surv) (PET), NH Dip (Bldg Surv) (PET), MDP (UNISA), MSc (BE) (NMMU)

	Mr A Hefer NDip (Forestry) (PET), NDip Bldg (NMMU), BTech CM (NMMU), MSc (BE) (NMMU)
	Mr J Terblanche NDip (Bldg Surv) (PET), NH Dip (Bldg Surv) (PET), Pr CM
<i>Contract Lecturers</i>	Ms TG Beck Dip (CMA) (PET), BTech (CMA), MTech (CMA) (NMMU), Professional Accountant (SA)
	Ms M N De Villiers CEA (Estate Agency Affairs Board), N Cert (Real Estate) (UNISA), Professional Principal Estate Agent
	Ms K Herich BEng (Civil Eng), Dipl.-Ing. (Universität Dortmund), ICIOB
	Dr R E Gerber HED (US), BA Hons (US), BEd (US), MEd <i>cum laude</i> (UFS), D Tech (Ed) (NMMU)
<i>Secretary</i>	Ms N Sam NDip (Office Mgt and Tech) (PET)

Department of Construction Management

<i>Head of Department</i>	Dr B Botha NDip (Bldg) <i>cum laude</i> (PET), BTech (QS) <i>cum laude</i> (PET), BTech (CM) <i>cum laude</i> (PET), MSc BE (UPE), PhD (CM) (NMMU), Pr CPM, MACPM, MESSA, ICIOB
<i>Professor</i>	Prof J J Smallwood BSc (BM) (UPE), MSc (CM) (UPE), PhD (CM) (UPE), Pr CM, Pr CHSA, FCIOB, MACHASM, MACPM, MESSA, MICOH, MIOSH, MIOSM, MSAIOSH, PPSAIB
<i>Lecturers</i>	Mr C Allen BBdgA (UPE), MSc (BE) (NMMU), PrCM, MCIOB
	Ms K Crafford BEng (Civil Eng), Dipl.-Ing. (Universität Dortmund), ICIOB
<i>Secretary</i>	Mrs M Botes

Department of Quantity Surveying

<i>Head of Department</i>	Mr R C Cumberlege BSc (QS) (UPE), MSc (CE) (NMMU), PrQS, PMAQS, MRICS
<i>Professor</i>	Prof N S Buys BBuild Arts (UPE), BSc (QS) (UPE), MSc (QS) (UPE), PhD (CE) (UPE), PrQS, PMAQS, MRICS
<i>Associate Professor</i>	Prof G J Crafford BSc (QS) (UPE), MSc (QS) (UPE), PhD (CE) (NMMU), MBA (US), ICIOB, MAQS, M.Inst.D
<i>Lecturers</i>	Ms S Dent BSc (QS) (UPE), MSc (CE), MAQS
	Mr J M Slabber BSc (QS) (UPE), PrQS, MAQS, MRICS
<i>Contract Lecturers</i>	Mr M Bakker NDip: Real Estate (Property Valuation), Professional Valuer, Professional Practitioner in Real Estate
<i>Laboratory Technician</i>	Mr J P van der Mescht NDip: Building (NMMU), BTech (QS) (NMMU), BTech (CM) (NMMU)
<i>Secretary</i>	Ms L Engelbrecht

REGISTERED ENTITIES**Built Environment Research Centre (hosting the CIDB Centre of Excellence) (BERC)**

Director Prof W M W Shakantu BSc (Building) (Copperbelt), MSc (CM) (Reading), PhD (CM) (Glasgow Caledonian), Pr.CM (SACPCMP), MCI0B (UK), AEIZ (Zambia), MSIZ (Zambia)

Chair for Education in Human Settlement Development and Management (CEHSDM)

Associate Professor Prof S L Mbanga B Admin (UNISA), PGCert in Housing Policy Management (Wits), MPA *Cum Laude* (NMMU), PhD (Admin) (NMMU) SAAPAM, GISSA, SAPI, AAPS, SAMEA

Chair Administrator Ms N Maswana NDip (PRM) (NMMU), BTech (PRM) (NMMU), BA Hons (Group Dynamics) (NMMU)

Administrative Assistant Mr B Mafuya NDip (Economics) (NMMU)

Stakeholder Relations Mr A Best Dip Bus Compt (IT) (Damelin), Cert Programme TQM (UNISA), Cert Programme Project Mgt (Stellenbosch), B Admin Hons (UFH), AIMFO

Senior Lecturer Ms N Wessels BSc TRP (Wits), M Env Mgt (Stellenbosch)

Special Professionalisation Projects Ms A de Lange B Arch *cum laude* (UP), Pr.Arch (SACAP)

Continuous Professional Development Projects Dr B Botha NDip (Bldg) *cum laude* (PET), BTech (QS) *cum laude* (PET), BTech (CM) *cum laude* (PET), MSc (BE) (UPE), PhD (CM) (NMMU), Pr CPM, MACPM, MESSA, ICIOB

Short Learning Programmes Mr L Mxube NDip (Public Management) (PET), BTech (Public Management) (PET)

SCHOOL OF INFORMATION AND COMMUNICATION TECHNOLOGY

Director of School Dr A Petratos NDip (Comp Dat Proc) (PET), NH Dip (Computer Systems) (PET), MDip Tech (IT) (PET), PhD IT (NMMU)

Secretaries Ms F Foutie NDip (PR) (NMMU), BTech (PRM) (NMMU)

Ms V S Ntungela BA (Tourism) (UWC)

Department of Applied Informatics

Head of Department Ms A du Preez BCom (Ed) (UPE)

Senior Lecturer Mr M Thomson NDip Electr Data Proc (PET), NH Dip Computer Systems (PET), MTech IT (PET)

Lecturer Mr R G Leppan BSc (UPE), BSc (Hons) (UPE), MSc (NMMU), PGCHE (NMMU)

Associate Lecturers Mr A Ndzondzo NDip (IT) (NMMU), BTech (IT) (NMMU)

Ms S Salie NDip (IT) (PET), BTech (IT) (PET)

Mr L Tekeni NDip (IT) (NMMU), BTech (IT) (NMMU)

	Mr X Zepe NDip (IT) (NMMU), BTech (IT) (NMMU)
<i>Laboratory Technicians</i>	Mr E Sekanwagi NDip (IT) (NMMU)
	Ms L Vincent NDip (IT) (PET)

Department of Information Technology

<i>Head of Department</i>	Ms K A Church BSc (UPE), BScHons (UPE), MSc (UPE), PMIITPSA
<i>Emeritus Distinguished Professor</i>	Prof R von Solms HDE (UPE), NH Dip (Electr Data Proc) (PET), BSc (UPE), BSc (Hons) (UNISA), MSc (RAU), PhD (RAU), PMIITPSA, CISM
<i>Professors</i>	Prof R A Botha BSc (UPE), BScHons (UPE), MSc (RAU), PhD (RAU), PGCHE (NMMU), MIITPSA
	Prof D van Greunen HDE (UPE), FDE (UPE), BAHons (UPE), MA (UPE), PhD (UNISA), PMIITPSA, MICSIT
<i>Associate Professors</i>	Prof L Futchter HED (UNISA), BSc (UPE), BTech (IT) (PET), MTech (IT) (NMMU), PhD (IT) (NMMU)
	Prof M Gerber NDip (IT) (PET), BTech (IT) (PET), MTech (IT) (PET), PhD (NMMU), CISM
	Prof N Mostert-Phipps NDip IT (PET), BTech IT (PET), MTech IT (NMMU), PGCHE (NMMU), PhD IT (NMMU)
	Prof K-L Thompson NDip (IT) (PET), BTech (IT) (PET), MTech (IT) (PET), DTech (IT) (NMMU)
<i>Senior Lecturers</i>	Mr R G Harmse BCom (UPE), BTech (IT) (PET), BA Hons (Psychology) <i>cum laude</i> (NMMU), MTech (IT) (PET)
	Ms C H Schröder NH Dip (Comp Systems) (PET), BSc (UPE), MTech (IT) (PET)
<i>Lecturers</i>	Mr L Feyt BCom (CS&IS) (NMMU), BComHons (CS&IS) (NMMU)
	Dr B Haskins NDip IT (TFS), BTech (CUT, FS), MTech IT (CUT, FS), PhD (IT) (NMMU)
	Mr A Kayode Adesemowo MSc (UWC), C Eng (UK), CISM, CISSP, Print2 Practitioner, CCNA (Security), MCSE (Cloud)
	Dr M Makalima NDip (IT) (NMMU), BTech (IT) (NMMU), MTech (IT) (NMMU), PhD (IT) (NMMU)
	Ms Y Moutzouris NDip (IT) (PET), BTech (IT) (PET), MTech (IT) (PET)
	Mr D L Steenberg BCom IT (Potch), BCom (Hons) (Potch), MTech BIS (NMMU)
	Mr S Vincent NDip (IT) (PET), BTech (IT) (TSA)
<i>Senior Laboratory Technician</i>	Mr D P Müller NDip (IT) (PET), BTech (IT) (NMMU)
<i>Laboratory Technician</i>	Ms T Campher NDip (IT) (NMMU), BTech (IT) (NMMU)

REGISTERED ENTITIES

Centre for Community Technologies (CCT)

<i>Director</i>	Prof D van Greunen HDE (UPE), FDE (UPE), BAHons (UPE), MA (UPE), PhD (UNISA), PMIITPSA, MICSIT
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Centre for Research in Information and Cyber Security (CRICS)*Director*

Prof R A Botha BSc (UPE), BScHons (UPE), MSc (RAU), PhD (RAU), PGCHE (NMMU), MIITPSA

Southern Africa Cisco Academy Support Centre*Manager/Lecturer*

Mr G Kudyachete B Eng. (Electronics) Hons. (N.U.S.T., Zim), MSc.Tel. (University of Pittsburgh, USA), MBA (NMMU)

3 GENERAL INFORMATION AND REGULATIONS

Every student of this Faculty is also bound by Nelson Mandela University's regulations as contained in the General Prospectus. The Dean of the Faculty may take disciplinary action in the event of contravention of departmental and general regulations. **It is the responsibility of every student to acquaint him/herself with the contents of the General Prospectus.**

3.1 PROFESSIONAL STATUS AND RECOGNITION OF DEGREES

SCHOOL OF THE BUILT ENVIRONMENT

The School consists of the Departments of Construction Management, Building & Human Settlement Development, and Quantity Surveying. The School offers various undergraduate and postgraduate study opportunities in the fields related to the construction and property environment, such as project management, facilities management, construction management, construction health and safety management, property economics and valuation, as well as programmes that develop the organisational and analytical skills, business management and research competencies relevant to the quantity surveying profession.

The School's programmes are highly acclaimed and received national and international accreditation. Quantity Surveying degrees and Building Diplomas from Nelson Mandela University are accredited by the South African Council for the Quantity Surveying Profession. The Quantity Surveying degrees are also accredited by the Royal Institution of Chartered Surveyors in the UK. The Construction Management qualifications are accredited by the Chartered Institute of Building (UK), which is endorsed by the South African Council for the Project and Construction Management Professions (SACPCMP).

Institutes and professional bodies:

ACPM	Association for Construction Project Managers
ASAQS	Association of South African Quantity Surveyors
CIOB (Africa)	Chartered Institute of Building (Africa)
ESSA	Ergonomics Society of South Africa
ISM	Institute of Safety Management
RICS	Royal Institution of Chartered Surveyors
SACPCMP	South African Council for the Project and Construction Management Professions
SACQSP	South African Council for the Quantity Surveying Profession

The programmes offered in the School are accredited by or affiliated to the following professional bodies:

Accreditation	Affiliation
SA Council for the Quantity Surveying Profession (SACQSP)	Institute of Safety Management (ISM)
Royal Institution of Chartered Surveyors (RICS)	Ergonomics Society of South Africa (ESSA)
Chartered Institute of Building (CIOB)	Association for Construction Project

Accreditation	Affiliation
(Africa) SA Council for the Project & Construction Management Professions (SACPCMP)	Managers (ACPM) The Association of South African Quantity Surveyors (ASAQS)

SCHOOL OF ENGINEERING

The School of Engineering offers a continuum of academic programmes including National Diplomas, Bachelor, Master's and Doctoral degrees. Aspects of basic science, engineering science and mathematics are integrated with applied technologies in the respective fields to ensure well balanced qualifications to ensure maximum employability and to serve the needs of industry. The teaching, learning and research experience is enriched by practical and research work in excellent laboratories and active engagement with local, national and international universities.

The abovementioned programmes are offered in the full spectrum of engineering activities including Civil, Industrial, Electrical and Mechanical Engineering as well as Mechatronics and Operations Management. The relevance and quality of the programmes offered are closely managed with Advisory Board participation and regular self-evaluation. External accreditation by the Engineering Council of South Africa (ECSA) on behalf of the Higher Education Quality Committee (HEQC) further ensures quality and international standards via the Sidney, Washington and Dublin accords.

Engineering is best defined by five distinguishing characteristics.

First, it encompasses initiatives, services and the solution of problems that are of importance to society and the economy.

Second, engineering activity brings benefits through effectively and sustainably utilising natural resources, harnessing energy, using materials with beneficial properties, using machinery and equipment, transferring, storing and processing information, constructing, operating and maintaining infrastructure and plant, and the organisation and control of systems or processes. These actions involve risks, requiring engineering activity to be conducted with due care for safety, health, the environment and sustainability.

Third, engineering functions include designing materials, components, systems or processes; planning the capacity and location of infrastructure; investigating, advising and reporting on engineering problems; improvement of materials, components, systems or processes; managing or operating plant and processes; managing implementation or construction projects; implementing designs or solutions; research, development and commercialisation of products.

Fourth, engineering activity requires a body of knowledge and distinctive competencies. The body of knowledge is based on mathematics, basic sciences, engineering sciences, information technology and contextual knowledge including legal, financial and regulatory aspects. Distinctive competencies include identifying problems and designing solutions, managing activities, addressing impacts of solutions and activities on people and the environment, acting ethically, applying judgment and taking responsibility.

Fifth, the practice of engineering activities at professional level involves a number of roles, recognized in categories of registration under the Engineering Profession Act:

- Professional Engineer,
- Professional Engineering Technologist,

- Professional Engineering Technician, and
- Professional Certificated Engineer.

These form the engineering professional team.

WHAT ARE THE CHARACTERISTIC ROLES OF ENGINEERING TEAM MEMBERS?

Professional Engineers are characterised by the ability to solve problems, develop components, systems, services and processes through creativity, innovation and the application of fundamental and engineering principles.

They provide technical and commercial leadership through well-developed interpersonal skills. They work independently and responsibly, applying original thought and judgment to technical and risk-based decisions in complex situations. Professional Engineers have a broad, fundamentals-based appreciation of engineering sciences, with depth in specific areas, together with knowledge of financial, commercial, legal, social and health, safety and environmental matters. Professional Engineering Technologists are characterised by the ability to apply established and newly-developed engineering technology to solve problems, develop components, systems, services and processes.

They provide leadership in the application of technology and commercially and have well-developed interpersonal skills. They work independently and responsibly, applying judgment to decisions on the application of technology to problems and associated risks.

Professional Engineering Technologists have a focused understanding of engineering sciences underlying specific technologies, and financial, commercial, legal, social and health, safety and environmental matters.

Professional Engineering Technicians are characterized by the ability to apply proven, commonly understood techniques, procedures, practices and codes in support of engineering activities. They supervise engineering operations, construction and activities. They work independently and responsibly within an allocated area or under guidance of an engineer or technologist. Professional Engineering Technicians have a working understanding of engineering sciences underlying the techniques used, together with financial, legal and health, safety and environmental methodologies.

Professional Certificated Engineers apply current engineering technology and knowledge of health and safety legislation and practise creatively and innovatively to safe, effective operations in manufacturing and mining. They provide leadership in safe, technically and commercially effective operations and have well-developed management skills.

They work independently and responsibly, applying judgment to decisions arising in the application of technology and health and safety considerations. Professional Certificated Engineers have a focused understanding of engineering sciences underlying a manufacturing or mining plant and operations, together with financial, commercial, legal, social and health, safety and environmental matters.

HOW ARE ENGINEERING PROFESSIONALS DEVELOPED?

The process of professional development in engineering has three principal phases. First, engineering education leads to a qualification accredited for the category of registration. Meeting educational requirements is called Stage 1 of professional development.

Second, training and experience while employed develops the professional competencies to Stage 2, where the person becomes professionally registered. Demonstration of competency at Stage 2 is based on actual performance of engineering work.

Third, once registered, the professional must maintain and expand his or her competence.

This and other information is available at: <http://www.ecsa.co.za>.

After obtaining the Diploma or higher qualifications, students may join a number of institutes and professional bodies which will add additional status to their qualifications. More information is available from the Dean and the faculty website.

Table of institutes and professional bodies:

ICMEESA	Institution of Certified Mechanical & Electrical Engineers, SA
ILESA	Institute of Lighting Engineers of South Africa
IPET	Institute of Professional Engineering Technologists
SAACE	South African Association of Consulting Engineers
SAICE	South African Institute of Civil Engineering
SAIEE	South African Institute of Electrical Engineers
SAIETE	South African Institute of Electrical Technician Engineers
SAIIE	South African Institute of Industrial Engineers
SAIMC	South African Institute of Measurement and Control
SAIMechE	South African Institute of Mechanical Engineering
SAINT	South African Institute of Non-Destructive Testing
SAIRAC	South African Institute of Refrigeration and Air-conditioning
SAIW	South African Institute of Welding
SAWEK	Suid-Afrikaanse Akademie vir Wetenskap en Kuns: Ingenieursafdeling
SPE	South African Society for Professional Engineers
ECSA	Engineering Council of South Africa (Professional Registration Body for South Africa)

SCHOOL OF INFORMATION AND COMMUNICATION TECHNOLOGY

The School of ICT consists of two Departments, namely Information Technology and Applied Informatics. These Departments collectively offer an extensive range of undergraduate and postgraduate programmes in the computing discipline of Information Technology, which is endorsed by the Higher Education Information and Communication Technology Association (HEICTA). The vision of the School is to be the leading provider of state of the art Information and Communication Technology expertise in South Africa. The undergraduate programmes are designed to give students an adequate grounding in the fundamental principles underlying their chosen field of study, while at the same time emphasising the practical and applied nature of the subject matter. The School of ICT has a wide reach in terms of access to tertiary education for those interested in this field of study. It includes a Higher Certificate, three different diploma streams as well as a BIT. Students can also further their studies in BTech (last intake 2019), MIT and PhD IT.

A significant portion of the tuition time is spent in our modern, well-equipped computer laboratories. Students are prepared for an interesting and rewarding career.

At postgraduate level, students can specialise in various research focus areas including Information Security Management and Governance, Health Informatics, Usability and User Experience and ICT4D and other areas. The Centre for Research in Cyber Security (CRICS) and the Centre for Community Technologies (CCT), which form part of the School, leads the School's postgraduate research programmes in these areas.

3.2 DISTINGUISHED SCHOLARS IN THE FACULTY

2017

Faculty Researcher of the Year: Prof J Smallwood

Faculty Emerging Researcher of the Year: Mr C Allen

Faculty Excellent Teacher: Mr G Phillips

3.3 SPECIAL PRIZES AND AWARDS

SCHOOL OF THE BUILT ENVIRONMENT

There are several prizes for which students may compete and numerous other bursaries which are awarded annually. Merit awards are allocated to deserving students. The following prizes which may be awarded annually are offered to students for academic achievement:

Donors	Prize awarded for
Ace Solutions	Best student in Information Technology 4.
ASAQS (EC Chapter) and ASAQS	Best student in Quantity Surveying I. Best student in Quantity Surveying II. Best student in Quantity Surveying III. Best student in Quantity Surveying IV.
ASAQS	Best overall first-year student. Best overall second-year student. Best overall third-year student. Best overall fourth-year student.
Association of Construction Project Managers (ACPM)	Best Construction Management student who has shown excellence in application to his/her studies.
Association of Construction Project Managers (ACPM)	Construction Management student who has shown determination in maintaining a good standard in his/her studies.
Bell-John Prize ASAQS	Best all-round Quantity Surveying student in any year of study.
Brink Botha Enterprises	Best Construction Management student with the highest overall mark in any year of study.
BTKM	Best fourth-year Quantity Surveying student. Student with the highest mark in Quantities 3.
Chris & Gillian Adendorff	Best Professional Practice 4 student.
CIOB	Best student in Construction Management 4.

Donors	Prize awarded for
CIOB	Best Masters in Project Management student for attaining the highest overall mark MSc (PM)
Clay Brick Association	Best Construction Management student over three years of study in the subject Production Analysis.
Clay Brick Association	Best Construction Management 3 student.
Clay Brick Association	Best Construction Management 4 student.
Concrete Society of SA (EC Branch)	Student with highest mark in Structures and Concrete III.
Décor Pro	Student with the highest mark in Construction Management I.
Dekon Projects (Pty) Ltd	Student with the highest mark in Construction Technology II.
Department of Building and Human Settlement Development	Student with highest mark in Construction Management II.
Departmental Prize	Best Construction Management Treatise 4 student.
Departmental Prize	Best student in Building Science (Materials and Methods) 3.
Dimitri Zenios Property Developers	Best Construction Management student in Property Economics 4.
East Cape MBA	Best National Diploma: Building student.
First National Bank	Best student in Building Science (Materials and Methods) 1.
First National Bank	Best student in Building Science (Materials and Methods) 2.
First National Bank	Best student in Building Science (Environment and Services) 1.
First National Bank	Best student in Building Science (Environment and Services) 2.
First National Bank	Best student in Building Science (Environment and Services) 3.
First National Bank	Best Basic Surveying 1 student.
First National Bank	Best Information Technology for Building Disciplines 1 student.
Greyvensteins Attorneys	Best student in combined subjects: Company Law and Commercial Law 4.
Head of Department: Quantity Surveying	Best Student in Building Economics 4.
JBCC	Student with the highest mark in Quantity Surveying 3.
JCB Toy Prize	Best Project Management 4 student.
Kemach Cape (Pty) Ltd	Best BSc (CS) and BSc Hons (CM) student over 4 years of study.
Letchmiah Daya Mandindi (LDM)	Student with the highest mark in Quantities 2. Student with the highest mark in Quantities 4. Student with the highest mark in Building Economics 4.

Donors	Prize awarded for
LIEBHERR – Africa (Pty) Ltd	Awarded to a BSc (CS) or BSc Hons (CM) student who obtains his/her degree <i>cum laude</i>
Master Builders Association	Best Construction Management student with the highest overall mark in any year of study.
MBA (EC)	Best overall student in Construction Management in any year of study BSc (CM)
NMC (Pty) Ltd	Best Production Analysis 1 student.
NMC (Pty) Ltd	Best Production Analysis 2 student.
NMC (Pty) Ltd	Best Production Analysis 3 student.
NMC (Pty) Ltd	Student with the highest mark in Quantity Surveying 2.
NMC (Pty) Ltd	Student with the highest mark in Quantity Surveying 4.
NMC (Pty) Ltd	Student with the highest mark in Building Economics 3.
Randcivils	Best all-round female undergraduate Quantity Surveying student.
Red Hat Construction	Best first-year Building student. Best third-year Building student.
Rhino Greenbuilding (division of Rhino Plastics)	Best Quantity Surveying student over three years of study in Building Science (Materials and Methods).
Rhino Greenbuilding (division of Rhino Plastics)	Best Construction Management student over three years of study in Building Science (Materials and Methods).
Rousseau Probert Elliot	Outstanding Treatise which contributes to progressive and innovative approach to Quantity Surveying.
Sondor Industries Ltd	Student with highest mark in Construction Technology I.
South African Institute of Steel Construction (SAISC)	Best Building Science (Structures) student over three years of study.
South African Institute of Steel Construction (SAISC)	Best Building Economics 2 student.
Stanley Warren Prize	Student with the highest mark in Quantities 1.
Studio D'Arch Architects	Best Building Science (Environment and Services) 3 student.
Strydom Basson and Tait (Pty) Ltd	Best second-year Building student.
The Elilox Group (Pty) Ltd	Best Masters in Project Management student for attaining the highest overall mark MSc (PM)
Universal Equipment	Best Building Science (Materials and Methods) student over three years of study.
Universal Equipment	Best Building Science (Materials and Methods) 4 student.
Wiehahn Formwork and Scaffolding	Student with the highest mark in Construction Technology III.
Wiley-Blackwell	Best Building Science (Structures) 1 student.
Wiley-Blackwell	Best Building Science (Structures) 2 student.
Wiley-Blackwell	Best Building Science (Structures) 3 student.

SCHOOL OF ENGINEERING

There are several prizes for which students may compete and numerous other bursaries which are awarded annually.

Merit awards are allocated to deserving students. The following prizes, which may be awarded annually, are offered to students for academic achievement:

Donors	Prize awarded for
AECOM SA (Pty) Ltd	Best Water Engineering III student
Aurecon SA (Pty) Ltd	Best S3 Civil Engineering student Best BTech: Civil Engineering student
Bosch Stemele (Pty) Ltd	Best National Diploma: Civil Engineering student
GIBB (Pty) Ltd	Best S1 Civil Engineering student
Hatch Africa (Pty) Ltd	Best National Diploma: Civil Engineering student
Haw & Inglis	Best Surveying I student Best Surveying II student Best Construction Methods I student Best Management: (Civil) II student Best Water Engineering II student
Jeffares & Green (Pty)	Best National Diploma: Civil Engineering student Best Civil Engineering Docs III student Best Civil Engineering Project III group
KCS Consultants	Best BTech Civil Engineering student Best S4 Civil Engineering student
Mott MacDonald Africa (Pty) Ltd	Best BTech: Civil Engineering student
Much Asphalt (Pty) Ltd	Best Geotechnical Engineering II student Best Geotechnical Engineering III student
PPC Cement LTD	Best Construction Materials I student
SAICE (Algoa Branch)	Best S2 Civil Engineering student
SAICE (National Office)	Best National Diploma: Civil Engineering student
South African Roads Federation (EC) - SARF	Best Transportation Engineering II student Best Transportation Engineering III student Best BTech: Transportation Engineering student
The Joint Structural Division of SAICE & IStructE	Best Structural Engineering Design Project student
4G Technology	Best Industrial Project IV Engineering student.
Microchip	Best Digital Electronic Engineering student.
Major Tech	Best Power Systems Engineering student.
Departmental Trophy	Best Electrical Engineering student.
Meterman Digital Multimeters	Top 3 Electrical Engineering Level III students.

Donors	Prize awarded for
FLUKE Digital Multimeters	(Overall) Top 3 Electrical Engineering students.
Cadbury	Best Project in Productivity Level I.
	Best Project in Productivity Level II.
Aberdare Cable	Best N Dip: Industrial Engineering student.
SAIIEE	Best N Dip: Industrial Engineering Honours Roll.
Festo Pneumatics Electronics	Best Pneumatics Control Systems student in Industrial Engineering.
Ford Motors	Best B Tech: Operations Management student.
SABS	Best B Tech: Quality student.
Barlow World Automotive Coatings	Best Industrial Project in Operations Management.
Department of Industrial Engineering	Best B Tech: Industrial Engineering student.
Nelson Mandela University: Mechanical Engineering Department	Best Student: Mechanics I
Nelson Mandela University: Mechanical Engineering Department	Best Student: Mechanical Engineering Drawing I
Nelson Mandela University: Mechanical Engineering Department	Best Student: Engineering Materials and Science I
Nelson Mandela University: Mechanical Engineering Department	Best Student: Fluid Mechanics II
Nelson Mandela University: Mechanical Engineering Department	Best Student: Mechanics of Machines II
Nelson Mandela University: Mechanical Engineering Department	Best Student: Strength of Materials II
Nelson Mandela University: Mechanical Engineering Department	Best Student: Thermodynamics II
Nelson Mandela University: Mechanical Engineering Department Micrographics	Best Student: Fluid Mechanics III
Nelson Mandela University: Mechanical Engineering Department	Best Student: Mechanical Engineering Design II
Nelson Mandela University: Mechanical Engineering Department	Best Student: Strength of Materials III
Nelson Mandela University: Mechanical Engineering Department	Best Student: Thermodynamics III
Nelson Mandela University: Mechanical Engineering Department	Best Student: Applied Strength of Materials III
Nelson Mandela University: Mechanical Engineering Department	Best Student: Hydraulic Machines III
Nelson Mandela University: Mechanical Engineering Department	Best Student: Mechanical Engineering Design III
Nelson Mandela University: Mechanical Engineering Department	Best Student: Steam Plant III

Donors	Prize awarded for
Nelson Mandela University: Mechanical Engineering Department	Best Student with best combined total (MSL4 & MSS4)
Nelson Mandela University: Mechanical Engineering Department	Best Student with best combined total (MTD4 & MTR4)
Nelson Mandela University: Mechanical Engineering Department Micrographics	Best Overall student (MDM4)
Nelson Mandela University: Mechanical Engineering Department eNtsa SAIMECHe	Best National Diploma Student
Nelson Mandela University: Mechanical Engineering Department eNtsa SAIMECHe	Best B-Tech Student
Nelson Mandela University: Mechanical Engineering Department eNtsa SAIMECHe	Best Masters Student

Note: The above prizes are awarded subject to donor availability.

SCHOOL OF INFORMATION AND COMMUNICATION TECHNOLOGY

Special prizes for which students may compete and which are awarded annually for academic achievement in the School of ICT, are listed below. In addition to these prizes, merit awards are allocated to deserving students.

Donors	Prize awarded for
KORBITEC (Pty) Ltd	Top Programming Student.
CISCO Systems	Top Networking Student.
Business Connexion (Pty) Ltd	Top Support Services Student.
The Lydia Palmer Award	Top 3 rd Year Software Development Project
School of ICT	Top Higher Certificate Student. Top First Year IT Student. Top Second Year IT Student. Top IT Diploma Student. Top B Tech IT Graduate.
Executive Dean of the Faculty of Engineering, the Built Environment & Information Technology	The Dean's Award for Academic Accomplishment is given each year to the graduate who had the best diploma/degree performance in the School. The qualification (diploma, degree, honours degree or master's degree) must have been obtained cum laude.

Note: The above prizes are awarded subject to donor availability.

3.4 PART-TIME LECTURES (WHERE APPLICABLE)

Where the day time-table cannot make provision for a module, students may have to attend evening classes.

Any student repeating a module may be required to attend at times other than those scheduled for first attendance students. Lecture periods scheduled for repeating full-time students will be during early evening or normal part-time slots.

It may be decided to offer modules on a part-time basis depending on the demand during the registration period.

3.5 RE-ADMISSION POLICY

The re-admission rule as outlined in the general prospectus will be applied, taking cognisance of the specific modules which have been failed and specific faculty rules or departmental rules.

3.6 EXPERIENTIAL LEARNING REQUIREMENTS (WHERE APPLICABLE)

The experiential period involves the solution of real problems, giving practical experience of the application and usefulness of knowledge gained at Nelson Mandela University. Project work is submitted for academic assessment during the experiential period.

Professionals of any discipline need appropriate work experience before they can practise their chosen career effectively. Experience shows that the integration of theory and in-service/experiential learning creates diplomats who are more mature and hence readily employable.

Work experience encourages students to develop a greater sense of responsibility, place more reliance on their judgement, and find greater meaning in their studies. Students become involved with people from different spheres of life and develop a greater confidence when working as part of a team.

To fulfil the requirements of the National Diploma, a student must complete at least one semester of applicable experiential learning. Guides outlining the requirements for successful completion of experiential learning are obtainable from the Experiential Training Administrator of the Faculty. In each module the student is given projects and/or assignments which must be completed and submitted for evaluation.

It is imperative for students to register for the experiential learning component. This can be done at the beginning of the term or prior to leaving the campus at the end of the preceding term. Special registration forms for this purpose are obtainable from the Experiential Training Administrator of the Faculty.

Although Nelson Mandela University will help as far as possible to arrange, in the final instance, the onus in this respect will be on the student. Many firms sponsor students and in these cases the experiential learning is naturally arranged by the sponsoring firm.

The experiential learning (part 1 and part 2) module, namely, Engineering Practice, is roughly 24 weeks in duration or a minimum of 800 notional hours. The learning differs in that level 1 focuses on developing hand skills by participating in physical work while level 2 requires a much higher level of synthesis, responsibility and accountability, as would be expected of an engineering technician. This, again, would be done under supervision of a mentor, but facilitating some independent work by the student.

IMPORTANT NOTES SPECIFIC TO EXPERIENTIAL LEARNING

The Unit for Co-operative Education & Service Learning provides essential student placement support services to learners who have to complete a compulsory experiential learning component in order to qualify. It specialises in the placement of students' "gaining entry into the workplace".

Students can access services and information on:

- Work-integrated learning opportunities.
- Internships.
- Presentations by companies.
- Bursaries.
- Career Fair.
- Graduate Placement.

Contact Information:

Ms Tracey Dissel
 Manager: North Campus
 R-Block, Room 012
 Tel: +27 (0)41 504 3540
 Fax: +27 (0)41 504 9540
 Email: tracey.dissel@mandela.ac.za

Mr Johan Steyn
 Administrative Assistant: North Campus
 R-Block, Room 011
 Tel: +27 (0)41 504 3506 / 3972
 Fax: +27 (0)41 504 9506
 Email: johan.steyn@mandela.ac.za

Ms Amy Butler
 Co-ordinator: Second Avenue Campus
 Room 125
 Tel: +27 (0)41 504 3751
 Fax: +27 (0)41 504 9751
 Email: amy.butler@mandela.ac.za

Webpage: www.mandela.ac.za/cooped

Facebook: <http://facebook.com/pages/Nelson-Mandela-University-Unit-for-Co-operative-education/116647591744424?created>

- The Head of Department (HOD) is responsible for the guidelines for experiential learning, monitoring, assessment and accrediting the training.
- Detailed guidelines are provided in the Logbook, which is available from the Experiential Training Administrator or an electronic copy may be found on the Internet at www.mandela.ac.za.
- It is the student's responsibility to present and discuss the guidelines in the Logbook with the mentor or applicable company representative prior to engaging in any learning to ensure that the scope of learning proposed by the employer/training institute meets the guidelines in the Logbook.
- The HOD or Experiential Training Administrator may be consulted for any clarifications needed.
- Students must register for experiential learning on commencing their training using the document in appendix A in the Logbook. It may be posted or faxed to the experiential training administrator.
- The student must submit a complete logbook with applicable reports and assessments for each completed experiential learning program, on or before.
- Experiential learning not registered, will not be recognised for the Diploma.
- Students that have completed an apprenticeship or formal learnerships may apply for recognition towards experiential learning units. Please contact the relevant HOD for further information.
- Logbooks must be handed in directly after completion (before 15 August or 17 January).
- Learners can at any time apply for the recognition of experience gained prior to the first enrolment for the qualification at this Institution. For available opportunities, please see the faculty notice boards.

Enquiries: Experiential Training Administrator

Tel: +27(0)41 504 3518 Fax: +27(0)41 504 9518

E-mail:

3.7 GENERAL ADMISSION REQUIREMENTS

Prospective students who **MATRICULATED PRIOR TO 2008** must please contact Nelson Mandela University's Admissions Office to determine their admission requirements.

Tel: 041 5043911

E-mail: admissions@mandela.ac.za

Web: www.mandela.ac.za

- Prospective students will need at least a **National Senior Certificate (NSC)** or equivalent school-leaving certificate for admission to a diploma programme and must ensure that four of their seven subjects are from the designated list for admission to a degree programme.
- If an N3 Certificate was obtained, the N3 results together with the applicant's Grade 12 language results are used.
- Apart from this, there are also specific subject requirements for some qualifications.
- Admission to an undergraduate programme will be further determined by an applicant's Admission Points Score (APS). The APS system is used for allocating point values to your seven NSC subjects (see Table A).
- Applicants who do not meet the general requirements for the APS and/or the specific requirements for admission to a module or programme may be given the opportunity to be assessed on the Access Assessment Battery (AAB).

Applicants must have a minimum APS of 22 in order to apply for a programme at Nelson Mandela University.

- There are limits to the number of students that can be admitted to each programme. Meeting the minimum admission requirements does NOT guarantee acceptance and you may be required to undergo further testing and/or be interviewed. If a programme is full, you may be denied admission even though you meet the minimum requirements.

QUALIFICATION MINIMUM STATUTORY ENTRY REQUIREMENT

- National Higher Certificate: Pass NSC, together with any other university requirements.
- Diploma: Pass NSC with an achievement rating of 3 (40-49%) or better in four subjects, together with any other university requirements.
- Bachelor's Degree: Pass NSC with an achievement rating of 4 (50-59%) or better in four subjects from the designated list, together with any other university requirements.

How to calculate your Admission Points Score (APS)

- The APS system allocates point values to the levels of achievement obtained for your matric subjects.
- Write down your seven NSC subjects and the levels obtained. If you have 8 or more subjects, use Life Orientation + the best six subjects (the six subjects which have the highest level).
- Allocate points according to the table below.
- Add up the number of points you have to calculate your APS.

Table A:

NSC	NSC%	APS	APS %
		8	90-100%
7	80-100%	7	80-89%
6	70-79%	6	70-79%
5	60-69%	5	60-69%
4	50-59%	4	50-59%
3	40-49%	3	40-49%
2	30-39%	2	30-39%
1	0-29%	0	0-29%

3.8 MAXIMUM PERIOD OF STUDY

The following maximum periods of study to be allowed for students:

Full-time: The following maximum periods of study be allowed for full-time students:

Programme Credits	Minimum Period of Study	Maximum Period of Study
120 credits	1 year	2 years
360+ credits	3 years	5 years
480+ credits	4 years	6 years

Full-time Extended Programmes: The following maximum periods of study be allowed for full-time students in extended programmes:

Programme Credits	Minimum Period of Study	Maximum Period of Study
120 credits	2 years	3 years
360+ credits	4 years	6 years
480+ credits	5 years	7 years

Part-time: The following maximum periods of study be used as a guideline for part-time students taking due cognisance of personal circumstances:

Programme Credits*	Minimum Period of Study	Maximum Period of Study
120 credits	2 years	3 years
360+ credits	4 years	7 years

***Note must be taken that the faculty does not have part-time programmes with 480 credits.**

3.9 RE-ADMISSION REQUIREMENTS FOR UNDERGRADUATE PROGRAMMES

Maximum period of study exceeded

In the event that a student exceeded the maximum allowable period of study, the student will only be readmitted under special circumstances (e.g. when the student, with due consideration of his/her academic record, is likely to complete his/her qualification by the end of the year).

Re-admission Rules: Higher Certificate Programmes

Period	Total Credits Passed	Outcome
After one year	30 credits or more	Students can register for outstanding modules; all outstanding modules must be passed in second year of registration for qualification.*
	Less than 30 credits	Re-admission denied.**
After two years	Less than 120 credits	Re-admission denied.**

* Students should note that they can only continue with 2nd semester modules if the pre-requisite 1st semester modules have been passed.

** An appeal process is in place for students who have been denied re-admission. Students would also be referred to Student Counselling for assistance and advice on career decisions and study methods.

Re-admission Rules: Extended Diploma

Period	Total Credits Passed	Outcome
After one year	30 credits and more	Students are allowed to continue.
	Less than 30 credits	Re-admission denied.*
After two years	Passed all first-year modules	Students are allowed to continue.
	All first-year modules have not been passed	Re-admission denied.*
After six semesters	192 credits and more	Students are allowed to continue

Period	Total Credits Passed	Outcome
	144-191 credits	Students may only register for the next semester. To be re-admitted again, they must have passed at least 80% of their registered credits.
	Less than 144 credits	Re-admission denied.*
After eight semesters	240 credits and more	Students are allowed to continue.
	192 – 239 credits	Students may only register for the next semester. To be re-admitted again, they must have passed at least 80% of their registered credits.
	Less than 192 credits	Re-admission denied.*
After ten semesters	Less than 240 credits	Re-admission denied.*
	240 credits and more	Only final-year students would be considered.
After twelve semesters		Only special circumstances will be considered.

* An appeal process is in place for students who have been denied re-admission. Students would also be referred to Student Counselling for assistance and advice on career decisions and study methods.

Re-admission Rules for Full-Time Undergraduate Programmes:

a) Diploma Programmes in the Schools of the Built Environment (BE) and Information Communication Technology (ICT)

b) All Undergraduate Degree Programmes in the Faculty

Period	Total Credits Passed	Outcome
After one year	72 credits and more	Students are allowed to continue.
	40 -71 credits	Conditions may be set.
	Less than 40 credits	Re-admission denied.*
After two years	120 credits and more	Students are allowed to continue.
	100 - 119 credits	Year modules: Progress will be reviewed at end of first semester; students may be requested to cancel registration should progress be deemed unsatisfactory. Semester modules: Students will be allowed to register for first semester only; must pass at least 80% of registered credits to continue in second semester.
	Less than 100 credits	Re-admission denied.*
After three years	192 credits and more	Students are allowed to continue.
	144-191 credits	Year modules: Progress will be reviewed at end of first semester; students may be requested to cancel registration should progress be deemed unsatisfactory.

Period	Total Credits Passed	Outcome
		Semester modules: Students will be allowed to register for first semester only; must pass at least 80% of registered credits to continue in second semester.
	Less than 144 credits	Re-admission denied.*
After four years	280 credits and more	Students are allowed to continue.
	240-279 credits	Year modules: Progress will be reviewed at end of first semester; students may be requested to cancel registration should progress be deemed unsatisfactory. Semester modules: Students will be allowed to register for first semester only; must pass at least 80% of registered credits to continue in second semester.
	0-239 credits	Re-admission denied.* Apply individual consideration for final-year students who should not be denied re-admission.
After five years (three-year programme)		Only final-year students would be considered by applying individual consideration.
After five years (four-year programme)	400 credits and more	Students are allowed to continue.
	360-399	Students will be allowed to register for first semester only; must pass at least 80% of registered credits to continue in second semester.
	0-359 credits	Re-admission denied.* Apply individual consideration for final-year students who should not be denied re-admission.
After six years (four-year programme)		Only final-year students would be considered by applying individual consideration.

* An appeal process is in place for students who have been denied re-admission. Students would also be referred to Student Counselling for assistance and advice on career options.

Note: Students shall generally only be admitted to the third year of study after having completed all modules prescribed for the first year of study.

Re-admission Rules: Diploma Programmes in the School of Engineering (Semester Programmes)

Period	Total credits passed	Outcome
After one semester	30 credits and more	Students are allowed to continue.
	Less than 30 credits	Registration in semester two will be conditional.
After two semesters	60 credits and more	Students are allowed to continue.
	Less than 60 credits	Re-admission denied.*
After four semesters (2 years)	120 credits and more	Students are allowed to continue.
	100-119 credits	Students may only register for the next semester. To be re-admitted again, they must have passed at least 80% of their registered credits.
	Less than 100 credits	Re-admission denied.*
After six semesters (3 years)	192 credits and more	Students are allowed to continue.
	144-191 credits	Students may only register for the next semester. To be re-admitted again, they must have passed at least 80% of their registered credits.
	Less than 144 credits	Re-admission denied.*
After eight semesters (4 years)	240 credits and more	Final-year students are allowed to continue.
	Less than 240 credits and non-final year students	Apply individual consideration; final-year students should not be denied re-admission.
After ten semesters		Only final-year students would be considered.

* An appeal process is in place for students who have been denied re-admission. Students would also be referred to Student Counselling for assistance and advice on career options.

Note: Students shall generally only be admitted to the third year of study after having completed all modules prescribed for the first year of study.

Re-admission Rules: Part-Time Students**Re-admission Rules: Diploma Programmes in the School of Engineering (National Diploma in Engineering: Operations Management)**

Period	Total credits passed	Outcome
After one year	60 credits and more	Students are allowed to continue.
	Less than 60 credits	None.
After two years	90 credits and more	Students are allowed to continue.
	Less than 60 credits	Re-admission denied.*
After three years	135 credits and more	Students are allowed to continue.
	Less than 90 credits	Re-admission denied.*
After four years	180 credits and more	Students are allowed to continue.
	179-140 credits	Students may only register for the next semester. To be re-admitted

Period	Total credits passed	Outcome
		again, they must have passed at least 80% of their registered credits.
	Less than 140 credits	Re-admission denied.*
After five years	225 credits and more	Students are allowed to continue.
	190-224 credits	Students may only register for the next semester. To be re-admitted again, they must have passed at least 80% of their registered credits.
	Less than 190 credits	Re-admission denied.*
After six years	270 credits and more	Students are allowed to continue.
	240-269 credits	Students may only register for the next semester. To be re-admitted again, they must have passed at least 80% of their registered credits.
	Less than 240 credits	Re-admission denied.*
After seven years	315 credits and more	Students are allowed to continue.
	288 – 314	Students may only register for the next semester. To be re-admitted again, they must have passed at least 80% of their registered credits.
	Less than 288 credits	Re-admission denied.*
After eight years		Only final-year students would be considered.

* An appeal process is in place for students who have been denied re-admission. Students would also be referred to Student Counselling for assistance and advice on career options.

3.10 STATEMENT ON THE UNIVERSITY'S INTERVENTION IN THE EVENT OF POSSIBLE DISRUPTIONS TO ACADEMIC ACTIVITIES

From past experience the University knows that circumstances beyond our control may disrupt our academic activities. The University therefore reserves the right to implement certain emergency measures when deemed necessary to manage such situations. Please note that the University shall not be held liable for any inconvenience, damage or other negative consequence resulting from the implementation of such emergency measures.

**4 NATIONAL DIPLOMA (ENGINEERING: ELECTRICAL) (EXTENDED):
FULL-TIME
(QUALIFICATION CODE: 3369 – 07)
(NQF LEVEL: 6, TOTAL NQF CREDITS FOR QUALIFICATION: 396)
(NO NEW INTAKE)**

ADMISSION REQUIREMENTS

- Minimum NSC requirements for diploma entry must be met. In exceptional cases candidates who do not meet the statutory requirements for admission to a diploma, but perform satisfactorily in the Nelson Mandela University Access Assessment Battery, will be considered for Senate's discretion admission.
- English, Afrikaans or isiXhosa (home language or first additional language) on at least level 3 (40-49%).
- NSC achievement rating of at least 3 (40-49%) for Mathematics.
- NSC achievement rating of at least 3 (40-49%) for Physical Science.
- Candidates must perform satisfactorily in the Nelson Mandela University Access Assessment Battery.
- Only applicants with an Admission Points Score between 26 and 33 may be referred to write the Access Assessment Battery before a decision is made on whether or not to admit the applicant to the course.

Final year for admission

The final year for new admission into this programme was 2017.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2023.

Recommended NCV Subjects

The National Certificate Vocational Level 4 with the following minimum pass mark in the following subjects:

- 50% in the three Fundamental subjects: English, Mathematics, Life Orientation; and
- 50% in the Compulsory subject Physical Sciences; and
- 50% in any two other Compulsory subjects.

Purpose Statement

Persons achieving this qualification will be competent to apply engineering principles and well-defined problem-solving techniques in the field of electrical engineering by operating within relevant standards and codes.

Qualification objectives

The qualified diplomat must be able to:

- demonstrate the ability to apply theory and practical hand skills in electrical engineering activities and applications;
- install, assemble, commission and maintain electrical engineering equipment or functions within applicable standards and codes of practice;
- apply technical knowledge and analytical skills to diagnose problems in electrical equipment or systems and develop appropriate solutions;
- demonstrate the ability to apply the principles of entrepreneurship when developing design solutions to engineering problems;
- plan and supervise tasks and projects considering all the appropriate technical and non-technical aspects;

- act independently and/or in a team, under supervision and, where appropriate, exhibit professional integrity.
- communicate effectively;
- register with ECSA as a Candidate Professional Engineering Technician in the field of Electrical Engineering.

APPLICABLE RULES

Re-admission Policy

- Candidates shall only be permitted to register for any modules in the second year of study if they have passed all the modules prescribed in the first year of study.
- Candidates must have passed at least 50% of the credits prescribed in the first year of study in order to be allowed to re-register for the programme.
- Candidates who have not completed all the foundational modules in the programme after two (2) years of full-time study will not be allowed to re-register for the programme.
- Please refer to the section regarding Re-admission Requirements for Undergraduate Programmes under General Admission Requirements.
- That only one (1) registration (intake) per year be implemented as from 2014 until 2017 for the abovementioned programmes.
- From 2017 until Teach-Out date (end of 2023) only Semester 1 and Semester 3 modules will be offered in Semester 1 and Semester 2 and Semester 4 modules in Semester 2 of an Academic year.
- The pass-on link criteria as stipulated in the General Prospectus (G1.6.12.2.1) will be applied to the following modules:
 - Digital Systems I (EDS1111) to Digital Systems II (EDS2112)
 - Electronics I (EEL1011) to Electronics II (EEL2012)
 - Electrical Engineering I (ENG1311) to Electrical Engineering II (ENG2012)

Prerequisite Modules

A student will not be allowed to proceed to the following modules without first having passed the listed prerequisite modules.

Module Name	Module Code	Pre-requisite
Augmented Mathematics I	WIS10X2	MAT11X1
Academic & Life Skills Development II	ALM2010	ALM1110
Digital Systems II	EDS2112	EDS1111/2
Electronics II	EEL2012	EEL1011/2
Electrical Engineering II	ENG2012	ENG1311/2
Project I	EPJ1012	EEL1011/2 & ENG1311/2
Mathematics II	WIS2112	WIS1111/2
Design Project III	EDP3011/2	EDS3111/2 or EEL3011/2 or ENG3111/2
Digital Systems III	EDS3111/2	EDS2111/2
Electronic Communication II	EEC2111/2	EEL1011/2 & ENG1311/2
Electronics III	EEL3011/2	EEL2011/2
Electrical Machines II	EEM2111/2	ENG2011/2
Industrial Electronics II	EIE2011/2	EEL1011/2 & ENG2011/2
Electrical Engineering III	ENG3111/2	ENG2011/2

Module Name	Module Code	Pre-requisite
Software Design II	ESW2011/2	CCM1111/2 & CCP1111/2 & WIS1111/2 & EDS1111/2 & EEL1011/2 & ENG1311/2
Mathematics III	WIS3111/2	WIS2111/2
Control Systems II	ECS2011/2	CCP1111/2 & EDS2111/2 & EEL2011/2 & ENG2011/2
Electrical Machines III	EEM3011/2	EEM2111/2
Power Electronics III	EPE3011/2	EIE2011/2
Electrical Protection III	EPR3011/2	ENG2011/2
Radio Engineering III	ERE3011/2	EEC2111/2
Software Design III	ESW3011/2	ESW2011/2

Obtaining the qualification

The qualification shall be obtained by completing the modules prescribed by Senate.

Awarding the qualification *cum laude*

The qualification shall be awarded *cum laude* if students comply with the requirements as stipulated in the General Prospectus. The following module shall be regarded as the major module:

Design Project III.

DURATION

The qualification shall extend over a minimum of four years of full-time study. Please refer to the section regarding Maximum Period of Study under General Information and Regulations.

CURRICULUM

	Presented	Module Code	Credit Value
YEAR 1			
Compulsory modules:			
Academic and Life Skills Development I	Year	ALM1110	4
Communication	Year	CCM11X0	9
Concepts of Physics	Year	COP11X0	11
Introduction to Engineering	Year	IES11X1	6
Extended Computer Skills I	Year	ITCL1X0	12
Pre Calculus I	Semester 1	MAT11X1	4
Augmented Mathematics I	Semester 2	WIS10X2	12
FOUNDATION CREDITS YEAR 1			58
REGULAR CREDITS YEAR 1			0
TOTAL CREDITS YEAR 1			58

		Presented	Module Code	Credit Value
YEAR 2				
Compulsory modules:				
	Academic and Life Skills Development II	Year	ALM2110	2
	Digital Systems I	Semester 1	EDS1111	12
	Digital Systems II	Semester 2	EDS2112	12
	Electronics I	Semester 1	EEL1011	12
	Electronics II	Semester 2	EEL2012	12
	Electrical Engineering I	Semester 1	ENG1311	12
	Electrical Engineering II	Semester 2	ENG2012	12
	Project 1	Semester 2	EPJ1012	12
	Mathematics II	Semester 2	WIS2112	12
FOUNDATION CREDITS YEAR 2				2
REGULAR CREDITS YEAR 2				96
TOTAL CREDITS YEAR 2				98
		Presented	Module Code	Credit Value
YEAR 3				
Compulsory module:				
	Design Project III ♦	Semester 2	EDP3012	12
Select nine of the following modules in consultation with the Head of Department:				
	Digital Systems III	Semester 1	EDS3111	12
	Electrical Machines II	Semester 1 or Semester 2	EEM2111 or EEM2112	12
	Industrial Electronics II	Semester 1 or Semester 2	EIE2011 or EIE2012	12
	Electrical Engineering III	Semester 1	ENG3111	12
	Mathematics III	Semester 1 or Semester 2	WIS3111 or WIS3112	12
	Electronics III	Semester 1	EEL3011	12
	Electronic Communication II	Semester 1	EEC2111	12
	Software Design II	Semester 1 or Semester 2	ESW2011 or ESW2012	12
	Electrical Machines III	Semester 2	EEM3012	12
	Power Electronics III	Semester 2	EPE3012	12
	Electrical Protection III	Semester 2	EPR3012	12
	Radio Engineering III	Semester 2	ERE3012	12
	Control Systems II	Semester 2	ECS2012	12
	Software Design III	Semester 2	ESW3012	12
TOTAL REGULAR CREDITS YEAR 3				120

		Presented	Module Code	Credit Value
YEAR 4				
Compulsory module:				
	Electrical Engineering Practice I	Semester 1 or Semester 2	EEP1211 or EEP1212	60
Select one of the following modules:				
	Electrical Engineering Practice II	Semester 1 or Semester 2	EEP2211 or EEP2212	60
	Electronic Engineering Practice III	Semester 1 or Semester 2	ELP2211 or ELP2212	60
TOTAL REGULAR CREDITS YEAR 4				120
TOTAL FOUNDATION CREDITS				60
TOTAL REGULAR CREDITS				336
TOTAL CREDITS				396

♦ Major modules (please refer to the General Prospectus).

Please note:

- A total of 2 modules may be taken from another Engineering qualification subject to approval by the relevant Head of Department and provided that the total number of credits for the qualification is adhered to.
- Refer to the 'phase-out' schedule available from the Department.
- To register for Electrical Engineering Practice I (P1), a student must have at least completed all of the first-year modules according to the curriculum, which amounts to 120 credits.
- To register for Electrical Engineering Practice II or Electronic Engineering Practice II (P2), a student must have at least completed:
 - Electrical Engineering Practice I (P1); and
 - 80% of the modules from the third year according to the curriculum, which amounts to a further 96 credits.

SPECIALISATION AREAS

Even though Nelson Mandela University only offers one National Diploma: Engineering: Electrical qualification, this can be obtained by taking modules within three sub-disciplines of Electrical Engineering, namely, Power Systems, Digital/Industrial Automation Systems and Electronic Communication Systems.

To obtain the National Diploma: Engineering: Electrical from Nelson Mandela University and work in one of these specialised areas/sub-disciplines, the recommended combination of modules taken at the appropriate levels should be as follows:

POWER SYSTEMS			
Choose the following modules			
Electrical Machines II	EEM2111/2	Design Project III	EDP3011/2
Industrial Electronics II	EIE2011/2	Electrical Machines III	EEM3011/2
Electrical Engineering III	ENG3111/2	Power Electronics III	EPE3011/2
Software Design II	ESW2011/2	Electrical Protection III	EPR3011/2
Mathematics III	WIS3111/2	Control Systems II	ECS2011/2

INDUSTRIAL AUTOMATION SYSTEMS			
Choose the following modules			
Digital Systems III	EDS3111/2	Design Project III	EDP3011/2
Electronics III	EEL3011/2	Electrical Machines II	EEM2011/2
Industrial Electronics II	EIE2011/2	Power Electronics III	EPE3011/2
Software Design II	ESW2011/2	Software Design III	ESW3011/2
Mathematics III	WIS3111/2	Control Systems II	ECS2011/2

ELECTRONIC COMMUNICATIONS			
Choose the following modules			
Digital Systems III	EDS3111/2	Design Project III	EDP3011/2
Electronic Communication II	EEC2111/2	Radio Engineering III	ERE3011/2
Electronics III	EEL3011/2	Control Systems II	ECS2011/2
Software Design II	ESW2011/2	Software Design III	ESW3011/2
Mathematics III	WIS3111/2	Industrial Electronics II	EIE2011/2

PREREQUISITE MODULES FOR BACHELOR OF TECHNOLOGY: ENGINEERING: ELECTRICAL

In order to study towards the Bachelor of Technology: Engineering: Electrical, the main prerequisite modules common to all of those specialisations/sub-disciplines listed above are:

- Design Project III
- Mathematics III

The other prerequisite modules will be determined by the sub-discipline of interest.

5 HIGHER CERTIFICATES**5.1 HIGHER CERTIFICATE IN INFORMATION TECHNOLOGY IN USER SUPPORT SERVICES: NORTH CAMPUS / GEORGE CAMPUS: FULL-TIME
(QUALIFICATION CODE: 70003 – 01/02)
(NQF LEVEL: 5, TOTAL NQF CREDITS FOR QUALIFICATION: 120)**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

ADMISSION REQUIREMENTS

- Admission Points Score of 28.
- Minimum NSC requirements for certificate entry must be met.
- English, Afrikaans or isiXhosa (home language or first additional language) on at least level 3 (40-49%).
- NSC achievement rating of at least 2 (30-39%) for Mathematics or 3 (40-49%) for Mathematical Literacy.
- Applicants with an Admission Points Score between 22 and 27 may be referred to write the Access Assessment Battery before a decision is made on whether or not to admit the applicant to the course.

APPLICABLE RULES**Re-admission Policy**

Please consult the section on Re-admission Requirements for Undergraduate Programmes under General Information and Regulations.

Obtaining the qualification

The qualification shall be obtained by completing the modules prescribed by Senate.

DURATION

The qualification shall extend over a minimum of one year of full-time study. Consult the front of the Prospectus for the maximum period of study.

CURRICULUM

		Presented	Module Code	Credit Value
Full-time				
Compulsory modules:				
	Information Technology Skills 1	Semester 1	ITS1011	30
	Information Systems 1	Semester 1	WIH1011	30
	*Technical Support 1	Semester 2	TSS1012	30
	*User Support 1	Semester 2	USS1012	30
	Credits First Year			120

***Students should note that they can only continue with 2nd-semester modules if the pre-requisite 1st-semester modules have been passed.**

5.2 HIGHER CERTIFICATE IN MECHATRONIC ENGINEERING: FULL-TIME (QUALIFICATION CODE: 70005 - 01) (NQF LEVEL: 5, TOTAL NQF CREDITS FOR QUALIFICATION: 140)

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

ADMISSION REQUIREMENTS

National Senior Certificate (NSC)

- Admission points score (APS) of 32.
- English, Afrikaans or isiXhosa (Home language or first language) on at least level 3 (40-49%).
- NSC Achievement rating of at least 4 (50-59%) for Mathematics.
- NSC Achievement rating of at least 4 (50-59%) for Physical Science.

National Certificate Vocational (NCV) in related vocational field

- Minimum National Certificate (Vocational) Level 4 statutory requirements for Higher Certificate entry must be met.
- English, Afrikaans or isiXhosa (First additional language) on at least level 3 (40-49%).
- NCV Achievement rating of at least 4 (50-59%) for Mathematics.
- NCV Achievement rating of at least 4 (50-59%) for Physical Science.

Academic progression

Candidates who qualify with the Higher Certificate in Mechatronic Engineering may get admission to the Bachelor of Engineering Technology (BEngTech) degrees subject to meeting admission criteria.

Career opportunities

Successful candidates can pursue a multitude of career opportunities within the automated manufacturing environment. There is a rapidly rising demand for knowledge and skills in this field emanating specifically from the development of technology (especially the integration of computer based control, data acquisition and monitoring) as applied to automated processes and the need for adequate levels of support staff and artisans with these highly developed technological skills. Work done by the Mechatronics support occupation is characterized by the ability to apply proven, commonly understood detailed techniques, procedures, practices and codes to solve narrowly-defined Mechatronic engineering problems under supervision of technicians, technologists and engineers.

Industry further requires a significant increase in not only the amount of Artisans but also an increase in the conceptual understanding of engineering science within the discipline, which will be achieved by the Higher Certificate. Although the scope of the Higher Certificate and this qualification falls outside the ambit of Artisan training, the Higher Certificate will provide an excellent alternative pathway for non-contracted learners to prepare for the trade test to qualify as Artisans.

Pre-requisite Modules

A student will not be allowed to proceed to the following modules without first having passed the listed pre-requisite modules or, in some cases, be simultaneously registered (at least) for the given co-requisite modules.

Subject	Code	Pre-requisites	Co-requisites
Period 1: Semester 1 Mechanics 1001 Physical Science 1001 Electrotechnology 1001 Mechanotechnology 1001 Introduction to Computers 1001 Language Studies 1001	MAT1001 PHY1001 MET1001 MEC1001 ICL1001 LES1001		MAT1001 MAT1001,PHY1001 MAT1001,PHY1001, ICL1001,LES1001
Subject	Code	Prerequisites	Co-requisites
Period 1: Semester 2 Electrotechnology 2002 Mechanotechnology 2002 Mechatronic Systems 1002 Manufacturing 1002 Mechatronic Project 1002	MET2002 MEC2002 MES1002 MAN1002 MEP1002	MET1001 MEC1001 MATV101 MET1001,PHY1001	MEP1002 MET2002,MES1002, MAN1002

APPLICABLE RULES**Re-admission Policy**

Please consult the section on Re-admission Requirements for Undergraduate Programmes under General Information and Regulations.

Obtaining the qualification

The qualification shall be obtained by completing the modules prescribed by Senate.

DURATION

The qualification shall extend over a minimum of one year of full-time study. Consult the front of the Prospectus for the maximum period of study.

CURRICULUM

	Presented	Module Code	Credit Value
Full-time			
Semester 1			
Mathematics	Semester 1	MAT1001	14
Physical Science	Semester 1	PHY1001	10
Electrotechnology A	Semester 1	MET1001	12
Mechanotechnology A	Semester 1	MEC1001	12
Introduction to Computers	Semester 1	ICL1001	14
Language Studies	Semester 1	LES1001	12
Semester 2			
Electrotechnology* B	Semester 2	MET2002	12
Mechanotechnology* B	Semester 2	MEC2002	12
Mechatronic Systems	Semester 2	MES1002	14
Manufacturing	Semester 2	MAN1002	14
Mechatronic Project	Semester 2	MEP1002	14
Total Credits			140

*May only continue with 2nd-semester modules if the pre-requisite 1st-semester modules have been passed.

6 DIPLOMAS**6.1 NATIONAL DIPLOMA (BUILDING): FULL-TIME
(QUALIFICATION CODE: 3262 – 01)
(NQF LEVEL: 6, TOTAL NQF CREDITS FOR QUALIFICATION: 360)
(NO NEW INTAKE)****ADMISSION REQUIREMENTS**

- Admission Points Score of 25 (score for Life Orientation excluded).
- Minimum NSC requirements for diploma entry must be met.
- English, Afrikaans or isiXhosa (home language or first additional language) on at least level 3 (40-49%).
- NSC achievement rating of at least 3 (40-49%) for Mathematics.
- Applicants with an Admission Points Score between 21 and 24 (score for Life Orientation excluded) may be referred to write the Access Assessment Battery before a decision is made on whether or not to admit the applicant to the course.
- As a limited number of students can be admitted, admission is subject to selection based on academic merit. The selection is undertaken by the Department of Building and Quantity Surveying and the CAAR consultant quality assured the selection process.

Final year for admission

The final year for new admission into this programme was 2015.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2020.

APPLICABLE RULES**Re-admission policy**

The Faculty Re-admission Policy, as published elsewhere in the Prospectus, will be applied to each of the various years of study within this programme.

Experiential learning requirements

To fulfil the requirements of the national Diploma, a student must complete at least one year of applicable experiential learning. During this experiential learning period, students must register for both Building Practice modules as specified in the curriculum. Students will be required to gain practical experience in accordance with prescribed criteria as outlined in the Guide "Experiential Learning", which is made available to students at the end of their first year. In addition, students must register for and complete three modules which will each comprise projects that have to be completed in accordance with prescribed requirements.

Re-admission to the first year of the programme

Refer to approved Faculty Re-admission Policy.

Promotion to the second year of the programme

Refer to approved Faculty Re-admission Policy.

Furthermore, a student will **only** be promoted to the second year provided that the student has at least passed the three major modules, namely Construction Technology I (DCT1010), Construction Management I (DCO1010) and Quantity Surveying I (DQS1010).

Promotion to the third year of the programme

Refer to approved Faculty Re-admission Policy.

Furthermore, students will only be promoted to the third year if they have passed all the first- and second-year modules and handed in their experiential learning logbooks.

Obtaining the qualification

The qualification shall be obtained by completing the modules prescribed by Senate.

Awarding the qualification *cum laude*

The qualification shall be awarded *cum laude* if students comply with the requirements as stipulated in the General Prospectus. The following modules shall be regarded as the major modules:

Construction Management III
Construction Technology III
Quantity Surveying III

DURATION

The qualification shall extend over a minimum of three years of full-time study as prescribed. Please refer to the section regarding Maximum Period of Study under General Information and Regulations.

CURRICULUM

		Presented	Module Code	Credit Value
First Year				
	Compulsory modules:			
	Applied Building Science I	Year	DBS1010	20
	Communication I	Semester 1	DCM1021	10
	Construction Management I	Year	DCO1010	20
	Computer Applications I	Semester 2	DCP1012	10
	Construction Technology I	Year	DCT1010	20
	Quantity Surveying I	Year	DQS1010	20
	Site Surveying I	Year	DSS1010	20
	Credits First Year			120
		Presented	Module Code	Credit Value
Second Year (Experiential training)				
	Compulsory modules:			
	Construction Management II	Year	DCO2010	20
	Construction Technology II	Year	DCT2010	20
	Building Practice I	Semester 1 or Semester 2	DET1011 DET1012	30
	Building Practice II	Semester 1 or Semester 2	DET2011 DET2012	30
	Quantity Surveying II	Year	DQS2010	20
	Credits Second Year			120

		Presented	Module Code	Credit Value
Third Year				
Compulsory modules:				
	Construction Accounting III	Year	DCA3010	20
	Construction Management III ♦	Year	DCO3010	20
	Structures and Concrete III	Year	DCS3010	20
	Construction Technology III ♦	Year	DCT3010	20
	Price Analysis and Estimating III	Year	DPE3010	20
	Quantity Surveying III ♦	Year	DQS3010	20
Credits Third Year				120
Total Credits				360

♦ Major modules (please refer to the General Prospectus).

Recommended NSC subjects

Business Economics
Science
Accounting
Civil Technology

6.2 DIPLOMA IN BUILDING: FULL-TIME (QUALIFICATION CODE: 7226 – 01) (NQF LEVEL: 6, TOTAL NQF CREDITS FOR QUALIFICATION: 360)

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

ADMISSION REQUIREMENTS

- Admission Points Score of 25 (score for Life Orientation excluded).
- Minimum NSC requirements for diploma entry must be met.
- English, Afrikaans or isiXhosa (home language or first additional language) on at least level 3 (40-49%).
- NSC achievement rating of at least 3 (40-49%) for Mathematics.
- Applicants with an Admission Points Score between 21 and 24 (score for Life Orientation excluded) may be referred to write the Access Assessment Battery before a decision is made on whether or not to admit the applicant to the course.
- As a limited number of students can be admitted, admission is subject to selection based on academic merit. The selection is undertaken by the Department of Building and Quantity Surveying and the CAAR consultant quality assured the selection process.

APPLICABLE RULES

Re-admission policy

The Faculty Re-admission Policy, as published elsewhere in the Prospectus, will be applied to each of the various years of study within this programme.

Experiential learning requirements

To fulfil the requirements of the national Diploma, a student must complete at least one year of applicable experiential learning. During this experiential learning period, students must register for both Building Practice modules as specified in the curriculum. Students will be required to gain practical experience in accordance with prescribed criteria as outlined in the Guide “Experiential Learning”, which is made available to students at the end of their first year. In addition, students must register for and complete three modules which will each comprise projects that have to be completed in accordance with prescribed requirements.

Re-admission to the first year of the programme

Refer to approved Faculty Re-admission Policy.

Promotion to the second year of the programme

Refer to approved Faculty Re-admission Policy.

Furthermore, a student will **only** be promoted to the second year provided that the student has at least passed the three major modules, namely Construction Technology I (DCT1010), Construction Management I (DCO1010) and Quantity Surveying I (DQS1010).

Promotion to the third year of the programme

Refer to approved Faculty Re-admission Policy.

Furthermore, students will only be promoted to the third year if they have passed all the first- and second-year modules and handed in their experiential learning logbooks.

Obtaining the qualification

The qualification shall be obtained by completing the modules prescribed by Senate.

Awarding the qualification *cum laude*

The qualification shall be awarded *cum laude* if students comply with the requirements as stipulated in the General Prospectus. The following modules shall be regarded as the major modules:

Construction Management III
Construction Technology III
Quantity Surveying III

DURATION

The qualification shall extend over a minimum of three years of full-time study as prescribed. Please refer to the section regarding Maximum Period of Study under General Information and Regulations.

CURRICULUM

		Presented	Module Code	Credit Value
First Year				
	Compulsory modules:			
	Applied Building Science I	Year	DBS1000	20
	Communication I	Semester 1	DCM1001	10
	Construction Management I	Year	DCO1000	20
	Computer Applications I	Semester 2	DCP1002	10

		Presented	Module Code	Credit Value
	Construction Technology I	Year	DCT1000	20
	Quantity Surveying I	Year	DQS1000	20
	Site Surveying I	Year	DSS1000	20
	Credits First Year			120
Second Year (Experiential training)				
	Compulsory modules:			
	Construction Management II	Year	DCO2000	20
	Construction Technology II	Year	DCT2000	20
	Building Practice I	Semester 1 or Semester 2	DET1001 DET1002	30
	Building Practice II	Semester 1 or Semester 2	DET2001 DET2002	30
	Quantity Surveying II	Year	DQS2000	20
	Credits Second Year			120
Third Year				
	Compulsory modules:			
	Construction Accounting III	Year	DCA3000	20
	Construction Management III ♦	Year	DCO3000	20
	Structures and Concrete III	Year	DCS3000	20
	Construction Technology III ♦	Year	DCT3000	20
	Price Analysis and Estimating III	Year	DPE3000	20
	Quantity Surveying III ♦	Year	DQS3000	20
	Credits Third Year			120
	Total Credits			360

♦ Major modules (please refer to the General Prospectus).

Recommended NSC subjects

Business Economics
Science
Accounting
Civil Technology

**6.3 NATIONAL DIPLOMA (ENGINEERING: CIVIL): FULL-TIME
(QUALIFICATION CODE: 3323 - 01)
(NQF LEVEL: 6, TOTAL NQF CREDITS FOR QUALIFICATION: 360)
(NO NEW INTAKE)**

ADMISSION REQUIREMENTS

- Admission Points Score of 34.
- Minimum NSC requirements for diploma entry must be met.
- English, Afrikaans or isiXhosa (home language or first additional language) on at least level 3 (40-49%).
- NSC achievement rating of at least 4 (50-59%) for Mathematics.
- NSC achievement rating of at least 4 (50-59%) for Physical Sciences.
- Applicants with an Admission Points Score between 26 and 33 may be referred to write the Access Assessment Battery before a decision is made on whether or not to admit the applicant to the course.
- **Or** An N3 Certificate with a minimum of 60% in Mathematics and Engineering Science and two languages at senior certificate level.

Final year for admission

The final year for new admission into this programme was 2017.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2022.

Recommended NSC subjects

Engineering Graphics and Design

APPLICABLE RULES

Purpose Statement

Persons achieving this qualification will be able, independently as well as under supervision, to analyse and solve well-defined and lower-level open-ended Civil Engineering problems through the application of accepted Civil Engineering techniques. The qualification is intended for engineering practitioners in the Civil Engineering industry. The qualified person will be able to register with the Engineering Council of South Africa (ECSA) as a candidate Engineering Technician in the discipline of Civil Engineering. After a period of appropriate industry training, the qualified person will be able to register with ECSA as a Professional Engineering Technician.

Qualification Objectives

- Enable students to solve well defined problems and improve systems in the design, construction, operation, maintenance and service sectors of the civil industry.
- Apply civil engineering techniques and principles to analyse a variety of simple structural and service-related operational problems.
- Develop and recommend alternatives for improving civil engineering service delivery problems.
- Communicate effectively in a technological environment.
- Apply management principles in manufacturing or service environment.

Re-admission Policy

- Please consult the section on Re-admission Requirements for Undergraduate Programmes under General Information and Regulations.
- That only one (1) registration (intake) per year be implemented as from 2014 until 2017 for the abovementioned programmes.
- From 2017 until Teach-Out date (end of 2022) only Semester 1 and Semester 3 modules will be offered in Semester 1 and Semester 2 and Semester 4 modules in Semester 2 of an Academic year. Dependent on available resources, additional modules out of sequence may be offered.
- The pass-on link criteria as stipulated in the General Prospectus (G1.6.12.2.1) will be applied to the following modules:
 - Surveying I (CSU1111) to Surveying II (CSU2212)
 - Applied Mechanics I (CAM1111) to Theory of Structures II (CTS2212)
 - Drawing I (CDR1111) to Drawing II (CDR2212)
 - Construction Materials I (COM1111) to Construction Methods I (CME1112)

Prerequisite Modules

A student will not be allowed to proceed to the following modules without first having passed the listed prerequisite modules or, in some cases, be simultaneously registered (at least) for the given co-requisite modules.

Module		Prerequisites		Co-requisites	
S1: Drawing I	CDR1111/2			Surveying I	CSU1111/2
Surveying I	CSU1111/2			Drawing I	CDR1111/2
S2: Construction Methods I	CME1111/2	Construction Materials I	COM1111/2		
Drawing II	CDR2211/2	Drawing I Computer Skills I	CDR1111/2 CCP1111/2		
Mathematics II	WIC2301/2	Mathematics I	WIC1101/2		
Surveying (Civil) II	CSU2211/2	Surveying I	CSU1111/2		
Theory of Structures II	CTS2211/2	Applied Mechanics I	CAM1111/2		
S3: Geotechnical Engineering II	CGE2311/2	Construction Materials I	COM1111/2		
Hydraulics II	CWEA231/2	Applied Mechanics I	CAM1111/2		
Management (Civil) II	CMC2311/2	Management (Civil) I	CMC1211/2		
Reinforced Concrete and Masonry Design III	CRC3311/2	Theory of Structures II	CTS2211/2	Structural Analysis II	CSA2311/2
Structural Analysis II	CSA2311/2	Theory of Structures II	CTS2212		
Transportation Engineering II	CTE2311/2			Surveying (Civil) II Drawing II	CSU2211/2 CDR2211/2

Module		Prerequisites		Co-requisites	
S4: Civil Engineering Documentation III	CDOA341/2	Management (Civil) II	CMC2311/2	Civil Engineering Project III	CDOB341/2
Civil Engineering Project III	CDOB341/2	Transportation Engineering II Drawing II	CTE2311/2 CDR2211/2	Stormwater Design III Water and Sewage Reticulation III Civil Engineering Documentation III	CWEA341/2 CWEB341/2 CDOA341/2
Geotechnical Engineering III	CGE3411/2	Geotechnical Engineering II	CGE2311/2		
Stormwater Design III	CWEA341/2	Hydraulics II	CWEA231/2		
Structural Analysis III	CSA3411/2	Structural Analysis II	CSA2311/2		
Structural Steel and Timber Design III	CSS3411/2	Structural Analysis II	CSA2311/2	Structural Analysis III	CSA3411/2
Transportation Engineering III	CTE3411/2			Geotechnical Engineering II	CGE2311/2
Water and Sewage Reticulation III	CWEB341/2	Hydraulics II	CWEA231/2	Civil Engineering Project III	CDOB341/2

CLASS ATTENDANCE

Minimum attendance

Due to the practical nature of the classes offered, students have to attend a minimum of 80% of normal lectures to gain permission to sit for the examination, unless special leave is granted.

Recognition of modules done at other tertiary institutions

The Department will consider modules done at other tertiary institutions for exemption according to the General Prospectus and Rules of Nelson Mandela University, subject to the following criteria.

In all cases where exemptions are being contemplated, requests to do so must be lodged in writing with the HOD before registration at the other tertiary institution takes place. Where the applicants cannot meet the criteria below they will be advised to arrange for the diploma to be awarded through the other tertiary institution.

- A candidate may only be exempted from modules with a cumulative credit value of not more than half of the total credit value of the relevant qualification.
- Level III modules will not be exempted. However, in cases where a student has entered for all level III modules at Nelson Mandela University but has failed a limited number of these, and in the subsequent study period is employed in an area remote from Port Elizabeth, an exception may be made by the Faculty Management Committee. In such cases, the equivalent module done at the other tertiary institution may be exempted, but this will apply only to a maximum of half of the total credit value of the exit-level modules.

Obtaining the qualification

The qualification shall be obtained by completing the modules prescribed by Senate.

Awarding the qualification *cum laude*

The qualification shall be awarded *cum laude* if students comply with the requirements as stipulated in the General Prospectus. The following module shall be regarded as the major module:

CDOB341/2 - Civil Engineering Project 3

DURATION

The National Diploma is a three-year qualification of which two years are spent in full-time study at Nelson Mandela University and one year in industry undergoing experiential training. Please refer to the section regarding Maximum Period of Study under General Information and Regulations.

CURRICULUM

		Presented	Module Code	Credit Value
First Year				
Compulsory modules:				
	Applied Mechanics I	Semester 1	CAM1111	10
	Communication Skills I	Semester 2	CCM1112	5
	Computer Skills I	Semester 1	CCP1111	10
	Drawing I	Semester 1	CDR1111	10
	Drawing II	Semester 2	CDR2212	10
	Management (Civil) I	Semester 2	CMC1212	10
	Construction Methods I	Semester 2	CME1112	10
	Construction Materials I	Semester 1	COM1111	10
	Surveying I	Semester 1	CSU1111	10
	Surveying (Civil) II	Semester 2	CSU2212	5
	Theory of Structures II	Semester 2	CTS2212	10
	Mathematics I	Semester 1	WIC1101	10
	Mathematics II	Semester 2	WIC2302	10
	Credits First Year			120
Second Year (one-year experiential training)				
Compulsory modules:				
	Engineering Practice: Civil II	Semester 1 or Semester 2	CEP2311 or CEP2312	60
	Engineering Practice: Civil III	Semester 1 or Semester 2	CEP3311 or CEP3312	60
	Credits Second Year			120

		Presented	Module Code	Credit Value
Third Year				
Compulsory modules:				
	Documentation III		CDO3422	
	Civil Engineering Documentation III	Semester 2	CDOA342	5
	Civil Engineering Project III ♦	Semester 2	CDOB342	5
	Geotechnical Engineering II	Semester 1	CGE2311	10
	Geotechnical Engineering III	Semester 2	CGE3412	10
	Management (Civil) II	Semester 1	CMC2311	10
	Reinforced Concrete and Masonry Design II	Semester 1	CRC3311	10
	Structural Analysis II	Semester 1	CSA2311	5
	Structural Analysis III	Semester 2	CSA3412	5
	Structural Steel and Timber Design III	Semester 2	CSS3412	10
	Transportation Engineering II	Semester 1	CTE2311	10
	Transportation Engineering III	Semester 2	CTE3412	10
	Hydraulics II	Semester 1	CWEA231	7.5
	Water and Waste Water Treatment II	Semester 1	CWEB231	7.5
	Stormwater Design III	Semester 2	CWEA342	7
	Water and Sewage Reticulation III	Semester 2	CWEB342	8
	Credits Third Year			120
	Total Credits			360

♦ Major module (please refer to the General Prospectus).

Note:

- Admission to these offerings in an order different to that set out above is subject to approval by the Head of Department. No timetable clashes will be permitted.
- There will be no new intake at the beginning of the year for new students.
- Refer to the 'phase-out' schedule available from the Department.

**6.4 NATIONAL DIPLOMA ENGINEERING: ELECTRICAL: FULL-TIME
(QUALIFICATION CODE: 3366 - 01)
(NQF LEVEL: 6, TOTAL NQF CREDITS FOR QUALIFICATION: 360)
(NO NEW INTAKE)**

ADMISSION REQUIREMENTS

- Admission Points Score of 34.
- Minimum NSC requirements for diploma entry must be met.
- English, Afrikaans or isiXhosa (home language or first additional language) on at least level 3 (40-49%).
- NSC achievement rating of at least 4 (50-59%) for Mathematics.
- NSC achievement rating of at least 4 (50-59%) for Physical Sciences.
- Applicants with an Admission Points Score between 26 and 33 may be referred to write the Access Assessment Battery before a decision is made on whether or not to admit the applicant to the course.

- **Or** A 60% pass in N3 Engineering Mathematics and Engineering Science plus Grade 12 Languages.
- Testing includes Extended Diploma in Electrical Engineering.

Final year for admission

The final year for new admission into this programme was 2017.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2022.

Recommended NCV Subjects

The National Certificate Vocational Level 4 with the following minimum pass mark in the following subjects:

- 50% in the three Fundamental subjects: English, Mathematics, Life Orientation; and
- 50% in the Compulsory subject Physical Sciences; and
- 50% in any two other Compulsory subjects.

Purpose Statement

Persons achieving this qualification will be competent to apply engineering principles and well-defined problem-solving techniques in the field of electrical engineering by operating within relevant standards and codes.

Qualification objectives

The qualified diplomat must be able to:

- demonstrate the ability to apply theory and practical hand skills in electrical engineering activities and applications;
- install, assemble, commission and maintain electrical engineering equipment or functions within applicable standards and codes of practice;
- apply technical knowledge and analytical skills to diagnose problems in electrical equipment or systems and develop appropriate solutions;
- demonstrate the ability to apply the principles of entrepreneurship when developing design solutions to engineering problems;
- plan and supervise tasks and projects considering all the appropriate technical and non-technical aspects;
- act independently and/or in a team, under supervision and, where appropriate, exhibit professional integrity.
- communicate effectively;
- register with ECSA as a Candidate Professional Engineering Technician in the field of Electrical Engineering.

APPLICABLE RULES

Re-admission Policy

- Please refer to the section regarding Re-admission Requirements for Undergraduate Programmes under General Information and Regulations.
- That only one (1) registration (intake) per year be implemented as from 2014 until 2017 for the abovementioned programmes.
- From 2017 until Teach-Out date (end of 2022) only Semester 1 and Semester 3 modules will be offered in Semester 1 and Semester 2 and Semester 4 modules in Semester 2 of an Academic year.
- The pass-on link criteria as stipulated in the General Prospectus (G1.6.12.2.1) will be applied to the following modules:
 - Digital Systems (EDS1111) to Digital Systems II (EDS2112)
 - Electronics I (EEL1011) to Electronics II (EEL2012)

- Electrical Engineering I (ENG1311) to Electrical Engineering II (ENG2012)

Prerequisite Modules

A student will not be allowed to proceed to the following modules without first having passed the listed prerequisite modules.

Module Name	Module Code	Pre-requisite
Digital Systems II	EDS2112	EDS1111/2
Electronics II	EEL2012	EEL1011/2
Electrical Engineering II	ENG2012	ENG1311/2
Project I	EPJ1012	EEL1011/2 & ENG1311/2
Mathematics II	WIS2112	WIS1111/2
Design Project III*	EDP3011/2	EDS3111/2 <u>or</u> EEL3011/2 <u>or</u> ENG3111/2
Digital Systems III	EDS3111/2	EDS2111/2
Electronic Communication II	EEC2111/2	EEL1011/2 & ENG1311/2
Electronics III	EEL3011/2	EEL2011/2
Electrical Machines II	EEM2111/2	ENG2011/2
Industrial Electronics II	EIE2011/2	EEL1011/2 & ENG2011/2
Electrical Engineering III	ENG3111/2	ENG2011/2
Software Design II	ESW2011/2	CCM1111/2 & CCP1111/2 & WIS1111/2 & EDS1111/2 & EEL1011/2 & ENG1311/2
Mathematics III	WIS3111/2	WIS2111/2
Control Systems II	ECS2011/2	CCP1111/2 & EDS2111/2 & EEL2011/2 & ENG2011/2
Electrical Machines III	EEM3011/2	EEM2111/2
Power Electronics III	EPE3011/2	EIE2011/2
Electrical Protection III	EPR3011/2	ENG2011/2
Radio Engineering III	ERE3011/2	EEC2111/2
Software Design III	ESW3011/2	ESW2011/2

Obtaining the qualification

The qualification shall be obtained by completing the modules prescribed by Senate.

Awarding the qualification *cum laude*

The qualification shall be awarded *cum laude* if students comply with the requirements as stipulated in the General Prospectus. The following module shall be regarded as the major module:

Design Project III.

DURATION

The qualification shall extend over at least three years of full-time study. Please refer to the section regarding Maximum Period of Study under General Information and Regulations.

CURRICULUM

		Presented	Module Code	Credit Value
First Year				
Compulsory modules:				
	Communication Skills I	Semester 1	CCM1111	6
	Computer Skills I	Semester 1	CCP1111	6
	Digital Systems I	Semester 1	EDS1111	12
	Electronics I	Semester 1	EEL1011	12
	Electrical Engineering I	Semester 1	ENG1311	12
	Mathematics I	Semester 1	WIS1111	12
	Electronics II	Semester 2	EEL2012	12
	Electrical Engineering II	Semester 2	ENG2012	12
	Project I	Semester 2	EPJ1012	12
	Digital Systems II	Semester 2	EDS2112	12
	Mathematics II	Semester 2	WIS2112	12
	Credits First Year			120
		Presented	Module Code	Credit Value
Second Year				
Compulsory module:				
	Design Project III ♦	Semester 1 or Semester 2	EDP3012	12
Select nine of the following modules in consultation with the Head of Department:				
	Digital Systems III	Semester 1	EDS3111	12
	Electrical Machines II	Semester 1 or Semester 2	EEM2111 or EEM2112	12
	Industrial Electronics II	Semester 1 or Semester 2	EIE2011 or EIE2012	12
	Electrical Engineering III	Semester 1	ENG3111	12
	Mathematics III	Semester 1 or Semester 2	WIS3111 or WIS3112	12
	Electronics III	Semester 1	EEL3011	12
	Electronic Communication II	Semester 1	EEC2111	12
	Software Design II	Semester 1 or Semester 2	ESW2011 or ESW2012	12
	Electrical Machines III	Semester 2	EEM3012	12
	Power Electronics III	Semester 2	EPE3012	12
	Electrical Protection III	Semester 2	EPR3012	12
	Radio Engineering III	Semester 2	ERE3012	12
	Control Systems II	Semester 2	ECS2012	12
	Software Design III	Semester 2	ESW3012	12

		Presented	Module Code	Credit Value
	Credits Second Year			120
		Presented	Module Code	Credit Value
Third Year				
	Compulsory module:			
	Electrical Engineering Practice I	Semester 1 or Semester 2	EEP1211 or EEP1212	60
	Select one of the following modules:			
	Electrical Engineering Practice II	Semester 1 or Semester 2	EEP2211 or EEP2212	60
	Electronic Engineering Practice II	Semester 1 or Semester 2	ELP2211 or ELP2212	60
	Credits Third Year			120
	Total Credits			360

♦ Major module (please refer to the General Prospectus).

Please note:

- A total of 2 modules may be taken from another Engineering qualification subject to approval by the relevant Head of Department and provided that the total number of credits for the qualification is adhered to.
- Refer to the 'phase-out' schedule available from the Department.
- To register for Electrical Engineering Practice I (P1), a student must have at least completed all of the first-year modules according to the curriculum, which amounts to 120 credits.
- To register for Electrical Engineering Practice II or Electronic Engineering Practice II (P2), a student must have at least completed:
 - Electrical Engineering Practice I (P1); and
 - 80% of the modules from the second year according to the curriculum, which amounts to a further 96 credits.

SPECIALISATION AREAS

Even though Nelson Mandela University only offers one National Diploma: Engineering: Electrical qualification, this can be obtained by taking modules within three sub-disciplines of Electrical Engineering, namely, Power Systems, Digital/Industrial Automation Systems and Electronic Communication Systems. To obtain the National Diploma: Engineering: Electrical from Nelson Mandela University and work in one of these specialised areas/sub-disciplines, the recommended combination of modules taken at the appropriate levels should be as follows:

POWER SYSTEMS			
Choose the following modules			
Electrical Machines II	EEM2111/2	Design Project III	EDP3011/2
Industrial Electronics II	EIE2011/2	Electrical Machines III	EEM3011/2
Electrical Engineering III	ENG3111/2	Power Electronics III	EPE3011/2
Software Design II	ESW2011/2	Electrical Protection III	EPR3011/2
Mathematics III	WIS3111/2	Control Systems II	ECS2011/2

INDUSTRIAL AUTOMATION SYSTEMS			
Choose the following modules			
Digital Systems III	EDS3111/2	Design Project III	EDP3011/2
Electronics III	EEL3011/2	Electrical Machines II	EEM2011/2
Industrial Electronics II	EIE2011/2	Power Electronics III	EPE3011/2
Software Design II	ESW2011/2	Software Design III	ESW3011/2
Mathematics III	WIS3111/2	Control Systems II	ECS2011/2

ELECTRONIC COMMUNICATIONS			
Choose the following modules			
Digital Systems III	EDS3111/2	Design Project III	EDP3011/2
Electronic Communication II	EEC2111/2	Radio Engineering III	ERE3011/2
Electronics III	EEL3011/2	Control Systems II	ECS2011/2
Software Design II	ESW2011/2	Software Design III	ESW3011/2
Mathematics III	WIS3111/2	Industrial Electronics II	EIE2011/2

PREREQUISITE MODULES FOR BACHELOR OF TECHNOLOGY: ENGINEERING: ELECTRICAL

In order to study towards the Bachelor of Technology: Engineering: Electrical, the main prerequisite modules common to all of those specialisations/sub-disciplines listed above are:

- Design Project III
- Mathematics III

The other prerequisite modules will be determined by the sub-discipline of interest.

6.5 NATIONAL DIPLOMA (ENGINEERING: INDUSTRIAL): FULL-TIME (QUALIFICATION CODE: 3706 - 01) (NQF LEVEL: 6, TOTAL NQF CREDITS FOR QUALIFICATION: 360) (HEQC- AND ECSA-ACCREDITED) (NO NEW INTAKE)

ADMISSION REQUIREMENTS

- Admission Points Score of 34.
- Minimum NSC requirements for diploma entry must be met.
- English, Afrikaans or isiXhosa (home language or first additional language) on at least level 3 (40-49%).
- NSC achievement rating of at least 4 (50-59%) for Mathematics.
- NSC achievement rating of at least 4 (50-59%) for Physical Sciences.
- Applicants with an Admission Points Score between 26 and 33 may be referred to write the Access Assessment Battery before a decision is made on whether or not to admit the applicant to the course.
- **Or** An N3 Certificate with a minimum of 50% in Mathematics and Engineering Science and two languages at senior certificate level.

Final year for admission

The final year for new admission into this programme was 2017.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2022.

Other

If an applicant has not taken the optional Mathematics topics, additional modules may be added to the qualification, which may extend the duration of study.

Purpose Statement

- Persons achieving this qualification will be able, independently as well as under supervision, to analyse and solve well-defined and lower-level open-ended manufacturing and service-related problems through the application of accepted Industrial Engineering techniques.
- They will be able to assess simple systems and calculate expected system performance. The qualification is intended for engineering practitioners in industry.
- The qualified person will be able to register with the Engineering Council of South Africa (ECSA) as a Technician-in-Training in the field of Industrial Engineering.

Qualification Objectives

- To enable students to solve well defined problems and improve systems in both the manufacturing and service sectors of industry. This results in cheaper, better quality products and services for on-time delivery to customers.
- Apply industrial engineering techniques and principles to analyse manufacturing and service-related operational problems.
- Develop and recommend alternatives for improving manufacturing and service-related operational problems.
- Design and develop simple manufacturing and service-related systems.
- Communicate effectively in a technological environment.
- Apply management principles in manufacturing or service environment.

APPLICABLE RULES**Re-admission Policy**

- Please refer to the section regarding Re-admission Requirements for Undergraduate Programmes under General Information and Regulations.
- That only one (1) registration (intake) per year be implemented as from 2014 until 2017 for the abovementioned programmes.
- From 2017 until Teach-Out date (end of 2022) only Semester 1 and Semester 3 modules will be offered in Semester 1 and Semester 2 and Semester 4 modules in Semester 2 of an Academic year.
- The pass-on link criteria as stipulated in the General Prospectus (G1.6.12.2.1) will be applied to the following modules:
 - Engineering Work Study I (IEW1111) to Engineering Work Study II (IEW2212)
 - Production Engineering I (IPI1111) to Production Engineering II (IPI2212)
 - Mechanical Engineering Drawing I (MED1111) to Computer-Aid Drafting I (MCD1312)
 - Mechanical Manufacturing Engineering I (MNE1111) to Mechanical Manufacturing Engineering II (MNE2212)

Prerequisite Modules

A student will not be allowed to proceed to the following modules without first having passed the listed prerequisite modules.

Module Name	Module Code	Pre-requisite
Computer Aided Drafting I	MCD1312	MED1111
Engineering Work Study II	IEW2212	IEW1111
Mathematics II	WIS2112	WIS1111
Mechanical Manufacturing Engineering II	MNE2212	MNE1111
Production Engineering: Industrial II	IPI2212	IPI1111
Automation III	IAT3111/2	MCD1311/2 & MNE2211/2
Mathematics III	WIS3301/2	WIS2111/2
Quality Assurance II	IQA2111/2	IQT1211/2
Strength Of Materials II	MSM2211/2	MEC1111 & WIS1111
Engineering Workstudy III	IEW3311/2	IEW2211/2 & MNE2211/2
Facility, Layout And Materials Handling II	IMH2111/2	MCD1311/2 & IEW1111/2
Industrial Accounting III*	IIB3111/2	IKM2111/2
Mechanical Manufacturing Engineering III	MNE3311/2	MNE2211/2
Strength Of Materials III	MSM3211/2	MSM2211/2
Operational Research III	ION3111/2	WIS1111/2 & IPI2211/2

Obtaining the qualification

The qualification shall be obtained by completing the modules prescribed by Senate.

Awarding the qualification *cum laude*

The qualification shall be awarded *cum laude* if students comply with the requirements as stipulated in the General Prospectus. The following module shall be regarded as the major module:

Engineering Workstudy III

The qualification structure for the National Diploma consists of 2 years' academic training and 1 year of experiential training.

DURATION

The qualification shall extend over at least three years of full-time study. Please refer to the section regarding Maximum Period of Study under General Information and Regulations.

CURRICULUM

		Presented	Module Code	Credit Value
First Year				
Compulsory modules:				
	Communication Skills I	Semester 1	CCM1111	5
	Computer Skills I	Semester 1	CCP1111	5
	Engineering Work Study I	Semester 1	IEW1111	10
	Engineering Work Study II	Semester 2	IEW2212	10
	Production Engineering: Industrial I	Semester 1	IPI1111	10
	Production Engineering: Industrial II	Semester 2	IPI2212	10

		Presented	Module Code	Credit Value
	Qualitative Techniques I	Semester 1 Semester 2	IQT1211 IQT1212	10
	Computer Aided Drafting I	Semester 2	MCD1312	10
	Mechanics I	Semester 2	MEC1112	10
	Mechanical Engineering Drawing I	Semester 1	MED1111	10
	Mechanical Manufacturing Engineering I	Semester 1	MNE1111	10
	Mechanical Manufacturing Engineering II	Semester 2	MNE2212	10
	Mathematics I	Semester 1	WIS1111	10
Select one of the following modules:				
	Motor Vehicle Engineering I	Semester 1	MVE1111	10
	Mathematics II	Semester 2	WIS2112	10
	Credits First Year			120
		Presented	Module Code	Credit Value
Second Year				
Compulsory modules:				
	Automation III	Semester 1 or Semester 2	IAT3111 or IAT3112	10
	Engineering Workstudy III ♦	Semester 2	IEW3312	10
	Industrial Accounting III	Semester 2	IIB3112	10
	Costing II	Semester 1	IKM2111	10
	Industrial Leadership III	Semester 2	ILS3112	10
	Facility, Layout And Materials Handling II	Semester 1	IMH2111	10
	Manufacturing Relations II	Semester 1	IMR2111	10
	Operational Research III	Semester 2	ION3112	10
	Quality Assurance II	Semester 2	IQA2112	10
Select two of the following modules:				
	Computer and Programming Skills I	Semester 1	CCP1411	10
	Mechanical Manufacturing Engineering III	Semester 2	MNE3312	10
	Strength Of Materials II	Semester 2	MSM2212	10
	Strength Of Materials III	Semester 1	MSM3211	10
	Mathematics III	Semester 1 or Semester 2	WIS3301 or WIS3302	10
	Credits Second Year			120

		Presented	Module Code	Credit Value
Third Year				
Compulsory modules:				
	Industrial Engineering Practice I	Semester 1 or Semester 2	IIE1211 or IIE1212	60
	Industrial Engineering Practice II	Semester 1 or Semester 2	IIE2211 or IIE2212	60
Credits Third Year				120
Total Credits				360

♦ Major module (please refer to the General Prospectus).

Please note:

- The modules listed above are required for entrance to the Bachelor of Technology: Industrial Engineering and meet the standards laid down for registration with the Engineering Council of South Africa (ECSA). Other options are available and can be discussed with the relevant Head of Department.
- Refer to the 'phase-out' schedule available from the Department.
- A total of 2 modules may be taken from another Engineering qualification subject to approval by the Head of Department and provided that the total number of credits for the qualification is adhered to.

**6.6 NATIONAL DIPLOMA (ENGINEERING: MECHANICAL): FULL-TIME
(QUALIFICATION CODE: 3718 - 01)
(NQF LEVEL: 6, TOTAL NQF CREDITS FOR QUALIFICATION: 360)
(HEQC- AND ECSA-ACCREDITED)
(NO NEW INTAKE)**

ADMISSION REQUIREMENTS

- Admission Points Score of 34.
- Minimum NSC requirements for diploma entry must be met.
- English, Afrikaans or isiXhosa (home language or first additional language) on at least level 3 (40-49%).
- NSC achievement rating of at least 4 (50-59%) for Mathematics.
- NSC achievement rating of at least 4 (50-59%) for Physical Sciences.
- Applicants with an Admission Points Score between 26 and 33 may be referred to write the Access Assessment Battery before a decision is made on whether or not to admit the applicant to the course.
- **Or** An N3 Certificate with a minimum of 60% in Mathematics and Engineering Science and 50% for any other electives.

Final year for admission

The final year for new admission into this programme was 2017.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2022.

Recommended NSC subjects

Engineering Graphics and Design

APPLICABLE RULES**Purpose Statement**

- Diplomats achieving this qualification will be able to integrate, independently as well as under supervision, analytical and practical engineering techniques and engineering knowledge to solve well-defined engineering problems. They will also be able to select criteria to judge processes and outcomes. This qualification is intended for engineering practitioners in industry.
- The diplomats will be able to register with the Engineering Council of South Africa (ECSA) as a Technician-In-Training in the field of Mechanical Engineering.

Qualification Objectives

- Apply mechanical engineering principles to diagnose and solve engineering problems.
- Demonstrate mechanical engineering knowledge and skills in one or more specialised areas.
- Engage in mechanical engineering design work individually and as part of a team.
- Communicate effectively in a technological environment.
- Apply management principles in an engineering environment.

Re-admission Policy

- Please refer to the section regarding Re-admission Requirements for Undergraduate Programmes under General Information and Regulations.
- That only one (1) registration (intake) per year be implemented for semester 1 modules as from 2014 until 2017 for the abovementioned programmes.
- From 2017 until Teach-Out date (end of 2022) only selected Semester 1 and Semester 3 modules will be offered in Semester 1, and selected Semester 2 and Semester 4 modules in Semester 2 of an Academic year.
- The pass-on-link criteria as stipulated in the General Prospectus (G1.6.12.2.1) will be applied to the following modules:
 - Mechanical Engineering Drawing I (MED1111) to Computer-Aid Drafting I (MCD1312)
 - Mechanics I (MEC1111) to Mechanics of Machines II (MMB2212)

Pre-requisite Modules

A student will not be allowed to proceed to the following modules without first having passed the listed pre-requisite modules or, in some cases, be simultaneously registered (at least) for the given co-requisite modules.

Subject	Code	Pre-requisites
Level 1: Semester 1 Engineering Materials and Science I Mathematics I* Mechanical Engineering Drawing I Mechanical Manufacturing Engineering I Mechanics I	MEM1111 WIS1111 MED1111 MNE1111 MEC1111	
Level 2: Semester 2 Communication Principles: Module A Computer Aided Drafting I Fluid Mechanics II Mechanics of Machines II Mathematics II Strength of Materials II Thermodynamics II	CCM1222 MCD1312 MFL2212 MMB2212 WIS2111/2 MSM2212 MTH2212	► MED1111 MEC1111 & WIS1111/2 ► MEC1111 & WIS1111/2 WIS1111/2 MEC1111 & WIS1111/2 MEC1111 & WIS1111/2

Subject	Code	Pre-requisites
Communication in Practice: Module A (coupled to MFL2212)		
Subject	Code	Prerequisites
Level 3: Semester 3		
Computer and Programming Skills I	CCP1411/2	
Fluid Mechanics III	MFM3211/2	MFL2212
Mechanical Engineering Design II	MDE2211/2	MED1111 & MSM2212 & MEC1111
Mathematics III	WIS3111/2	WIS2111/2
Strength of Materials III	MSM3221/2	MSM2212
Thermodynamics III	MTH3211/2	MTH2212
Subject	Code	Prerequisites
Level 3: Semester 4		
Electrotechnology I	MET1111/2	
Mechanics of Machines III	MMB3211/2	MMB2212
▶ Applied Strength of Materials III	MST3111/2	MSM3221/2
▶ Hydraulic Machines III	MHM3111/2	MFM3211/2
▶ Mechanical Engineering Design III	MDE3211/2	MEC1111, WIS1111/2, MSM2212, MMB2212 & MDE2211/2
▶ Steam Plant III	MTD3111/2	MTH3211/2
Communication in Practice: Module B (coupled to MDE3211/2)	CCM1421/2	CCM1221/2

CLASS ATTENDANCE

Minimum attendance

Due to the practical nature of the classes offered, students have to attend a minimum of 80% of normal lectures to gain permission to sit for the examination, unless special leave is granted.

Recognition of modules done at other tertiary institutions

The Department will consider modules done at other tertiary institutions for exemption according to the General Prospectus and Rules of Nelson Mandela University, subject to the following criteria.

In all cases where exemptions are being contemplated, requests to do so must be lodged in writing with the HOD before registration at the other tertiary institution takes place. Where the applicants cannot meet the criteria below, they will be advised to arrange for the diploma to be awarded through the other tertiary institution.

- A candidate may only be exempted from modules with a cumulative credit value of not more than half of the total credit value of the relevant qualification.
- Level III modules will not be exempted. However, in cases where a student has entered for all level III modules but has failed a limited number of these, and in the subsequent study period is employed in an area remote from Port Elizabeth, an exception may be made by the Faculty Management Committee.

In such cases, the equivalent module done at the other tertiary institution may be exempted, but this will apply only to a maximum of half of the total credit value of the exit-level modules.

Obtaining the qualification

The qualification shall be obtained by completing the modules prescribed by Senate.

Awarding the qualification *cum laude*

The qualification shall be awarded *cum laude* if students comply with the requirements as stipulated in the General Prospectus. The following modules shall be regarded as the major modules:

- Applied Strength of Materials III
- Hydraulic Machines III
- Steam Plant III
- Mechanical Engineering Design III

The qualification structure for the National Diploma consists of 2 years of academic training and 1 year of work-integrated learning (WIL). A minimum of 360 credits are required for a National Diploma.

DURATION

The qualification shall extend over at least three years of full-time study. Please refer to the section regarding Maximum Period of Study under General Information and Regulations.

CURRICULUM

		Presented	Module Code	Credit Value
First Year				
Compulsory modules:				
Communication Studies (2 modules 'A' and 'B')			CCM1420	
Communication Principles: Module A (coupled to MFL2211/2)	Semester 1 or Semester 2	CCM1221 or CCM1222	5	
Computer-aided Drafting I	Semester 2	MCD1312	10	
Mechanics I	Semester 1 or Semester 2	MEC1111 or MEC1112	10	
Mechanical Engineering Drawing I	Semester 1	MED1111	10	
Engineering Materials and Science I	Semester 1	MEM1111	10	
Fluid Mechanics II (coupled to CCM1221/2)	Semester 1 or Semester 2	MFL2211 or MFL2212	10	
Mechanics of Machines II	Semester 1 or Semester 2	MMB2211 or MMB2212	10	
Mechanical Manufacturing Engineering I	Semester 1	MNE1111	10	
Strength of Materials II	Semester 1 or Semester 2	MSM2211 or MSM2212	10	
Thermodynamics II	Semester 1 or Semester 2	MTH2211 or MTH2212	10	
Mathematics I	Semester 1	WIS1111	10	
Mathematics II	Semester 2	WIS2112	10	
Credits First Year			115	

		Presented	Module Code	Credit Value
Second Year				
Compulsory modules:				
	Communication in Practice: Module B (coupled to MDE3211/2)	Semester 2	CCM1422	5
	Computer and Programming Skills I	Semester 1 or Semester 2	CCP1411 or CCP1412	10
	Mechanical Engineering Design II	Semester 1	MDE2211	10
	Mechanical Engineering Design III ♦ (coupled to CCM1421/2)	Semester 1 or Semester 2	MDE3211 or MDE3212	10
	Electrotechnology I	Semester 1	MET1111	10
	Fluid Mechanics III	Semester 1 or Semester 2	MFM3211 or MFM3212	10
	Hydraulic Machines III ♦	Semester 1 or Semester 2	MHM3111 or MHM3112	10
	Mechanics of Machines III	Semester 1 or Semester 2	MMB3211 or MMB3212	10
	Strength of Materials III	Semester 1 or Semester 2	MSM3221 or MSM3222	10
	Applied Strength of Materials III ♦	Semester 1 or Semester 2	MST3111 or MST3112	10
	Steam Plant III ♦	Semester 1 or Semester 2	MTD3111 or MTD3112	10
	Thermodynamics III	Semester 1 or Semester 2	MTH3211 or MTH3212	10
	Mathematics III	Semester 1 or Semester 2	WIS3111 or WIS3112	10
	Credits Second Year			125
Third Year				
Compulsory modules:				
	Mechanical Engineering Practice I	Semester 1 or Semester 2	MEP1011 or MEP1012	60
	Mechanical Engineering Practice II	Semester 1 or Semester 2	MEP2011 or MEP2012	60
	Credits Third Year			120
	Total Credits			360
A maximum of 90 credits at level 1 are allowed.				
♦ Major modules (please refer to the General Prospectus).				

Note:

- With regards to Mechanical Engineering Practice I and II, please refer to the logbook for detailed guidelines and other criteria.
- A total of 2 modules may be taken from another Engineering qualification subject to approval by the Head of Department and provided that the total number of credits for the qualification is adhered to.
- Refer to the 'phase-out' schedule available from the Department.

PREREQUISITE MODULES FOR BACHELOR OF TECHNOLOGY: ENGINEERING: MECHANICAL

- Applied Strengths of Materials III
- Electrotechnology I
- Hydraulic Machines III
- Mathematics III
- Mechanical Engineering Design III
- Steam Plant III

**6.7 NATIONAL DIPLOMA (INFORMATION TECHNOLOGY: COMMUNICATION NETWORKS): FULL-TIME
(QUALIFICATION CODE: 3227 – 01)
(NQF LEVEL: 6, TOTAL NQF CREDITS FOR QUALIFICATION: 360)**

ADMISSION REQUIREMENTS

- Admission Points Score of 32.
- Minimum NSC requirements for diploma entry must be met.
- English, Afrikaans or isiXhosa (home language or first additional language) on at least level 3 (40-49%).
- NSC achievement rating of at least 3 (40-49%) for Mathematics.
- Applicants with an Admission Points Score between 26 and 31 may be referred to write the Access Assessment Battery before a decision is made on whether or not to admit the applicant to the course.

Recommended NSC subjects

Computer Applications Technology
AND/OR
Information Technology

APPLICABLE RULES**Re-admission Policy**

Please refer to the section regarding Re-admission Requirements for Undergraduate Programmes under General Information and Regulations.

Obtaining the qualification

The qualification shall be obtained by completing the modules prescribed by Senate.

Awarding the qualification *cum laude*

The qualification shall be awarded *cum laude* if students comply with the requirements as stipulated in the General Prospectus. The following modules shall be regarded as the major modules:

Distributed Systems III A: Network Operating Systems
Distributed Systems III B: Project

Communication Networks III A
Communication Networks III B

Prerequisite Modules

A student will not be allowed to proceed to the following modules without first having passed the listed prerequisite modules.

Module		Prerequisite	
Name	Code	Name	Code
Distributed Systems II	CNW2110	Systems Software I: IT Essentials	WCI1601
Development Software II	ONT2000	Development Software I	ONT1000/ SDS1000
Communication Networks IIA	WCN2111	Systems Software I: Networks & CCNA1 Certificate	WCI1600
Communication Networks IIB	WCN2112	Communication Networks IIA	WCN2111
Digital Systems II	CII3011	Digital Systems I	CII2012
Digital Systems III	CII3012	Digital Systems II	CII3011
Distributed Systems III A: Network Operating Systems	CNW3011	Distributed Systems II/ Systems Software II	CNW2110/ SSI2000
Distributed Systems III B: Project	CNW3012	Communication Networks IIB	WCN2112
Support Services II	SSO2000	Systems Software I: IT Essentials & Information Systems IA	WCI1601 & WIH1370
Communication Networks III A	WCN3011	Communication Networks IIB	WCN2112
Communication Networks III B	WCN3012	Communication Networks III A	WCN3011

DURATION

The qualification shall extend over a minimum of three years of full-time study. Please refer to the section regarding Maximum Period of Study under General Information and Regulations.

CURRICULUM

		Presented	Module Code	Credit Value
First Year				
Compulsory modules:				
	Information Technology Skills I	Year	ITS1110	30
	Development Software I	Year	ONT1000	30
	Systems Software I: Networks	Year	WCI1600	15
	Systems Software I: IT Essentials	Semester 1	WCI1601	15
	Information Systems IA	Year	WIH1370	15
	Information Systems IB	Year	WIH1380	15

		Presented	Module Code	Credit Value
	Credits First Year			120
		Presented	Module Code	Credit Value
Second Year				
	Compulsory modules:			
	Digital Systems I	Semester 2	CII2012	15
	Mathematics	Semester 1	CII2021	15
	Distributed Systems II	Year	CNW2110	30
	Development Software II	Year	ONT2000	30
	Communication Networks IIA	Semester 1	WCN2111	15
	Communication Networks IIB	Semester 2	WCN2112	15
	Credits Second Year			120
		Presented	Module Code	Credit Value
Third Year				
	Compulsory modules:			
	Digital Systems II	Semester 1	CII3011	15
	Digital Systems III	Semester 2	CII3012	15
	Distributed Systems III A: Network Operating Systems ♦	Semester 1	CNW3011	15
	Distributed Systems III B: Project ♦	Semester 2	CNW3012	15
	Support Services II	Year	SSO2000	30
	Communication Networks III A ♦	Semester 1	WCN3011	15
	Communication Networks III B ♦	Semester 2	WCN3012	15
	Credits Third Year			120
	Total Credits			360

♦ Major modules (please refer to the General Prospectus).

Please note:

A maximum of 60 credits in the curriculum may be substituted subject to approval from the School Management Committee and the requirements of the NATED 151.

PREREQUISITE MODULES FOR BACHELOR OF TECHNOLOGY: INFORMATION TECHNOLOGY: COMMUNICATION NETWORKS

- Communication Networks III A
- Communication Networks III B
- Cisco CCNA4 and CCNA Security Certificates

**6.8 NATIONAL DIPLOMA (INFORMATION TECHNOLOGY: SOFTWARE DEVELOPMENT): FULL-TIME
(QUALIFICATION CODE: 3224 – 01)
(NQF LEVEL: 6, TOTAL NQF CREDITS FOR QUALIFICATION: 360)**

ADMISSION REQUIREMENTS

- Admission Points Score of 32.
- Minimum NSC requirements for diploma entry must be met.
- English, Afrikaans or isiXhosa (home language or first additional language) on at least level 3 (40-49%).
- NSC achievement rating of at least 2 (30-39%) for Mathematics or 4 (50-59%) for Mathematical Literacy.
- Applicants with an Admission Points Score between 26 and 31 may be referred to write the Access Assessment Battery before a decision is made on whether or not to admit the applicant to the course.

Recommended NSC subjects

Computer Applications Technology

OR

Information Technology

APPLICABLE RULES

Re-admission Policy

Please refer to the section regarding Re-admission Requirements for Undergraduate Programmes under General Information and Regulations.

Obtaining the qualification

The qualification shall be obtained by completing the modules prescribed by Senate.

Awarding the qualification *cum laude*

The qualification shall be awarded *cum laude* if students comply with the requirements as stipulated in the General Prospectus. The following modules shall be regarded as the major modules:

- Development Software III: C#
- Development Software III: Project
- Information Systems III: Systems Analysis and Design
- Information Systems III: Advanced Design
- Information Systems III: Project Management

Prerequisite Modules

A student will not be allowed to proceed to the following modules without first having passed the listed prerequisite modules or, in some cases, be simultaneously registered (at least) for the given co-requisite modules.

Module		Prerequisite		Co-requisite	
Name	Code	Name	Code	Name	Code
Internet Programming II	ITP2000	Development Software I	ONT1000/ SDS1000		
Development Software II	ONT2000	Development Software I	ONT1000/ SDS1000	Information Systems II	WIH2100

Module		Prerequisite		Co-requisite	
Name	Code	Name	Code	Name	Code
Technical Programming I	PRT1000	Development Software I	ONT1000/ SDS1000		
Information Systems II	WIH2100	Information Systems IA & 1B	WIH1370 & WIH1380		
Development Software III: Project	ONT3660	Development Software II & Information Systems II	ONT2000 & WIH2100	Information Systems III: Project Management	WIH3661
Development Software III: C#	ONT3601	Development Software II	ONT2000		
Technical Programming II	PRT2110	Development Software II & Technical Programming I	ONT2000 & PRT1000		
Graphical User Interface Design I	SGU1000	Development Software I	ONT1000/ SDS1000		
Information Systems III: System Analysis & Design	WIH3601	Information Systems II	WIH2100		
Information Systems III: Advanced Design	WIH3602	Information Systems III: System Analysis & Design	WIH3601		
Information Systems III: Project Management	WIH3661	Information Systems II	WIH2100	Development Software III: Project	ONT3660

DURATION

The qualification shall extend over a minimum of three years of full-time study. Please refer to the section regarding Maximum Period of Study under General Information and Regulations.

CURRICULUM

		Presented	Module Code	Credit Value
First Year				
	Compulsory modules:			
	Information Technology Skills I	Year	ITS1110	30
	Development Software I	Year	ONT1000	30
	Systems Software I: Networks	Year	WCI1600	15
	Systems Software I: IT Essentials	Semester 1	WCI1601	15
	Information Systems IA	Year	WIH1370	15
	Information Systems IB	Year	WIH1380	15
	Credits First Year			120
		Presented	Module Code	Credit Value
Second Year				
	Compulsory modules:			
	Internet Programming II	Year	ITP2000	30
	Development Software II	Year	ONT2000	30
	Technical Programming I	Year	PRT1000	30
	Information Systems II	Year	WIH2100	30
	Credits Second Year			120
		Presented	Module Code	Credit Value
Third Year				
	Compulsory modules:			
	Development Software III: C# ♦	Semester 1	ONT3601	15
	Development Software III: Project ♦	Year	ONT3660	15
	Technical Programming II	Year	PRT2110	30
	Graphical User Interface Design I	Year	SGU1000	30
	Information Systems III: Systems Analysis and Design ♦	Semester 1	WIH3601	10
	Information Systems III: Advanced Design ♦	Semester 2	WIH3602	10
	Information Systems III: Project Management ♦	Semester 1	WIH3661	10
	Credits Third Year			120
	Total Credits			360

♦ Major modules (please refer to the General Prospectus).

Please note:

A maximum of 60 credits in the curriculum may be substituted subject to approval from the School Management Committee and the requirements of the NATED 151.

PREREQUISITE MODULES FOR BACHELOR OF TECHNOLOGY: INFORMATION TECHNOLOGY: SOFTWARE DEVELOPMENT

- Development Software III: Project
- Development Software III: C#
- Information Systems III

**6.9 NATIONAL DIPLOMA (INFORMATION TECHNOLOGY: SUPPORT SERVICES): FULL-TIME
(QUALIFICATION CODE: 3228 – 01)
(NQF LEVEL: 6, TOTAL NQF CREDITS FOR QUALIFICATION: 360)**

ADMISSION REQUIREMENTS

- Admission Points Score of 32.
- Minimum NSC requirements for diploma entry must be met.
- English, Afrikaans or isiXhosa (home language or first additional language) on at least level 3 (40-49%).
- NSC achievement rating of at least 2 (30-39%) for Mathematics or 4 (50-59%) for Mathematical Literacy.
- Applicants with an Admission Points Score between 26 and 31 may be referred to write the Access Assessment Battery before a decision is made on whether or not to admit the applicant to the course.

OR

- Higher Certificate in IT in User Support Services with an average of 60% or above. An applicant may be referred for assessment on the Access Assessment Battery and any other relevant assessment before an admission decision is reached.

Recommended NSC subjects

Computer Applications Technology

OR

Information Technology

APPLICABLE RULES

Re-admission Policy

Please refer to the section regarding Re-admission Requirements for Undergraduate Programmes under General Information and Regulations.

Obtaining the qualification

The qualification shall be obtained by completing the modules prescribed by Senate.

Awarding the qualification *cum laude*

The qualification shall be awarded *cum laude* if students comply with the requirements as stipulated in the General Prospectus. The following modules shall be regarded as the major modules:

- Information Systems III
- Support Services III

Prerequisite Modules

A student will not be allowed to proceed to the following modules without first having passed the listed prerequisite modules.

Module		Prerequisite	
Name	Code	Name	Code
Communication Networks IIA	WCN2111	Systems Software I: Networks & CCNA1 Certificate	WCI1600
Communication Networks IIB	WCN2112	Communication Networks IIA	WCN2111
Systems Software II	SSI2000	Systems Software I: IT Essentials	WCI1601
Support Services II	SSO2000	Systems Software I: IT Essentials & Information Systems IA	WCI1601 & WIH1370
Information Systems II	WIH2100	Information Systems IA & Information Systems IB	WIH1370 & WIH1380
Information Systems III	SIH3000	Information Systems II	WIH2100
Installation Management III	SIM3000	Systems Software II	SSI2000
Support Services III	SSO3000	Support Services II	SSO2000
Graphical User Interface Design I	SGU1000	Development Software I	SDS1000/ ONT1000
Communication Networks III A	WCN3011	Communication Networks IIB	WCN2112
Communication Networks III B	WCN3012	Communication Networks III A	WCN3011

DURATION

The qualification shall extend over a minimum of three years of full-time study. Please refer to the section regarding Maximum Period of Study under General Information and Regulations.

CURRICULUM

		Presented	Module Code	Credit Value
First Year				
Compulsory modules:				
	Development Software I	Year	SDS1000	30
	Information Technology Skills I	Year	SIS1000	30
	Systems Software I: Networks	Year	WCI1600	15
	Systems Software I: IT Essentials	Semester 1	WCI1601	15
	Information Systems IA	Year	WIH1370	15
	Information Systems IB	Year	WIH1380	15
	Credits First Year			120

		Presented	Module Code	Credit Value
Second Year				
Compulsory modules:				
	Communication Networks IIA	Semester 1	WCN2111	15
	Communication Networks IIB	Semester 2	WCN2112	15
	Systems Software II	Year	SSI2000	30
	Support Services II	Year	SSO2000	30
	Information Systems II	Year	WIH2100	30
	Credits Second Year			120
Third Year				
Compulsory modules:				
	Information Systems III ♦	Year	SIH3000	30
	Installation Management III	Year	SIM3000	30
	Support Services III ♦	Year	SSO3000	30
	Sub-total			90
Select 30 credits from the following modules**:				
	Graphical User Interface Design I	Year	SGU1000	30
	Communication Networks III A	Semester 1	WCN3011	15
	Communication Networks III B	Semester 2	WCN3012	15
	Credits Third Year			120
	Total Credits			360

♦ Major modules (please refer to the General Prospectus).

** Should you wish to continue to the B Tech: IT (Communication Networks), you will need to select the modules WCN3011 and WCN3012.

Please note:

A maximum of 60 credits in the curriculum may be substituted subject to approval from the School Management Committee and the requirements of the NATED 151.

**6.10 NATIONAL DIPLOMA (OPERATIONS MANAGEMENT): PART-TIME
(QUALIFICATION CODE: 3584 – 21)
(NQF LEVEL: 6, TOTAL NQF CREDITS FOR QUALIFICATION: 360)
(NO NEW INTAKE)**

ADMISSION REQUIREMENTS

- Admission Points Score of 30.
- Minimum NSC requirements for diploma entry must be met.
- English, Afrikaans or isiXhosa (home language or first additional language) on at least level 3 (40-49%).
- NSC achievement rating of at least 3 (40-49%) for Mathematics or 5 (60-69%) for Mathematical Literacy.
- Applicants with an Admission Points Score between 22 and 29 may be referred to write the Access Assessment Battery before a decision is made on whether or not to admit the applicant to the course.
- Must be in full-time employment in a related field.

Final year for admission

The final year for new admission into this programme was 2018.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2022.

Purpose Statement

Persons achieving this qualification will be able to plan, organise and control the production, operations and related activities. Globally, the possible positions of individuals with this type of qualification include production planners, operations managers, supervisors, a foreman, work study practitioners, quality practitioners and operations analysts.

Qualification Objectives

Provide students with skills and knowledge to develop as managers in all spheres of production and operations.

APPLICABLE RULES

Re-admission Policy

- Please refer to the section regarding Re-admission Requirements for Undergraduate Programmes under General Information and Regulations.
- That only one (1) registration (intake) per year be implemented as from 2014 until 2018 for the abovementioned programmes.
- From 2018 until Teach-Out date (end of 2022) only Semester 1 and Semester 3 modules will be offered in Semester 1 and Semester 2 and Semester 4 modules in Semester 2 of an Academic year.
- The pass-on link criteria as stipulated in the General Prospectus (G1.6.12.2.1) will be applied to the following modules:
 - Organisational Effectiveness I (BOE1111) to Organisational Effectiveness II (BOE2112).
 - Operations Management I (BPJ1311) to Operations Management II (BPJ2322).

Prerequisite Modules

A student will not be allowed to proceed to the following modules without first having passed the listed prerequisite modules.

Module Name	Module Code	Pre-requisite
Operations Management II	BPJ2322	BPJ1311
Organisational Effectiveness II	BOE2112	BOE1111
Operational Research III	BOA3211/2	BPI2321
Operations Management Practice I	BAI1311/22	BPJ2322 & BOE2112 & BCN1111
Operations Management Techniques III	BPI3411/22	BPI2321
Operations Management III	BPJ3411/22	BPJ2322

Obtaining the qualification

The qualification shall be obtained by completing the modules prescribed by Senate.

Awarding the qualification *cum laude*

The qualification shall be awarded *cum laude* if students comply with the requirements as stipulated in the General Prospectus. The following module shall be regarded as the major module:

Operations Management III

DURATION

The qualification shall extend over at least three years of part-time study. (This diploma is offered on a **part-time basis only**.) Please refer to the section regarding Maximum Period of Study under General Information and Regulations.

CURRICULUM

		Presented	Module Code	Credit Value
First Year				
	Compulsory modules:			
	Organisational Effectiveness I	Semester 1	BOE1111	30
	Organisational Effectiveness II	Semester 2	BOE2112	30
	Operations Management I	Semester 1	BPJ1311	30
	Operations Management II	Semester 2	BPJ2322	30
	Credits First Year			120
		Presented	Module Code	Credit Value
Second Year				
	Compulsory modules:			
	Communication I	Semester 1	BCN1111	23
	End-User Computing I	Year	BEU1110	23
	Operational Research III	Semester 1 or Semester 2	BOA3211 or BOA3212	30
	Operations Management Techniques II	Semester 1 or Semester 2	BPI2321 or BPI2322	30

		Presented	Module Code	Credit Value
	Credits Second Year			116
		Presented	Module Code	Credit Value
Third Year				
	Compulsory modules:			
	Operations Management Practice I	Semester 1 or Semester 2	BAI1311 or BAI1322	30
	Operations Management Techniques III	Semester 1 or Semester 2	BPI3411 or BPI3422	30
	Operations Management III ♦	Semester 1 or Semester 2	BPJ3411 or BPJ3422	30
	Sub-total			90
Select two of the following modules with a total credit value of 46:				
	Labour Law (2 modules)		BAH1000	
	Common Law and Social Legislation	Semester 1	BAH1101	12
	Labour Relations Act	Semester 2	BAH1202	12
	Management Principles and Practice I	Semester 1	BBM1121	23
	Personnel Function	Semester 1	BDA1111	23
	Costing and Estimating	Semester 2	BKM1112	23
	Workplace Dynamics I	Semester 2	BWD1112	23
	Motor Vehicle Engineering I	Semester 1	MVE1111	23
	Credits Third Year			136
	Total Credits			360

♦ Major module (please refer to the General Prospectus).

Please note:

- The diploma is issued subject to the candidate having passed the eleven compulsory modules and a minimum of 2 additional optional modules.
- Refer to the 'phase-out' schedule available from the Department.
- The specified time-table arrangements will be adhered to as far as possible, but unforeseen circumstances, such as non-availability of lecturers or limited interest, may force unavoidable changes.

**6.11 DIPLOMA IN OPERATIONS MANAGEMENT: PART-TIME
(QUALIFICATION CODE: 7755 – 21)
(NQF LEVEL: 6, TOTAL NQF CREDITS FOR QUALIFICATION: 360)**

ADMISSION REQUIREMENTS

- Admission Points Score of 30.
- Minimum NSC requirements for diploma entry must be met.
- English, Afrikaans or isiXhosa (home language or first additional language) on at least level 4 (50-59%)
- NSC achievement rating of at least 3 (40-49%) for Mathematics or 5 (60-69%) for Mathematical Literacy.
- Applicants with an Admission Points Score of between 22 and 29 may be referred to write Access Assessment Test before a decision is made on whether or not to admit the applicant to the programme.
- Full-time employment in a related field (a comprehensive curriculum vitae must be provided along with application form).

NCV Requirement

- Minimum National Certificate (Vocational) Level 4 statutory requirements for diploma entry must be met.
- English, Afrikaans or isiXhosa (first additional language) on at least a level 4 (50-59%).
- NC(V) achievement rating of at least a 5 (60-69%) for Mathematics or a 5 (60-69%) for Mathematical Literacy.
- Satisfactory Performance on Access Assessment Tests.
- Full-time employment in a related field (a comprehensive curriculum vitae must be provided along with application form).

Purpose Statement

The Diploma in Operations Management is specifically designed to build the necessary knowledge, understanding, abilities and skills required towards becoming primarily a competent operations manager and operations employee.

The student who completes the Diploma in Operations Management is considered to have a sound knowledge of planning and managing an organisation's resources and processes that create products or services. The resources include the workforce, technology, supply chain, production and service creation processes, materials, and information which typically represents a significant portion of an organisation's cost and assets. The graduate is considered to have a depth of knowledge across a broad set of operations management issues that permeate all levels of decision making from long term strategies to the tactical to day to day activities. The graduate is able to contribute to the organisation's success by developing resource based distinctive competencies.

This learning programme meets the requirements of the new Higher Education Qualification Sub Framework (HEQSF) for a 3 year Diploma qualification (offered part-time), is primarily industry oriented and will develop and transfer cutting edge operations management related knowledge as a foundation for wealth creation and economic sustainability. The learning programme is a coherent mix of social sciences, the application of quantitative methods, technology application and some basic (industrial) engineering sciences.

This qualification will provide students with a sound knowledge base in the operations management discipline and the ability to apply that knowledge, skills and values to make a meaningful contribution to the economy and national development by ensuring optimal utilisation of resources.

Qualification Objectives

- Demonstration of the ability to identify, analyse, evaluate, critically reflect on and address solve well-defined and lower-level open-ended manufacturing and service-related problems within the operations management field.
- The ability to identify, analyse, evaluate, critically reflect on and address and solve well-defined and lower-level, open-ended manufacturing and service-related problems within the operations management field.
- The ability to access, process and manage information, in respect of demonstration of the ability to develop appropriate processes of information gathering for a given use within the operations management field and the ability to independently or in a team validate the sources of information and evaluate and manage the information within the operations management field.
- The ability to independently validate the sources of information and evaluate and manage the information to solve well-defined and lower-level open-ended manufacturing and service-related problems within the operations management field.
- Producing and communicating information, in respect of which a learner is able to demonstrate the ability to develop and communicate ideas and opinions using appropriate academic, professional, or occupational discourse.
- Demonstration of the ability to manage processes and solve well-defined and lower-level open-ended manufacturing and service-related problems in unfamiliar contexts within the operations management field, recognising that problem solving is context- and system-bound, and does not occur in isolation.
- Management of learning, in respect of which a learner is able to demonstrate the ability to identify, evaluate and address his or her learning needs within the Operations Management field in a self-directed manner, and to facilitate collaborative learning processes.

APPLICABLE RULES

Re-admission Policy

- Please refer to the section regarding Re-admission Requirements for Undergraduate Programmes under General Information and Regulations.
- Re-admission to the programme in a following academic year is subject to:
 - Candidates passing at least 50% credits per academic year;
 - Candidates passing defined pre-requisite modules.

Prerequisite Modules

A student will not be allowed to proceed to the following modules without first having passed the listed pre-requisite modules.

Module Name	Module Code	Pre-requisite
Manufacturing Relations I	EMB1001	EPE1002
Operations Project I	EIP1001	EPE1002 & EWS1002 & EPV1001
Operations Management Techniques II	EOR2002	ESS1001
Operations Management II	EPE2002	EPE1002
Quality I	EQQ1002	ESS1001 & EPE1002

Module Name	Module Code	Pre-requisite
Operations Management Techniques III	EOR3001	EOR2002
Organisational Effectiveness II	EWS2001	EWS1002
Operations Technology II	EQQ2002	EPE2002
Costing II	EMB2002	EPE2002
Operations Project II	EIP2002	EIP1001
Industrial Leadership III	EIL3001	EMB1001
Operations Management III	EPE3001	EPE2002
Global Operations Management III	EPM3002	EPE2002
Operations Project III	EIP3002	EIP2002, EMB2002, EQQ2002 & EIL3001

Obtaining the qualification

The qualification shall be obtained by completing the modules prescribed by Senate.

Awarding the qualification *cum laude*

The qualification shall be awarded *cum laude* if students comply with the requirements as stipulated in the General Prospectus. The following module shall be regarded as the major module:

Operations Project 3

DURATION

The qualification shall extend over at least four years of part-time study. (This diploma is offered on a **part-time basis only**.) Please refer to the section regarding Maximum Period of Study under General Information and Regulations.

CURRICULUM

		Presented	Module Code	Credit Value
First Year				
Compulsory modules:				
	Professional Communication I (Language)	Semester 1	LEL1001	14
	Professional Communication I (Computers)	Semester 1	LEC1001	14
	Fundamentals of Manufacturing I	Semester 1	EPV1001	14
	Operations Management I	Semester 2	EPE1002	14
	Organisational Effectiveness I	Semester 2	EWS1002	14
	Credits First Year			70
Second Year				
Compulsory modules:				
	Manufacturing Relations I	Semester 1	EMB1001	14
	Statistics I	Semester 1	ESS1001	14
	Operations Project I	Semester 1	EIP1001	20
	Operations Management Techniques II	Semester 2	EOR2002	14

		Presented	Module Code	Credit Value
	Operations Management II	Semester 2	EPE2002	14
	Quality I	Semester 2	EQQ1002	14
	Credits Second Year			90
Third Year				
	Compulsory modules:			
	Operations Management Techniques III	Semester 1	EOR3001	18
	Organisational Effectiveness II	Semester 1	EWS2001	14
	Operations Technology II	Semester 2	EQQ2002	14
	Costing II	Semester 2	EMB2002	14
	Operations Project II	Semester 2	EIP2002	36
	Credits Third Year			96
Fourth Year				
	Compulsory modules:			
	Industrial Leadership III	Semester 1	EIL3001	18
	Operations Management III	Semester 1	EPE3001	18
	Corporate Citizenship III	Semester 2	CCC3002	14
	Global Operations Management III	Semester 2	EPM3002	18
	Operations Project III ♦	Semester 2	EIP3002	36
	Credits Fourth Year			104
	Total Credits			360

♦ Major module (please refer to the General Prospectus).

Please note:

The diploma is issued subject to the candidate having passed all the compulsory modules.

**7 ADVANCED DIPLOMA IN QUALITY MANAGEMENT: PART-TIME
(QUALIFICATION CODE: 71500 – 21)
(NQF LEVEL: 7, TOTAL NQF CREDITS FOR QUALIFICATION: 120)**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

ADMISSION REQUIREMENTS

- Students must have a 65% average for any relevant National Diploma, Diploma or Degree at the discretion of the Head of Department, or 60% average, with two years relevant post diploma/degree working experience.
- Mathematics I or equivalent at an NQF Level 5.
- Employment in a relevant field is required for the Project module.
- Applicants from non-English speaking countries are required to submit proof of English proficiency before registration. The TOEFL or IELTS tests, available in most countries, are acceptable proof. The minimum TOEFL score required is 230 on the computer-based test, or 570 on the paper-based test. A minimum of a 6.0 on the IELTS is acceptable. If this documentation is not provided before registration, you will be required to undertake an evaluation by the director of the NMMU English Language Skills Programme, and depending upon your performance, you may then be required to register for and complete the English Language Skills Programme.
- Other and non-South African qualifications will be considered based on SAQA reports and merit and may require the submission of curricula and learning material. These applicants may be required to complete additional modules to enhance their preparation for this qualification.

Purpose Statement

The purpose of this learning programme is to equip the students with knowledge and advanced to skills be able to determine and manage the effectiveness of quality management systems, appraise the current systems and processes, identify problem areas and possess the skills to assist in the minimisation of the problem areas identified. This qualification offers an intensive, focused and applied specialisation which meets the need of a specific niche in the labour market. This programme is suitable for a continuing professional development through the inculcation of a deep and systematic understanding of current thinking, practice, theory and methodology in the area of quality management and systems.

Globally, the possible positions of individuals with this type of qualification include quality practitioners, managers, supervisors and foremen. The study of quality involves the effective application and management of resources including but not limited to human, capital and material resources. Quality management for manufacturing operations is a key fundamental to the competitive edge of Eastern Cape region and is a major contributor to wealth creation and employment. Included in the tasks of quality managers are the essential components of quality enhancement and assurance, supply chain management, increased productivity, cost reduction and flexibility improvements.

Qualification Objectives

- Demonstration of the ability to identify, analyse, evaluate, critically reflect on and address solve well-defined and lower-level open-ended manufacturing and service-related problems within the quality management field.

- The ability to identify, analyse, evaluate, critically reflect on and address and solve well-defined and lower-level, open-ended manufacturing and service-related problems within the quality management field.
- The ability to access, process and manage information, in respect of demonstration of the ability to develop appropriate processes of information gathering for a given use within the operations management field and the ability to independently or in a team validate the sources of information and evaluate and manage the information within the quality management field.
- The ability to independently validate the sources of information and evaluate and manage the information to solve well-defined and lower-level open-ended manufacturing and service-related problems within the quality management field.
- Producing and communicating information, in respect of which a learner is able to demonstrate the ability to develop and communicate ideas and opinions using appropriate academic, professional, or occupational discourse.
- Demonstration of the ability to manage processes and solve well-defined and lower-level open-ended manufacturing and service-related problems in unfamiliar contexts within the operations management field, recognising that problem solving is context and system bound, and does not occur in isolation.
- Management of learning, in respect of which a learner is able to demonstrate the ability to identify, evaluate and address his or her learning needs within the quality management field in a self-directed manner, and to facilitate collaborative learning processes.

APPLICABLE RULES

Re-admission Policy

- Re-admission to the programme in a following academic year is subject to:
 - Candidates passing at least 50% of credits per academic year;
 - Candidates passing defined pre-requisite modules.

Obtaining the qualification

The qualification shall be obtained by completing the modules prescribed by Senate.

Awarding the qualification *cum laude*

Unless Senate decides otherwise, the qualification shall be awarded *cum laude* if candidates comply with the relevant General Rules for the Advanced Diploma qualifications.

Prerequisite modules

Module Name	Module Code	Prerequisite module
Statistical Quality Techniques IV(B)	QTTV401	QSTV402
Quality Auditing Techniques IV	QATV402	QMSV402

DURATION

The qualification shall extend over at least two years of part-time study.

CURRICULUM

Please note: New intake restricted at the start of each year. All modules are compulsory and require formal class attendance.

		Presented	Module Code	Credit Value
First Year				
	Compulsory modules:			
	Lean Manufacturing IV	Semester 1	QLMV401	15
	Total Quality Management IV	Semester 1	QTMV401	15
	Quality Management Systems IV	Semester 2	QMSV402	15
	Statistical Quality Techniques IV (A)	Semester 2	QSTV402	15
	Credits First Year			60
Second Year				
	Compulsory modules:			
	Statistical Quality Techniques IV (B)	Semester 1	QTTV401	15
	Quality Auditing Techniques IV	Semester 2	QATV402	15
	Project IV	Year	QPRV400	30
	Credits Second Year			60
	Total Credits			120

8 BACHELOR OF ENGINEERING**8.1 BACHELOR OF ENGINEERING IN MECHATRONICS: FULL-TIME
(QUALIFICATION CODE: 4722 – 01)
(NQF LEVEL: 8, TOTAL NQF CREDITS FOR QUALIFICATION: 572)
(NO NEW INTAKE)****ADMISSION REQUIREMENTS**

- Admission Points Score of 38.
- Minimum statutory NSC requirements for degree entry must be met.
- English, Afrikaans or isiXhosa (home language or first additional language) on at least level 3 (40–49%).
- NSC achievement rating of at least level 5 (60-69%) for Mathematics.
- NSC achievement rating of at least level 5 (60-69%) for Physical Sciences.
- Only those applicants who meet the direct entry criteria will be considered for this course.

Final year for admission

The final year for new admission into this programme was 2015.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2021.

Recommended NSC subjects

Engineering Graphics & Design and/or
Information Technology

Other

- The requirements with regards to the language of learning and teaching at Nelson Mandela University must be met.
- Adults from engineering-related jobs/occupations and fields of activity with appropriate prior learning may also apply for admission.

Purpose Statement

The purpose of the qualification is to build the necessary knowledge, understanding, abilities and skills required for further learning towards becoming a competent practising engineer, and to provide graduates with:

1. A thorough grounding in mathematics, basic sciences, engineering sciences, engineering modelling, and engineering design together with the abilities to enable applications in fields of emerging knowledge;
2. Preparation for careers in engineering and related areas, for achieving technical leadership and to make a contribution to the economy and national development;
3. The educational requirement towards registration as a Professional Engineer with the Engineering Council of South Africa as well as to allow the graduate to make careers in engineering and related fields;
4. For graduates with an appropriate level of achievement in the programme, the ability to proceed to postgraduate studies in both course-based and research masters programmes.

APPLICABLE RULES

The qualification shall be awarded on completion of the modules prescribed by Senate.

Vacation Work

Vacation work is a requirement for the Bachelor of Engineering (Mechatronics) qualification and it may prove necessary to complete vacation work without remuneration. Engineering candidates are required to complete the vacation work modules at their own expense. These modules (MWS1000 and MWS2000) are normally attended during winter and/or summer recesses. Candidates will not be allowed to take certain third-year modules without having completed the workshop training.

A Bachelor's degree in Engineering in the field of Mechatronics is recognised as a qualifying degree for registration as a professional engineer under the Professional Engineers' Act (Act No 46 2000).

The Bachelor of Engineering (Mechatronics) degree is designed in accordance with the outcomes-based model as required by the South African Qualification Authority (SAQA). The learning outcomes and content of the qualifications have been compiled in accordance with the latest accreditation standards (E-02-PE) of ECSA, and HEQC.

Learning outcomes of the Bachelor of Engineering Mechatronics qualification

A graduate in engineering should be able to apply the following skills on the advanced level:

- Problem-solving: Demonstrate competence to identify, assess, formulate and solve convergent and divergent engineering problems creatively and innovatively.
- Application of scientific and engineering knowledge: Demonstrate competence to apply knowledge of mathematics, basic science and engineering sciences from first principles to solve engineering problems.
- Engineering design: Demonstrate competence to perform creative, procedural and non-procedural design and synthesis of components, systems, engineering works, products or processes.
- Investigations, experiments and data analysis: Demonstrate competence to design and conduct investigations and experiments.
- Engineering methods, skills and tools, including information technology: Demonstrate competence to use appropriate engineering methods, skills and tools, including those based on information technology.
- Professional and technical communication: Demonstrate competence to communicate effectively, both orally and in writing, with engineering audiences and the community at large.
- Impact of engineering activity: Demonstrate critical awareness of the impact of engineering activity on the social, industrial and physical environment.
- Individual, team and multi-disciplinary working: Demonstrate competence to work effectively as an individual, in teams and in multi-disciplinary environments.
- Independent learning ability: Demonstrate competence to engage in independent learning through well-developed learning skills.
- Engineering professionalism: Demonstrate critical awareness of the need to act professionally and ethically and to exercise judgment and take responsibility within own limits of competence.

Learning content of the Bachelor of Engineering Mechatronics qualification includes six essential knowledge areas:

- Mathematical sciences.
- Basic sciences.
- Engineering sciences.
- Engineering design and synthesis.
- Computing and information technology.
- Complementary studies.

Awarding the qualification *cum laude*

The qualification shall be awarded *cum laude* if students comply with the requirements as stipulated in the General Prospectus. The following module shall be regarded as the major module:

Mechatronics Project IV, EMP4110

DURATION

The qualification shall extend over at least four years of full-time study.

CURRICULUM

		Presented	Module Code	Credit Value
First Year				
Compulsory modules:				
1	Physics I			
	Mechanics and Thermodynamics	Semester 1	F101	15
	Physics for Mechatronics	Semester 2	FME102	15
2	Material Science	Semester 2	MAS1122	16
3	Mathematics I			
	Mathematics 1A	Semester 1	MATH111	16
	Mathematics 1B	Semester 2	MATH115	16
4	Engineering Drawing I	Semester 1	MEW101	16
5	Electrotechnology IIA	Semester 2	MET2111	10
6	Computer Science for Engineers I			
	Computer Science for Engineers IA	Semester 1	MSE1111	8
	Computer Science for Engineers IB	Semester 2	MSE1122	8
7	Computing Fundamentals for Scientists 1.1	Semester 1	WRSC101	8
8	Workshop Practice I	Year	MWS1000	-
	Credits First Year	Minimum		128
Second Year				
Compulsory modules:				
1	Electronics II	Semester 2	EEL2112	16
	Mathematics II			
2	Multivariable Calculus	Semester 1	MATH201	10
3	Applied Mathematics II			
	Differential Equations 211	Semester 1	MAPM211	10
	Transform Theory 213	Semester 2	MAPM213	10
	Numerical Methods II	Semester 1	MAPM212	10
	Mathematical Modelling for Engineers	Semester 2	MAPM215	10
4	Digital Electronics II	Semester 1	MDG2111	16
5	Electrotechnology IIB	Semester 2	MET2122	10
6	Machine Design II	Semester 2	MMD2112	12

		Presented	Module Code	Credit Value
7	Strength of Materials II	Semester 1	MSM2111	16
8	Thermo-fluids II	Semester 2	MTF2112	16
9	Dynamics II	Semester 1	MTH2111	12
	Credits Second Year	Minimum		148
Third Year				
	Compulsory modules:			
	Communications Systems III	Semester 2	ECC3112	12
	Control Systems IIIA	Semester 1	ECS3211	16
	Control Systems IIIB	Semester 2	ECS3312	16
	Electric Machines III	Semester 1	EEM3111	16
	Power Electronics and Drives III	Semester 2	EPE3122	16
	Mechanical Design III	Semester 2	MGN3112	16
	Machine Design III	Semester 1	MMD3111	16
	Microprocessors III	Semester 2	MMX3112	20
	Strength of Materials III	Semester 1	MSM3011	16
	Data Structures and Algorithms 2.1	Semester 1	WRA201*	8
	Workshop Practice II	Year	MWS2000	-
	Credits Third Year	Minimum		152
Fourth Year				
	Compulsory modules:			
	Advanced Manufacturing Systems IV	Semester 1	EAM4111	16
	Professional Communication IV	Semester 1	ECC4111	12
	Process Control and Instrumentation IV	Semester 1	ECI4111	16
	Environmental Engineering IV	Semester 2	EEN4112	15
	Mechatronics Project IV ♦	Year	EMP4110	50
	Project Management: Engineering IV	Semester 1	EPM4111	9
	Human Rights **	Term 2	SSS310	15
	Evolutionary Computing IV	Semester 2	WRCI411	11
	Credits Fourth Year			144
	Total Credits			572
* Students must attend lectures and practicals preceding the commencement of lectures; contact the Department of Mechatronics for further details.				
** Elective: any other module from the humanities or social sciences with the minimum of 15 credits, approved by the Head of the Department, may be taken.				

♦ Major module (please refer to the General Prospectus).

**8.2 BACHELOR OF ENGINEERING IN MECHATRONICS: FULL-TIME
(QUALIFICATION CODE: 71055 – 01)
(NQF LEVEL: 8, TOTAL NQF CREDITS FOR QUALIFICATION: 572)**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

ADMISSION REQUIREMENTS

- Admission Points Score of 38.
- Minimum statutory NSC requirements for degree entry must be met.
- English, Afrikaans or isiXhosa (home language or first additional language) on at least level 3 (40–49%).
- NSC achievement rating of at least level 5 (60-69%) for Mathematics.
- NSC achievement rating of at least level 5 (60-69%) for Physical Sciences.
- Only those applicants who meet the direct entry criteria will be considered for this course.

Recommended NSC subjects

Engineering Graphics & Design and/or
Information Technology

Other

- The requirements with regards to the language of learning and teaching at Nelson Mandela University must be met.
- Adults from engineering-related jobs/occupations and fields of activity with appropriate prior learning may also apply for admission.

Purpose Statement

The purpose of the qualification is to build the necessary knowledge, understanding, abilities and skills required for further learning towards becoming a competent practising engineer, and to provide graduates with:

1. A thorough grounding in mathematics, basic sciences, engineering sciences, engineering modelling, and engineering design together with the abilities to enable applications in fields of emerging knowledge;
2. Preparation for careers in engineering and related areas, for achieving technical leadership and to make a contribution to the economy and national development;
3. The educational requirement towards registration as a Professional Engineer with the Engineering Council of South Africa as well as to allow the graduate to make careers in engineering and related fields;
4. For graduates with an appropriate level of achievement in the programme, the ability to proceed to postgraduate studies in both course-based and research masters programmes.

Pre-requisite Modules

A student will not be allowed to proceed to the following modules without first having passed the listed pre-requisite modules or, in some cases, be simultaneously registered (at least) for the given co-requisite modules.

Subject	Code	Pre-requisites	Co-requisites
Period 1: Semester 1 Mechanics and Thermodynamics Mathematics 1A Engineering Drawing I	FVV101 MATV111 MEWV101		

Subject	Code	Pre-requisites	Co-requisites
Computer Fundamentals 1.1 Computer Science for Engineering IA Workshop Practice I	WRSC111 MSEV101 MWSV100		
Period 1: Semester 2 Physics for Mechatronics Material Science I Mathematics 1B Electrotechnology IIA Computer Science for Engineering IB	FME102 MASV102 MATV115 METV202 MSEV102 MSM2212 MTH2212	FVV101 MATV111 MSEV101	FMEV102
Subject	Code	Prerequisites	Co-requisites
Period 2: Semester 1 Digital Electronics II Strength of Materials II Dynamics II Multivariable Calculus Differential Equations Numerical Methods II	MDGV201 MSMV201 MTHV201 MATV201 MAPV201 MAPV211	METV202, WRSC111, MSE102 MATV115, FMEV102 FVV101, FME102, MATV111, MATV115 MATV115 MATV115 MATV115, WRSC111	MATV201 MAPV201
Subject	Code	Prerequisites	Co-requisites
Period 2: Semester 2 Electronics II Electrotechnology IIB Machine Design II Thermo-Fluids II Transform Theory Mathematical Modelling for Engineers	EELV202 METV212 MMDV202 MTFV202 MAPV202 MAPV212	MATV201, METV202 MEWV101, MASV102, MSMV201, MWSV100 FVV101, MAPV201, MATV115, MWSV100 MATV115, MAPV201 MAPV201	MAPV202
Subject	Code	Prerequisites	Co-requisites
Period 3: Semester 1 Control Systems III A Electrical Machines III Machine Design III Strength of Materials III Data Structures & Algorithms Workshop Practice II	ECSV301 EEMV301 MMDV301 MSMV301 WRAV201 MWSV200	MATV201, MAPV202, MAPV212, MTHV201 METV212 MMDV202 MAPV201, MAPV211, MSMV201 MATV111, MATV115 MWSV100	
Period 3: Semester 2 Communication Systems III Control Systems IIIB Power Electronics & Drives III Mechanical Design III Microprocessors III	ECCV302 ECSV302 EPEV302 MGNV302 MMXV302	EELV202, METV212 ECSV301 EEMV301 MMDV301, EELV202, MDGV201, MSEV101, MSEV102	
Subject	Code	Prerequisites	Co-requisites
Period 4: Semester 1 Advanced Manufacturing Systems IV Processional Communication IV Process Control & Instrumentation IV	EAMV401 ECCV401 ECIV401	MGDV302 NONE ECSV302	

Subject	Code	Pre-requisites	Co-requisites
Project Management: Engineering IV Human Rights Evolutionary Computing IV	EPMV401 SSS310 WRCV402	NONE NONE NONE	
Subject	Code	Prerequisites	Co-requisites
Period 4: Semester 2 Environmental Engineering IV Mechatronics Project IV	EENV402 EMPV400	NONE ECCV302, ECSV302, EPEV302, MGNV302, MMXV302, MMDV301, MSM301, MWSV100, MWSV200	

APPLICABLE RULES

The qualification shall be awarded on completion of the modules prescribed by Senate.

Vacation Work

Vacation work is a requirement for the Bachelor of Engineering (Mechatronics) qualification and it may prove necessary to complete vacation work without remuneration. Engineering candidates are required to complete the vacation work modules at their own expense. These modules (MWS1000 and MWS2000) are normally attended during winter and/or summer recesses. Candidates will not be allowed to take certain third-year modules without having completed the workshop training.

A Bachelor's degree in Engineering in the field of Mechatronics is recognised as a qualifying degree for registration as a professional engineer under the Professional Engineers' Act (Act No 46 2000).

The Bachelor of Engineering (Mechatronics) degree is designed in accordance with the outcomes-based model as required by the South African Qualification Authority (SAQA). The learning outcomes and content of the qualifications have been compiled in accordance with the latest accreditation standards (E-02-PE) of ECSA, and HEQC.

Learning outcomes of the Bachelor of Engineering Mechatronics qualification

A graduate in engineering should be able to apply the following skills on the advanced level:

- Problem-solving: Demonstrate competence to identify, assess, formulate and solve convergent and divergent engineering problems creatively and innovatively.
- Application of scientific and engineering knowledge: Demonstrate competence to apply knowledge of mathematics, basic science and engineering sciences from first principles to solve engineering problems.
- Engineering design: Demonstrate competence to perform creative, procedural and non-procedural design and synthesis of components, systems, engineering works, products or processes.
- Investigations, experiments and data analysis: Demonstrate competence to design and conduct investigations and experiments.
- Engineering methods, skills and tools, including information technology: Demonstrate competence to use appropriate engineering methods, skills and tools, including those based on information technology.
- Professional and technical communication: Demonstrate competence to communicate effectively, both orally and in writing, with engineering audiences and the community at large.

- Impact of engineering activity: Demonstrate critical awareness of the impact of engineering activity on the social, industrial and physical environment.
- Individual, team and multi-disciplinary working: Demonstrate competence to work effectively as an individual, in teams and in multi-disciplinary environments.
- Independent learning ability: Demonstrate competence to engage in independent learning through well-developed learning skills.
- Engineering professionalism: Demonstrate critical awareness of the need to act professionally and ethically and to exercise judgment and take responsibility within own limits of competence.

Learning content of the Bachelor of Engineering Mechatronics qualification includes six essential knowledge areas:

- Mathematical sciences.
- Basic sciences.
- Engineering sciences.
- Engineering design and synthesis.
- Computing and information technology.
- Complementary studies.

Awarding the qualification *cum laude*

The qualification shall be awarded *cum laude* if students comply with the requirements as stipulated in the General Prospectus. The following module shall be regarded as the major module:

Mechatronics Project IV, EMP4110

DURATION

The qualification shall extend over at least four years of full-time study.

CURRICULUM

		Presented	Module Code	Credit Value
First Year				
	Compulsory modules:			
1	Physics I			
	Mechanics and Thermodynamics	Semester 1	FVV101	15
	Physics for Mechatronics	Semester 2	FMEV102	15
2	Materials Science I	Semester 2	MASV102	16
3	Mathematics I			
	Mathematics 1A	Semester 1	MATV111	16
	Mathematics 1B	Semester 2	MATV115	16
4	Engineering Drawing I	Semester 1	MEWV101	16
5	Electrotechnology IIA	Semester 2	METV202	10
6	Computer Science for Engineers I			
	Computer Science for Engineers IA	Semester 1	MSEV101	8
	Computer Science for Engineers IB	Semester 2	MSEV102	8
7	Computing Fundamentals for Scientists 1.1	Semester 1	WRSC111	8
8	Workshop Practice I	Year	MWSV100	-
	Credits First Year	Minimum		128

		Presented	Module Code	Credit Value
Second Year				
	Compulsory modules:			
1	Electronics II	Semester 2	EELV202	16
	Mathematics II			
2	Multivariable Calculus	Semester 1	MATV201	10
3	Applied Mathematics II			
	Differential Equations	Semester 1	MAPV201	10
	Transform Theory	Semester 2	MAPV202	10
	Numerical Methods II	Semester 1	MAPV211	10
	Mathematical Modelling for Engineers	Semester 2	MAPV212	10
4	Digital Electronics II	Semester 1	MDGV201	16
5	Electrotechnology IIB	Semester 2	METV212	10
6	Machine Design II	Semester 2	MMDV202	12
7	Strength of Materials II	Semester 1	MSMV201	16
8	Thermo-fluids II	Semester 2	MTFV202	16
9	Dynamics II	Semester 1	MTHV201	12
	Credits Second Year	Minimum		148
		Presented	Module Code	Credit Value
Third Year				
	Compulsory modules:			
	Communications Systems III	Semester 2	ECCV302	12
	Control Systems IIIA	Semester 1	ECSV301	16
	Control Systems IIIB	Semester 2	ECSV302	16
	Electric Machines III	Semester 1	EEMV301	16
	Power Electronics and Drives III	Semester 2	EPEV302	16
	Mechanical Design III	Semester 2	MGNV302	16
	Machine Design III	Semester 1	MMDV301	16
	Microprocessors III	Semester 2	MMXV302	20
	Strength of Materials III	Semester 1	MSMV301	16
	Data Structures and Algorithms	Semester 1	WRAV201	8
	Workshop Practice II	Year	MWSV200	-
	Credits Third Year	Minimum		152
		Presented	Module Code	Credit Value
Fourth Year				
	Compulsory modules:			
	Advanced Manufacturing Systems IV	Semester 1	EAMV401	16
	Professional Communication IV	Semester 1	ECCV401	12

		Presented	Module Code	Credit Value
	Process Control and Instrumentation IV	Semester 1	ECIV401	16
	Environmental Engineering IV	Semester 2	EENV402	15
	Mechatronics Project IV ♦	Year	EMPV400	50
	Project Management: Engineering IV	Semester 1	EPMV401	9
	Human Rights **	Term 2	SSS310	15
	Evolutionary Computing IV	Semester 2	WRCV402	11
	Credits Fourth Year			144
	Total Credits			572

* Students must attend lectures and practicals preceding the commencement of lectures; contact the Department of Mechatronics for further details.

** Elective: any other module from the humanities or social sciences with the minimum of 15 credits, approved by the Head of the Department, may be taken.

♦ Major module (please refer to the General Prospectus).

9 BACHELOR OF ENGINEERING TECHNOLOGY**9.1 BACHELOR OF ENGINEERING TECHNOLOGY IN CIVIL ENGINEERING:
FULL-TIME
(QUALIFICATION CODE: 71010 – 01)
(NQF LEVEL: 7, TOTAL NQF CREDITS FOR QUALIFICATION: 420)**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

ADMISSION REQUIREMENTS**National Senior Certificate:**

- Admissions Points Score of 36.
- Minimum NSC requirements for degree entry must be met.
- English, Afrikaans or isiXhosa (home language or first additional language) on at least a level 4 (50-59%).
- NSC achievement rating of at least 5 (60-69%) for Mathematics.
- NSC achievement rating of at least 4 (50-59%) for Physical Science.
- Applicants with an Admissions Point Score of between 30 and 35 may be referred to write the Access Assessment Test before a decision is made on whether or not to admit the applicant to the programme.

National Certificate (Vocational):

- Minimum NC(V) Level 4 statutory requirements for degree entry must be met.
- English, Afrikaans or isiXhosa (first additional language) on at least a level 5 (60-69%).
- NC(V) achievement rating of at least a 5 (60-69%) for Mathematics.
- NC(V) achievement rating of at least a 5 (60-69%) for Physical Sciences
- Satisfactory Performance on the Access Assessment Tests.
- Enrolment in related engineering NCV programmes.

Other

- The requirements with regards to the language of learning and teaching at Nelson Mandela University must be met.
- Adults from engineering-related jobs/occupations and fields of activity with appropriate prior learning may also apply for admission.

Purpose Statement

The work of Civil engineering technicians and technologists' spans varied fields and disciplines, with emphasis on the creation, design, construction, installation and maintenance of civil engineering systems and infrastructure. Technologists/Technicians may also choose to become entrepreneurs or work as consultants.

The discipline of Civil Engineering spans a broad field of expertise including but not limited to:

- Materials and methods used in civil engineering construction;
- Construction, Surveying and Project Management
- Structural engineering;
- Transportation engineering;
- Water and Wastewater engineering;
- Geotechnical and Environmental engineering
- Civil Design.

The Bachelor of Engineering Technology in Civil Engineering [BEngTech (Civil)] is specifically designed to build the necessary knowledge, understanding, abilities and skills required towards becoming a competent practicing Civil Engineering Technologist (as per the Sydney International Accord) or Technician (as per the Dublin International Accord).

This learning programme meets the requirements of the new Higher Education Qualification Sub Framework (HEQSF) for a 3-year Bachelor degree, is primarily industry oriented and will develop and transfer innovative Civil Engineering knowledge as a foundation for wealth creation and economic sustainability.

The learning programme, as per the Engineering Council of South Africa (ECSA) qualification standards, has a coherent core of mathematics, basic sciences and fundamental engineering sciences totalling not less than 50% of the total credits providing a viable platform for further studies and lifelong learning. Civil Engineering students completing this qualification will be able to demonstrate competence in all the graduate attributes as required for registration as a Candidate Engineering Technologist.

The BEngTech (Civil), as per the abovementioned standard, will provide students with a sound knowledge base in the Civil Engineering discipline and the ability to apply that knowledge, skills and values to register professionally whilst also equipping them to undertake more specialised postgraduate studies and provides inter alia:

1. Preparation for careers in Civil Engineering itself and areas that potentially benefit from engineering skills and to make a contribution to the economy and national development;
2. The educational base required for registration as a Candidate and/or Professional Engineering Technologist with ECSA, and who is characterised by the ability to:
 - apply established and newly developed engineering technology to solve broadly-defined problems, develop components, systems, services and processes;
 - provide leadership in the application of technology in safety, health, engineering and commercially effective operations and have well-developed interpersonal skills;
 - work independently and responsibly, applying judgment to decisions arising in the application of technology and health and safety considerations to problems and associated risks;
 - apply a specialised understanding of engineering sciences underlying a deep knowledge of specific technologies together with financial, commercial, legal, social and economic, health, safety and environmental matters;
3. The educational base required for registration as a Candidate and/or Professional Engineering Technician with ECSA is based on a NQF level 6 Diploma, which is the minimum academic requirement (stage 1). The degree thus offers the opportunity for professional registration at technician grade to candidates whose post qualification, workplace based experience (stage 2) does not meet the criteria for registration as a Professional Engineering Technologist with ECSA;
4. Entry to NQF level 8 programmes e.g. Bachelor of Engineering Technology in Civil Engineering Honours and BEng Programmes, followed by Masters and Doctoral programmes.

Qualification Objectives

The qualified person must be able to:

- Demonstrate an integrated knowledge of the central areas of one or more fields, disciplines or practices within Civil Engineering, including an understanding of and the ability to apply and evaluate the key terms, concepts, facts, principles, rules and theories of that field, discipline or practice; and detailed knowledge of an area or areas of specialisation and how that knowledge relates to other fields, disciplines or practices.
- Demonstrate the ability to identify, analyse, evaluate, critically reflect on and address complex problems within the field of Civil Engineering, applying evidence-based solutions and theory-driven arguments.
- Manage processes in unfamiliar and variable contexts within the field of Civil Engineering, recognising that problem solving is context and system bound, and does not occur in isolation.
- Demonstrate an understanding of a range of methods of enquiry in a field, discipline or practice within Civil Engineering, and their suitability to specific investigations; and the ability to select and apply a range of methods to resolve problems or introduce change within a practice is demonstrated.
- Access, process and manage information within the field of Civil Engineering, in respect of demonstration of the ability to develop appropriate processes of information gathering for a given context or use; and the ability to independently validate the sources of information and evaluate and manage the information.
- Produce and communicate information within the field of Civil Engineering, in respect of which a person is able to demonstrate the ability to develop and communicate his or her ideas and opinions in well-formed arguments, using appropriate academic, professional, or occupational discourse.
- Be accountable in respect of which a person is able to demonstrate the ability to take full responsibility for his or her work, decision-making and use of resources within the field of Civil Engineering, and limited accountability for the decisions and actions of others in varied or ill-defined contexts.
- Manage learning in respect of which a person is able to demonstrate the ability to identify, evaluate and address his or her learning needs within the field of Civil Engineering in a self-directed manner, and to facilitate collaborative learning processes.
- Demonstrate the ability to take decisions and act ethically and professionally within the field of Civil Engineering, and the ability to justify those decisions and actions drawing on appropriate ethical values and approaches within a supported accountability, in respect of which a person is able to demonstrate the ability to take full responsibility for his or her work, decision-making and use of resources, and limited accountability for the decisions and actions of others in varied or ill-defined contexts.

APPLICABLE RULES**Re-admission Policy**

Please refer to the section regarding Re-admission Requirements for Undergraduate Programmes under General Information and Regulations.

Pre-requisite Modules

A student will not be allowed to proceed to the following modules without first having passed the listed pre-requisite modules or, in some cases, be simultaneously registered (at least) for the given co-requisite modules.

Module		Prerequisites		Co-requisites
Year 1				
Mathematics IB	MATV102	Mathematics IA	MATV101	
Physics IB	PHYV102	Physics IA	PHYV101	
Engineering Programming Civil	CEPV102	Professional Communication Computer 101	LECV101	
Year 2				
Mathematics IIA	MATV211	Mathematics IB	MATV102	
Construction IIB	CCOV202	Construction IIA	CCOV201	
Water Engineering IIB	CWEV202	Water Engineering IIA	CWEV201	
Surveying IIB	CSUV202	Surveying IIA	CSUV201	
Structural Engineering IIB	CSEV202	Physics IB	PHYV102	
Year 3				
Geotechnical Engineering	CGEV301	Construction IIA	CCOV201	
Structural Engineering IIIA	CSEV301	Structural Engineering IIB	CSEV202	
Transportation Engineering III	CTEV301	Construction IIB	CCOV202	
Water Engineering IIA	CWEV301	Construction IIB	CCOV202	
Capstone Project	CCPV302	Project Management Water Engineering IIB Transportation Engineering II	CPMV301 CWEV202 CTEV202	
Structural Engineering IIIB	CSEV302	Structural Engineering IIIA	CSEV301	

Obtaining the qualification

The qualification shall be awarded on completion of the modules prescribed by Senate.

Awarding the qualification *cum laude*

The qualification shall be awarded *cum laude* to a student should he/she comply with the requirements as stipulated in the General Prospectus. The following module shall be regarded as the major module:

Capstone Project 302 (CCPV302)

DURATION

The qualification shall extend over at least three years of full-time study.

CURRICULUM

		Presented	Module Code	Credit Value
First Year				
Compulsory modules:				
	Physics IA	Semester 1	PHYV101	14
	Mathematics IA	Semester 1	MATV101	14
	Professional Communication Language	Semester 1	LELV101	14
	Professional Communication Computers	Semester 1	LECV101	14
	Engineering Drawing IA	Semester 1	EDRV101	14

		Presented	Module Code	Credit Value
	Physics IB	Semester 2	PHYV102	14
	Mathematics IB	Semester 2	MATV102	14
	Engineering Skills	Semester 2	CESV102	14
	Engineering Programming Civil	Semester 2	CEPV102	14
	Core:			
	Construction I	Semester 2	CCOV102	14
	Credits First Year	Minimum		140
Second Year				
	Compulsory modules:			
	Core:			
	Mathematics IIA	Semester 1	MATV201	14
	Construction IIA	Semester 1	CCOV201	14
	Water Engineering IIA	Semester 1	CWEV201	14
	Surveying IIA	Semester 1	CSUV201	14
	Transportation Engineering IIA	Semester 1	CTEV201	14
	Structural Engineering IIB	Semester 2	CSEV202	14
	Construction IIB	Semester 2	CCOV202	14
	Water Engineering IIB	Semester 2	CWEV202	14
	Surveying IIB	Semester 2	CSUV202	14
	Transportation Engineering IIB	Semester 2	CTEV202	14
	Credits Second Year	Minimum		140
Third Year				
	Compulsory modules:			
	Core:			
	Structural Engineering IIIA	Semester 1	CSEV301	14
	Geotechnical Engineering	Semester 1	CGEV301	14
	Water Engineering III	Semester 1	CWEV301	14
	Project Management	Semester 1	CPMV301	14
	Transportation Engineering III	Semester 1	CTEV301	14
	Structural Engineering IIIB	Semester 2	CSEV302	14
	Corporate Citizenship for Engineering	Semester 2	CCCV302	14
	Capstone project ♦	Semester 2	CCPV302	42
	Credits Third Year	Minimum		140
	Total Credits			420

♦ Major module (please refer to the General Prospectus).

**9.2 BACHELOR OF ENGINEERING TECHNOLOGY IN ELECTRICAL ENGINEERING: FULL-TIME
(QUALIFICATION CODE: 71020)
(NQF LEVEL: 7, TOTAL NQF CREDITS FOR QUALIFICATION: 420)**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

ADMISSION REQUIREMENTS

National Senior Certificate:

- Admission Points Score of 36.
- Minimum NSC requirements for degree entry must be met.
- English, Afrikaans or isiXhosa (home language or first additional language) on at least level 4 (50-59%).
- NSC achievement rating of at least 5 (60-69%) for Mathematics or at least 5 (60-69%) for Technical Mathematics.
- NSC achievement rating of at least 4 (50-59%) for Physical Science or at least 4 (50-59%) for Technical Sciences.
- Applicants with an Admission Points Score of between 30 and 35 may be referred to write the Access Assessment Test before a decision is made on whether or not to admit the applicant to the programme.
- Applicants who have passed Technical Mathematics with the required level as indicated may be referred to the Centre for Access Assessment and Research (CAAR) for testing before a decision is made on whether or not to admit the applicant to the programme.

National Certificate (Vocational):

- Minimum NC(V) Level 4 statutory requirements for degree entry must be met.
- English, Afrikaans or isiXhosa (first additional language) on at least a level 5 (60-69%).
- NC(V) achievement rating of at least a 5 (60-69%) for Mathematics.
- NC(V) achievement rating of at least a 5 (60-69%) for Physical Sciences.
- Satisfactory Performance on the Access Assessment Tests.
- Enrolment in related engineering NCV programmes.

Higher Certificates:

- A Higher Certificate in Mechatronics with an average of 60% or above and a minimum of 60% for Mathematics.

Other

- The requirements with regards to the language of learning and teaching at Nelson Mandela University must be met.
- Adults from engineering-related jobs/occupations and fields of activity with appropriate prior learning may also apply for admission.

Purpose Statement

The discipline of Electrical Engineering spans a very broad field of expertise dealing with the various forms of generation, control and utilization of electrical power. This field includes, and is not limited to, the development and implementation of:

- computer and related operating systems;
- analogue and digital communication systems which includes wired, radio, cellular, satellite and television systems;

- electrical power generation, transmission, distribution and storage systems;
- industrial automation systems which includes robotics, programmable logic controllers and instrumentation and control systems.

The Bachelor of Engineering Technology in Electrical Engineering is specifically designed to build the necessary knowledge, understanding, abilities and skills required towards becoming primarily a competent practicing Electrical Engineering Technologist (as per the Sydney International Accord) or Technician (as per the Dublin International Accord).

This learning programme meets the requirements of the new Higher Education Qualification Sub Framework (HEQSF) for a 3 year Bachelor degree, is primarily industry oriented and will develop and transfer cutting edge Electrical Engineering knowledge as a foundation for wealth creation and economic sustainability.

The learning programme, as per the Engineering Council of South Africa (ECSA) qualification standards, has a coherent core of mathematics, basic sciences and fundamental engineering sciences totalling not less than 50% of the total credits providing a viable platform for further studies and lifelong learning. Electrical Engineering students completing this qualification will be able to demonstrate competence in all the graduate attributes as required for registration as a Candidate Engineering Technologist.

The BEngTech (Electrical), as per the abovementioned standard, will provide students with a sound knowledge base in the Electrical Engineering discipline and the ability to apply that knowledge, skills and values to register professionally whilst also equipping them to undertake more specialised postgraduate studies and provides inter alia:

1. Preparation for careers in Electrical Engineering itself and areas that potentially benefit from engineering skills and to make a contribution to the economy and national development;
2. The educational base required for registration as a Candidate and/or Professional Engineering Technologist with ECSA who is characterised by the ability to:
 - apply established and newly developed engineering technology to solve broadly-defined problems, develop components, systems, services and processes;
 - provide leadership in the application of technology in safety, health, engineering and commercially effective operations and have well-developed interpersonal skills;
 - work independently and responsibly, applying judgment to decisions arising in the application of technology and health and safety considerations to problems and associated risks;
 - apply a specialised understanding of engineering sciences underlying a deep knowledge of specific technologies together with financial, commercial, legal, social and economic, health, safety and environmental matters;
3. The educational base required for registration as a Candidate and/or Professional Engineering Technician with ECSA is based on an NQF level 6 Diploma, which is the minimum academic requirement (stage 1). The degree thus offers the opportunity for professional registration at technician grade to candidates whose post qualification, workplace based experience (stage 2) does not meet the criteria for registration as a Professional Engineering Technologist with ECSA;

4. Entry to NQF level 8 programmes e.g. Bachelor of Engineering Technology in Electrical Engineering Honours, Post Graduate Diploma and BEng Programmes followed by Masters and Doctoral programmes.

Qualification Objectives

The qualified person must be able to:

- Demonstrate an integrated knowledge of the central areas of one or more fields, disciplines or practices within Electrical Engineering, including an understanding of and the ability to apply and evaluate the key terms, concepts, facts, principles, rules and theories of that field, discipline or practice; and detailed knowledge of an area or areas of specialisation and how that knowledge relates to other fields, disciplines or practices.
- Demonstrate the ability to identify, analyse, evaluate, critically reflect on and address complex problems within the field of Electrical Engineering, applying evidence-based solutions and theory-driven arguments.
- Manage processes in unfamiliar and variable contexts within the field of Electrical Engineering, recognising that problem solving is context and system bound, and does not occur in isolation.
- Demonstrate an understanding of a range of methods of enquiry in a field, discipline or practice within Electrical Engineering, and their suitability to specific investigations; and the ability to select and apply a range of methods to resolve problems or introduce change within a practice is demonstrated.
- Access, process and manage information within the field of Electrical Engineering, in respect of demonstration of the ability to develop appropriate processes of information gathering for a given context or use; and the ability to independently validate the sources of information and evaluate and manage the information.
- Produce and communicate information within the field of Electrical Engineering, in respect of which a person is able to demonstrate the ability to develop and communicate his or her ideas and opinions in well-formed arguments, using appropriate academic, professional, or occupational discourse.
- Be accountable in respect of which a person is able to demonstrate the ability to take full responsibility for his or her work, decision-making and use of resources within the field of Electrical Engineering, and limited accountability for the decisions and actions of others in varied or ill-defined contexts.
- Manage learning in respect of which a person is able to demonstrate the ability to identify, evaluate and address his or her learning needs within the field of Electrical Engineering in a self-directed manner, and to facilitate collaborative learning processes.
- Demonstrate the ability to take decisions and act ethically and professionally within the field of Electrical Engineering, and the ability to justify those decisions and actions drawing on appropriate ethical values and approaches within a supported accountability, in respect of which a person is able to demonstrate the ability to take full responsibility for his or her work, decision-making and use of resources, and limited accountability for the decisions and actions of others in varied or ill-defined contexts.

APPLICABLE RULES

Re-admission Policy

Please refer to the section regarding Re-admission Requirements for Undergraduate Programmes under General Information and Regulations.

Prerequisite Modules

A student will not be allowed to proceed to the following modules without first having passed the listed prerequisite modules or, in some cases, be simultaneously registered (at least) for the given co-requisite modules.

Module		Prerequisites		Co-requisites	
Year 1					
Mathematics IA	MATV101			Physics IA	PHYV101
Physics IA	PHYV101			Mathematics IA	MATV101
Mathematics IB	MATV102	Mathematics IA	MATV101	Physics IB	PHYV102
Physics IB	PHYV102	Physics IA	PHYV101	Mathematics IB	MATV102
Engineering Programming Electrical	EEPV102	Professional Communication Computers	LECV101		
Electronic Systems I	EESV102	Mathematics IA	MATV101	Physics IB	PHYV102
Electrical Engineering Skills	ESKV102	Electrical Engineering Drawing	EEDV101		
Year 2					
Mathematics II	MATV211	Mathematics IB	MATV102		
Communication Systems IIA	ECCV211	Electronic Systems I Physics IB	EESV102 PHYV102	Mathematics II	MATV211
Computer Systems IIA	ECSV201	Electrical Engineering Skills	ESKV102		
Electronic Systems IIA	EESV201	Electronic Systems I Electrical Engineering Skills	EESV102 ESKV102		
Electrical Systems IIA	ESSV201	Mathematics IB Physics IB	MATV102 PHYV102	Mathematics II	MATV211
Electrical Machines and Control II	EMCV202	Computer Systems IIA Electronic Systems IIA Mathematics II	ECSV201 ESSV201 MATV211		
Communication Systems IIB	ECCV202	Communication Systems IIA	ECCV211		
Computer System IIB	ECSV202	Computer Systems IIA Engineering Programming Electrical	ECSV201 EPPV102		
Electronic Systems IIB	EESV202	Electronic Systems IIA	EESV201		
Electrical Systems IIB	ESSV202	Electrical Systems IIA	ESSV201		
Year 3					
Electrical Machines and Control III	EMCV301	Computer System IIB Electronic Systems IIB	ECSV202 EESV202		

Module		Prerequisites		Co-requisites	
		Electrical Machines and Control II	EMCV202		
Automation and Control IIIA	EACV301	Computer System IIB Electronic Systems IIA Mathematics II	ECSV202 EESV201 MATV211		
Computer Systems III	ECSV311	Computer System IIB Electronic Systems IIB	ECSV202 EESV202		
Research and Project Management	ERPV301	Communication Systems IIB Computer System IIB Electronic Systems IIB Electrical Machines and Control II Electrical Systems IIB	ECCV202 ECSV202 EESV202 EMCV202 ESSV202		
Electrical Systems III	ESSV301	Electrical Systems IIB Mathematics II	ESSV202 MATV211		
Automation and Control IIIB	EACV302	Automation and Control IIIA	EACV301		
Corporate Citizenship for Engineering	CCCV302	Professional Communication Language	LELV111		
Capstone Project Electrical	ECPV302	Communication Systems IIB Electronic Systems IIB Automation and Control IIIA Electrical Machines and Control III Research and Project Management Computer Systems III Electrical Systems III	ECCV202 EESV202 EACV301 EMCV301 ERPV301 ECSV311 ESSV301		

Obtaining the qualification

The qualification shall be awarded on completion of the modules prescribed by Senate.

Awarding the qualification *cum laude*

The qualification shall be awarded *cum laude* to a student should he/she comply with the requirements as stipulated in the General Prospectus. The following module shall be regarded as the major module:

Capstone Project Electrical (ECPV302)

DURATION

The qualification shall extend over at least three years of full-time study.

CURRICULUM

		Presented	Module Code	Credit Value
First Year				
	Compulsory modules:			
	Mathematics IA	Semester 1	MATV101	14
	Physics IA	Semester 1	PHYV101	14
	Electrical Engineering Drawing	Semester 1	EEDV101	14
	Professional Communication Language	Semester 1	LELV111	14
	Professional Communication Computers	Semester 1	LECV101	14
	Mathematics IB	Semester 2	MATV102	14
	Physics IB	Semester 2	PHYV102	14
	Electrical Engineering Skills	Semester 2	ESKV102	14
	Electronic Systems I	Semester 2	EESV102	14
	Engineering Programming Electrical	Semester 2	EEPV102	14
	Credits First Year	Minimum		140
		Presented	Module Code	Credit Value
Second Year				
	Compulsory modules:			
	Mathematics II	Semester 1	MATV211	14
	Communication Systems IIA	Semester 1	ECCV211	14
	Computer Systems IIA	Semester 1	ECSV201	14
	Electronic Systems IIA	Semester 1	EESV201	14
	Electrical Systems IIA	Semester 1	ESSV201	14
	Electrical Machines and Control II	Semester 2	EMCV202	14
	Communication Systems IIB	Semester 2	ECCV202	14
	Computer System IIB	Semester 2	ECSV202	14
	Electronic Systems IIB	Semester 2	EESV202	14
	Electrical Systems IIB	Semester 2	ESSV202	14
	Credits Second Year	Minimum		140
		Presented	Module Code	Credit Value
Third Year				
	Compulsory modules:			
	Electrical Machines and Control III	Semester 1	EMCV301	14
	Automation and Control IIIA	Semester 1	EACV301	14
	Computer Systems III	Semester 1	ECSV311	14
	Research and Project Management	Semester 1	ERPV301	14
	Electrical Systems III	Semester 1	ESSV301	14
	Automation and Control IIIB	Semester 2	EACV302	14

		Presented	Module Code	Credit Value
	Corporate Citizenship for Engineering	Semester 2	CCCV302	14
	Capstone Project Electrical ♦	Semester 2	ECPV302	42
	Credits Third Year	Minimum		140
	Total Credits			420

♦ Major module (please refer to the General Prospectus).

**9.3 BACHELOR OF ENGINEERING TECHNOLOGY IN INDUSTRIAL ENGINEERING: FULL-TIME
(QUALIFICATION CODE: 71030)
(NQF LEVEL: 7, TOTAL NQF CREDITS FOR QUALIFICATION: 420)**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

ADMISSION REQUIREMENTS

National Senior Certificate:

- Admission Points Score of 36.
- Minimum NSC requirements for degree entry must be met.
- English, Afrikaans or isiXhosa (home language or first additional language) on at least level 4 (50-59%).
- NSC achievement rating of at least 5 (60-69%) for Mathematics or at least 5 (60-69%) for Technical Mathematics.
- NSC achievement rating of at least 4 (50-59%) for Physical Science or at least 4 (50-59%) for Technical Sciences.
- Applicants with an Admission Points Score of between 30 and 35 may be referred to write the Access Assessment Test before a decision is made on whether or not to admit the applicant to the programme.
- Applicants who have passed Technical Mathematics with the required level as indicated may be referred to the Centre for Access Assessment and Research (CAAR) for testing before a decision is made on whether or not to admit the applicant to the programme.

National Certificate (Vocational):

- Minimum NC(V) Level 4 statutory requirements for degree entry must be met.
- English, Afrikaans or isiXhosa (first additional language) on at least a level 5 (60-69%).
- NC(V) achievement rating of at least a 5 (60-69%) for Mathematics.
- NC(V) achievement rating of at least a 5 (60-69%) for Physical Sciences
- Satisfactory Performance on the Access Assessment Tests.
- Enrolment in related engineering NCV programmes.

Higher Certificates:

- A Higher Certificate in Mechatronics with an average of 60% or above and a minimum of 60% for Mathematics.

Other

- The requirements with regards to the language of learning and teaching at Nelson Mandela University must be met.
- Adults from engineering-related jobs/occupations and fields of activity with appropriate prior learning may also apply for admission.

Purpose Statement

The Bachelor of Engineering Technology in Industrial Engineering BEngTech (Industrial) is specifically designed to build the necessary knowledge, understanding, abilities and skills required towards becoming primarily a competent practicing Industrial engineering technologist as per the Sydney International Accord or a technician as per the Dublin International Accord. This field includes, but is not limited to development, integration and optimisation of complex systems and processes in manufacturing and services where:

- Methodical, quantitative and scientific approaches are required to develop cohesive strategies, structures, systems, applications and mechanisms to drive efficiency and effectiveness;
- Sustainable improvement of output and impact as expressed in economic, social and / or environmental terms is sought;
- The simultaneous consideration of all relevant inputs / resources (eg: human, materials, equipment, capital, time), as well as conversion and support processes, which form the interdependent dynamics of a complex system is required.

Given nature of the financial, social and managerial sciences, in addition to the engineering sciences, Industrial engineers are equally comfortable conversing with members of other engineering disciplines, as they are with those of other professions. As specialists in the art and science of systemic optimisation and integration, Industrial Engineers tend to take a leading role in multi-disciplinary teams consisting of engineers and other professionals.

This learning programme meets the requirements of the new Higher Education Qualification Sub Framework (HEQSF) for a 3-year Bachelor degree, is primarily industry oriented and will develop and transfer innovative Industrial Engineering knowledge as a foundation for wealth creation and economic sustainability. The learning programme (as per ECSA qualifications standard) has a coherent core of mathematics, basic sciences and fundamental engineering sciences totalling not less than 50% of the total credits providing a viable platform for further studies and lifelong learning. Industrial Engineering students completing this qualification will demonstrate competence in all the Exit Level Outcomes documented below.

The BEngTech (Industrial), as per the abovementioned standard, will provide students with a sound knowledge base in the Industrial Engineering discipline and the ability to apply that knowledge, skills and values to register professionally whilst also equipping them to undertake more specialised postgraduate studies and provides inter alia:

1. Preparation for careers in Industrial Engineering itself and areas that potentially benefit from engineering skills and to make a contribution to the economy and national development;
2. The educational base required for registration as a **Candidate and/or Professional Engineering Technologist** with ECSA who is characterised by the ability to:
 - Apply established and newly developed engineering technology to solve complex problems, develop components, systems, services and processes;

- Provide leadership in the application of technology in safety, health, engineering and commercially effective operations and have well-developed interpersonal skills;
 - Work independently and responsibly, applying judgment to decisions arising in the application of technology and health and safety considerations to problems and associated risks;
 - Apply a specialised understanding of engineering sciences underlying a deep knowledge of specific technologies together with financial, commercial, legal, social and economic, health, safety and environmental matters.
3. The educational base required for registration as a **Candidate and/or Professional Engineering Technician** with ECSA is based on a NQF level 6 Diploma, which is the minimum academic requirement (stage 1). The degree thus offers the opportunity for professional registration at technician grade to candidates whose post qualification, workplace based experience (stage 2) does not meet the criteria for registration as a Professional Engineering Technologist with ECSA;
 4. Entry to NQF level 8 programmes e.g. Bachelor of Engineering Technology in Industrial Engineering Honours, Post Graduate Diploma and BEng Programmes followed by Masters and Doctoral programmes.

Qualification Objectives

The qualified person must be able to:

- Demonstrate an integrated knowledge of the central areas of one or more fields, disciplines or practices within Industrial Engineering, including an understanding of and the ability to apply and evaluate the key terms, concepts, facts, principles, rules and theories of that field, discipline or practice; and detailed knowledge of an area or areas of specialisation and how that knowledge relates to other fields, disciplines or practices.
- Demonstrate the ability to identify, analyse, evaluate, critically reflect on and address complex problems within the field of Industrial Engineering, applying evidence-based solutions and theory-driven arguments.
- Manage processes in unfamiliar and variable contexts within the field of Industrial Engineering, recognising that problem solving is context and system bound, and does not occur in isolation.
- Demonstrate an understanding of a range of methods of enquiry in a field, discipline or practice within Industrial Engineering, and their suitability to specific investigations; and the ability to select and apply a range of methods to resolve problems or introduce change within a practice is demonstrated.
- Access, process and manage information within the field of Industrial Engineering, in respect of demonstration of the ability to develop appropriate processes of information gathering for a given context or use; and the ability to independently validate the sources of information and evaluate and manage the information.
- Produce and communicate information within the field of Industrial Engineering, in respect of which a person is able to demonstrate the ability to develop and communicate his or her ideas and opinions in well-formed arguments, using appropriate academic, professional, or occupational discourse.
- Be accountable in respect of which a person is able to demonstrate the ability to take full responsibility for his or her work, decision-making and use of resources within the field of Industrial Engineering, and limited accountability for the decisions and actions of others in varied or ill-defined contexts.

- Manage learning in respect of which a person is able to demonstrate the ability to identify, evaluate and address his or her learning needs within the field of Industrial Engineering in a self-directed manner, and to facilitate collaborative learning processes.
- Demonstrate the ability to take decisions and act ethically and professionally within the field of Industrial Engineering, and the ability to justify those decisions and actions drawing on appropriate ethical values and approaches within a supported accountability, in respect of which a person is able to demonstrate the ability to take full responsibility for his or her work, decision-making and use of resources, and limited accountability for the decisions and actions of others in varied or ill-defined contexts.

APPLICABLE RULES

Re-admission Policy

Please refer to the section regarding Re-admission Requirements for Undergraduate Programmes under General Information and Regulations.

Prerequisite Modules

A student will not be allowed to proceed to the following modules without first having passed the listed prerequisite modules or, in some cases, be simultaneously registered (at least) for the given co-requisite modules.

Module		Prerequisites		Co-requisites	
Year 1					
Mathematics IA	MATV101			Physics IA	PHYV101
Physics IA	PHYV101			Mathematics IA	MATV101
Mathematics IB	MATV102	Mathematics IA	MATV101	Physics IB	PHYV102
Physics IB	PHYV102	Physics IA	PHYV101	Mathematics IB	MATV102
Engineering Materials IB	MEMV102	Physics IA	PHYV101		
Year 2					
Mathematics II	MATV211	Mathematics IB	MATV102		
Computer Aided Design	CADV201	Engineering Drawing IA	EDRV101		
Systems Engineering IIB	ISEV202	Systems Engineering IIA	ISEV201		
Operations Engineering IIB	IOEV202	Operations Engineering IB	IOEV102		
Quality Engineering	IQEV202	Engineering Statistics	IESV201		
Manufacturing Engineering	IMEV202	Engineering Skills IB Engineering Materials IB	CESV102 MEMV102		
Year 3					
Operations Engineering IIIA	IOEV301	Operations Engineering IIB	IOEV202		
Facilities Layout and Materials Handling	IFLV301	Computer Aided Design Operations Engineering IB	CADV201 IOEV102		

Module		Prerequisites		Co-requisites	
Business Engineering IIIB	IBEV302	Business Engineering IIIA	IBEV301		
Automation	IATV302	Engineering Programming Industrial Computer Aided Design Business Engineering IIIA	IEPV201 CADV201 IBEV301		
Capstone Project Industrial	ICPV302	Systems Engineering IIB Quality Engineering Manufacturing Engineering Business Engineering IIIA Operations Engineering IIIA Facilities Layout and Materials Handling Research and Project Management	ISEV202 IQEV202 IMEV202 IBEV301 IOEV301 IFLV301 IRPV301		

Obtaining the qualification

The qualification shall be awarded on completion of the modules prescribed by Senate.

Awarding the qualification *cum laude*

The qualification shall be awarded *cum laude* to a student should he/she comply with the requirements as stipulated in the General Prospectus. The following module shall be regarded as the major module:

Capstone Project Industrial 302 (ICPV302)

DURATION

The qualification shall extend over at least three years of full-time study.

CURRICULUM

		Presented	Module Code	Credit Value
First Year				
Compulsory modules:				
	Mathematics IA	Semester 1	MATV101	14
	Physics IA	Semester 1	PHYV101	14
	Engineering Drawing IA	Semester 1	EDRV101	14
	Professional Communication Language	Semester 1	LELV111	14
	Professional Communication Computers	Semester 1	LECV101	14
	Mathematics IB	Semester 2	MATV102	14
	Physics IB	Semester 2	PHYV102	14
	Engineering Skills IB	Semester 2	CESV102	14
	Operations Engineering IB	Semester 2	IOEV102	14

		Presented	Module Code	Credit Value
	Engineering Materials IB	Semester 2	MEMV102	14
	Credits First Year	Minimum		140
		Presented	Module Code	Credit Value
Second Year				
	Compulsory modules:			
	Mathematics II	Semester 1	MATV211	14
	Systems Engineering IIA	Semester 1	ISEV201	14
	Engineering Programming Industrial	Semester 1	IEPV201	14
	Engineering Statistics	Semester 1	IESV201	14
	Computer Aided Design	Semester 1	CADV201	14
	Business Engineering IIB	Semester 2	IBEV202	14
	Systems Engineering IIB	Semester 2	ISEV202	14
	Operations Engineering IIB	Semester 2	IOEV202	14
	Quality Engineering	Semester 2	IQEV202	14
	Manufacturing Engineering	Semester 2	IMEV202	14
	Credits Second Year	Minimum		140
		Presented	Module Code	Credit Value
Third Year				
	Compulsory modules:			
	Business Engineering IIIA	Semester 1	IBEV301	14
	Operations Research	Semester 1	IORV301	14
	Operations Engineering IIIA	Semester 1	IOEV301	14
	Facilities Layout and Materials Handling	Semester 1	IFLV301	14
	Research and Project Management	Semester 1	IRPV301	14
	Business Engineering IIIB	Semester 2	IBEV302	14
	Corporate Citizenship for Engineers	Semester 2	CCCV302	14
	Automation	Semester 2	IATV302	14
	Capstone Project Industrial ♦	Semester 2	ICPV302	28
	Credits Third Year	Minimum		140
	Total Credits			420

♦ Major module (please refer to the General Prospectus).

**9.4 BACHELOR OF ENGINEERING TECHNOLOGY IN MARINE
ENGINEERING: FULL-TIME
(QUALIFICATION CODE: 71060)
(NQF LEVEL: 7, TOTAL NQF CREDITS FOR QUALIFICATION: 420)**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

ADMISSION REQUIREMENTS

- Minimum NSC statutory requirements for degree entry must be met.
- An applicant with NSC Grade 12 Mathematics or Technical Mathematics requires a minimum Applicant Score of 370.
- NSC achievement rating of at least 60% for Mathematics or Technical Mathematics.
- NSC achievement rating of at least 50% for Physical Sciences or Technical Science.

National Certificate (Vocational)

- Minimum National Certificate (Vocational) Level 4 statutory requirements for degree entry must be met.
- Language of Teaching and Learning (English) on at least level 4 (50-59%).
- NC (V) achievement rating of at least a 6 (70-79%) for Mathematics.
- NC (V) achievement rating of at least a 6 (70-79%) for Physical Science.
- Satisfactory performance on the Access Assessment Tests.

APPLICABLE RULES

Special Selection Criteria

- For students specifically pursuing a career as a seafarer (a career on board a ship as opposed to a land based career).

Age requirement

- Be no older than 21 years of age at the time of registration. However, mature students and students already at sea may apply, provided that they have evidence of a cadet berth sponsorship, in writing, via their employer/sponsor. Generally accepted by Shipping Companies is 18 – 25 years of Age. Applicants exceeding this limit will have significantly reduced chances of employment.

SAMSA Requirements

- Pass a South African Maritime Safety Authority (SAMSA) eyesight test (colour & vision) and medical examination for seafarers, advised to do test prior to registration.
- In addition, a Tuberculosis screening (chest x-ray) has to be completed.
- Candidates should not have a criminal record. If not ascertained, this will be picked up when applying for various visas, some of which directly prohibit employment.

Re-admission Requirements

Re-admission to the programme in a following academic year is subject to:

- candidates passing a minimum of 70 credits per academic year;
- candidates passing specified pre-requisite modules.

Where applicable within a particular academic year, the Pass-on link will be applied as per University policy.

Prerequisite Modules

A student will not be allowed to proceed to the following modules without first having passed the listed prerequisite modules or, in some cases, be simultaneously registered (at least) for the given co-requisite modules.

Module		Prerequisites		Co-requisites	
Year 1					
Mathematics IA	MATV101			Physics IA	PHYV101
Mathematics IB	MATV102	Mathematics IA	MATV101	Physics IB	PHYV102
Physics IB	PHYV102	Physics IA	PHYV101		
Year 2					
Mathematics II	MATV211	Mathematics IB	MATV102		
Strength of Materials IIA	MSMV201	Mathematics IA Physics IB	MATV101 PHYV102		
Statics and Dynamics IIA	MSDV201	Mathematics IB Physics IB	MATV102 PHYV102		
Marine Engineering Knowledge II	EMAR201	Marine Engineering Knowledge I	EMAR102		
Fluid Mechanics IIA	MFMV201	Physics IA Mathematics IA Professional Communication Computers IA	PHYV101 MATV101 LECV101		
Thermodynamics IIB	MTDV202	Physics IA Physics IB	PHYV101 PHYV102		
Naval Architecture II	EMNA202	Naval Architecture I	EMNA102		
Mechanical Design II	MMDV202	Engineering Drawing IA	EDRV101		
Marine Electrical System II	EMES202	Physics IB	PHYV102		
Year 3					
Thermodynamics III	MTDV301	Thermodynamics II	MTDV202		
Marine Electrical Systems III	EMES301	Marine Electrical Systems III	EMES202		
Marine Research and Project Management III	EMRPV301	Professional Communication Language IA Professional Communication Computers IA Mechanical Design IIB	LELV111 LECV101 MMDV202		
Marine Automation and Programming III	EMAP301	Marine Electrical Systems III	EMES202		
Naval Architecture III	EMNA301	Naval Architecture II	EMNA202		
Marine Engineering Knowledge III	EMAR302	Marine Engineering Knowledge II	EMAR201		
Marine Engineering Capstone Project III	EMEP302	Mechanical Design II Marine Automation and Programming III	EMAP301 MMDV202		

DURATION

The qualification shall extend over at least three years of full-time study.

CURRICULUM

		Presented	Module Code	Credit Value
First Year				
	Compulsory modules:			
	Mathematics IA	Semester 1	MATV101	14
	Physics IA	Semester 1	PHYV101	14
	Engineering Drawing IA	Semester 1	EDRV101	14
	Professional Communication Language IA	Semester 1	LELV111	14
	Professional Communication Computers IA	Semester 1	LECV101	14
	Mathematics IB	Semester 2	MATV102	14
	Physics IB	Semester 2	PHYV102	14
	Marine Engineering Knowledge I	Semester 2	EMAR102	14
	Naval Architecture I	Semester 2	EMNA102	14
	Marine Law I	Semester 2	JMML102	14
	Credits First Year			140
		Presented	Module Code	Credit Value
Second Year				
	Compulsory modules:			
	Mathematics II	Semester 1	MATV211	14
	Strength of Materials IIA	Semester 1	MSMV201	14
	Statics and Dynamics IIA	Semester 1	MSDV201	14
	Marine Engineering Knowledge II	Semester 1	EMAR201	14
	Fluid Mechanics IIA	Semester 1	MFMV201	14
	Thermodynamics IIB	Semester 2	MTDV202	14
	Strength of Materials IIB	Semester 2	MSMV202	14
	Naval Architecture II	Semester 2	EMNA202	14
	Mechanical Design IIB	Semester 2	MMDV212	14
	Marine Electrical Systems II	Semester 2	EMES202	14
	Credits Second Year			140
		Presented	Module Code	Credit Value
Third Year				
	Compulsory modules:			
	Thermodynamics IIIA	Semester 1	MTDV301	14
	Marine Electrical Systems III	Semester 1	EMES301	14
	Marine Research and Project Management III	Semester 1	EMRP301	14
	Marine Automation and Programming IIIA	Semester 1	EMAP301	14

		Presented	Module Code	Credit Value
	Naval Architecture III	Semester 1	EMNA301	14
	Marine Engineering Knowledge III	Semester 2	EMAR302	14
	Marine Advanced Automation IIIB	Semester 2	EMAA302	14
	Marine Engineering Capstone Project IIIB	Semester 2	EMEP302	42
	Credits Third Year			140
	Total Credits			420

**9.5 BACHELOR OF ENGINEERING TECHNOLOGY IN MECHANICAL ENGINEERING: FULL-TIME
(QUALIFICATION CODE: 71040 – 01)
(NQF LEVEL: 7, TOTAL NQF CREDITS FOR QUALIFICATION: 420)**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

ADMISSION REQUIREMENTS

National Senior Certificate:

- Admission Points Score of 36.
- Minimum NSC requirements for degree entry must be met.
- English, Afrikaans or isiXhosa (home language or first additional language) on at least a level 4 (50-59%).
- NSC achievement rating of at least 5 (60-69%) for Mathematics.
- NSC achievement rating of at least 4 (50-59%) for Physical Science.
- Applicants with an Admissions Point Score of between 30 and 35 may be referred to write the Access Assessment Test before a decision is made on whether or not to admit the applicant to the programme.

National Certificate (Vocational):

- Minimum NC(V) Level 4 statutory requirements for degree entry must be met.
- English, Afrikaans or isiXhosa (first additional language) on at least a level 5 (60-69%).
- NC(V) achievement rating of at least a 5 (60-69%) for Mathematics.
- NC(V) achievement rating of at least a 5 (60-69%) for Physical Sciences
- Satisfactory Performance on the Access Assessment Tests.
- Enrolment in related engineering NCV programmes.

Other

- The requirements with regards to the language of learning and teaching at Nelson Mandela University must be met.
- Adults from engineering-related jobs/occupations and fields of activity with appropriate prior learning may also apply for admission.

APPLICABLE RULES

Purpose Statement

The work of Mechanical technicians and technologists spans varied fields and disciplines, with emphasis on the creation, design, construction, installation and maintenance of mechanical systems and the processes used to produce them. Technologists/Technicians may also choose to become entrepreneurs or work as consultants.

The discipline of Mechanical Engineering spans a broad field of expertise including but not limited to:

- Mechanical Statics, Dynamics and Controls;
- Strength of Materials and Structures;
- Thermodynamics, Power and Energy generation systems;
- Fluid Mechanics and Hydraulic Machines;
- Mechanical Design.

The Bachelor of Engineering Technology in Mechanical Engineering is specifically designed to build the necessary knowledge, understanding, abilities and skills required towards becoming a competent practicing Mechanical Engineering Technologist (as per the Sydney International Accord) or Technician (as per the Dublin International Accord).

This learning programme meets the requirements of the new Higher Education Qualification Sub Framework (HEQSF) for a 3-year Bachelor degree, is primarily industry oriented and will develop and transfer innovative Mechanical Engineering knowledge as a foundation for wealth creation and economic sustainability.

The learning programme, as per the Engineering Council of South Africa (ECSA) qualification standards, has a coherent core of mathematics, basic sciences and fundamental engineering sciences totalling not less than 50% of the total credits providing a viable platform for further studies and lifelong learning. Mechanical Engineering students completing this qualification will be able to demonstrate competence in all the graduate attributes as required for registration as a Candidate Engineering Technologist.

The BEngTech (Mechanical), as per the abovementioned standard, will provide students with a sound knowledge base in the Mechanical Engineering discipline and the ability to apply that knowledge, skills and values to register professionally whilst also equipping them to undertake more specialised postgraduate studies and provides inter alia:

1. Preparation for careers in Mechanical Engineering itself and areas that potentially benefit from engineering skills and to make a contribution to the economy and national development;
2. The educational base required for registration as a Candidate and/or Professional Engineering Technologist with ECSA, and who is characterised by the ability to:
 - apply established and newly developed engineering technology to solve broadly-defined problems, develop components, systems, services and processes;
 - provide leadership in the application of technology in safety, health, engineering and commercially effective operations and have well-developed interpersonal skills;
 - work independently and responsibly, applying judgment to decisions arising in the application of technology and health and safety considerations to problems and associated risks;
 - apply a specialised understanding of engineering sciences underlying a deep knowledge of specific technologies together with financial, commercial, legal, social and economic, health, safety and environmental matters;
3. The educational base required for registration as a Candidate and/or Professional Engineering Technician with ECSA is based on a NQF level 6 Diploma, which is the minimum academic requirement (stage 1).

The degree thus offers the opportunity for professional registration at technician grade to candidates whose post qualification, workplace based experience (stage 2) does not meet the criteria for registration as a Professional Engineering Technologist with ECSA;

4. Entry to NQF level 8 programmes e.g. Bachelor of Engineering Technology in Mechanical Engineering Honours, Post Graduate Diploma and BEng Programmes, followed by Masters and Doctoral programmes.

Qualification Objectives

The qualified person must be able to:

- Demonstrate an integrated knowledge of the central areas of one or more fields, disciplines or practices within Mechanical Engineering, including an understanding of and the ability to apply and evaluate the key terms, concepts, facts, principles, rules and theories of that field, discipline or practice; and detailed knowledge of an area or areas of specialisation and how that knowledge relates to other fields, disciplines or practices.
- Demonstrate the ability to identify, analyse, evaluate, critically reflect on and address complex problems within the field of Mechanical Engineering, applying evidence-based solutions and theory-driven arguments.
- Manage processes in unfamiliar and variable contexts within the field of Mechanical Engineering, recognising that problem solving is context and system bound, and does not occur in isolation.
- Demonstrate an understanding of a range of methods of enquiry in a field, discipline or practice within Mechanical Engineering, and their suitability to specific investigations; and the ability to select and apply a range of methods to resolve problems or introduce change within a practice is demonstrated.
- Access, process and manage information within the field of Mechanical Engineering, in respect of demonstration of the ability to develop appropriate processes of information gathering for a given context or use; and the ability to independently validate the sources of information and evaluate and manage the information.
- Produce and communicate information within the field of Mechanical Engineering, in respect of which a person is able to demonstrate the ability to develop and communicate his or her ideas and opinions in well-formed arguments, using appropriate academic, professional, or occupational discourse.
- Be accountable in respect of which a person is able to demonstrate the ability to take full responsibility for his or her work, decision-making and use of resources within the field of Mechanical Engineering, and limited accountability for the decisions and actions of others in varied or ill-defined contexts.
- Manage learning in respect of which a person is able to demonstrate the ability to identify, evaluate and address his or her learning needs within the field of Mechanical Engineering in a self-directed manner, and to facilitate collaborative learning processes.
- Demonstrate the ability to take decisions and act ethically and professionally within the field of Mechanical Engineering, and the ability to justify those decisions and actions drawing on appropriate ethical values and approaches within a supported accountability, in respect of which a person is able to demonstrate the ability to take full responsibility for his or her work, decision-making and use of resources, and limited accountability for the decisions and actions of others in varied or ill-defined contexts.

APPLICABLE RULES**Re-admission Policy**

Please refer to the section regarding Re-admission Requirements for Undergraduate Programmes under General Information and Regulations.

Prerequisite Modules

A student will not be allowed to proceed to the following modules without first having passed the listed prerequisite modules or, in some cases, be simultaneously registered (at least) for the given co-requisite modules.

Module		Prerequisites		Co-requisites	
Year 1					
Mathematics IA	MATV101			Physics IA	PHYV101
Mathematics IB	MATV102	Mathematics IA	MATV101	Physics IB	PHYV102
Physics IB	PHYV102	Physics IA	PHYV101		
Engineering Materials IB	MEMV102	Physics IA	PHYV101		
Engineering Programming Mechanical IB	MEPV102	Mathematics IA	MATV101		
Year 2					
Mathematics II	MATV211	Mathematics IB	MATV102		
Strength of Materials IIA	MSMV211	Mathematics IA Physics IB	MATV101 PHYV102		
Statics and Dynamics IIA	MSDV201	Mathematics IB Physics IB	MATV102 PHYV102		
Manufacturing Processes IIA	MMPV201	Engineering Skills IB	CESV102		
Fluid Mechanics IIA	MFMV201	Physics IA Mathematics IA Professional Communication Computers IA	PHYV101 MATV101 LECV101		
Thermodynamics IIB	MTDV202	Physics IB Mathematics IA	PHYV102, MATV101		
Dynamics and Controls IIB	MDCV202	Statics and Dynamics IIA Strength of Materials IIA	MSDV201 MSMV211		
Mechanical Design IIB	MMDV212	Engineering Drawing IA Manufacturing Processes IIA Engineering Materials IB	EDRV101 MMPV201 MEMV102		
Strength of Materials IIB	MSMV202	Strength of Materials IIA	MSMV211		
Fluid Mechanics IIB	MFMV202	Fluid Mechanics IIA	MFMV201		
Year 3					
Thermodynamics IIIA	MTDV301	Thermodynamics IIB	MTDV202		
Strength of Materials IIIA	MSMV311	Strength of Materials IIB	MSMV202		

Module		Prerequisites		Co-requisites	
Research and Project Management IIIA	MRPV301	Professional Communication Language IA Professional Communication Computers IA Mechanical Design IIB	LELV111 LECV101 MMDV212		
Mechanical Design IIIA	MMDV311	Mechanical Design IIB	MMDV212		
Hydraulic Machines IIIA	MHMOV301	Fluid Mechanics IIB	MFMV202		
Applied Strength of Materials IIIB	MAMV302	Strength of Materials IIIA	MSMV311		
Capstone Project Mechanical IIIB	MCPV302	Research and Project Management IIIA Strength of Materials IIIA Mechanical Design IIIA	MRPV301 MSMV311 MMDV311		

Obtaining the qualification

The qualification shall be awarded on completion of the modules prescribed by Senate.

Awarding the qualification *cum laude*

The qualification shall be awarded *cum laude* to a student should he/she comply with the requirements as stipulated in the General Prospectus. The following module shall be regarded as the major module:

Capstone Project Mechanical IIIB (MCPV302)

DURATION

The qualification shall extend over at least three years of full-time study.

CURRICULUM

		Presented	Module Code	Credit Value
First Year				
	Compulsory modules:			
	Engineering Drawing IA	Semester 1	EDRV101	14
	Mathematics IA	Semester 1	MATV101	14
	Physics IA	Semester 1	PHYV101	14
	Professional Communication Computers IA	Semester 1	LECV101	14
	Professional Communication Language IA	Semester 1	LELV111	14
	Engineering Materials IB	Semester 2	MEMV102	14
	Engineering Programming Mechanical IB	Semester 2	MEPV102	14
	Engineering Skills IB	Semester 2	CESV102	14
	Mathematics IB	Semester 2	MATV102	14
	Physics IB	Semester 2	PHYV102	14

		Presented	Module Code	Credit Value
	Credits First Year	Minimum		140
		Presented	Module Code	Credit Value
Second Year				
	Compulsory modules:			
	Fluid Mechanics IIA	Semester 1	MFMV201	14
	Manufacturing Processes IIA	Semester 1	MMPV201	14
	Mathematics IIA	Semester 1	MATV211	14
	Statics and Dynamics IIA	Semester 1	MSDV201	14
	Strength of Materials IIA	Semester 1	MSMV201	14
	Dynamics and Controls IIB	Semester 2	MDCV202	14
	Fluid Mechanics IIB	Semester 2	MFMV202	14
	Mechanical Design IIB	Semester 2	MMDV212	14
	Strength of Materials IIB	Semester 2	MSMV202	14
	Thermodynamics IIB	Semester 2	MTDV202	14
	Credits Second Year	Minimum		140
		Presented	Module Code	Credit Value
Third Year				
	Compulsory modules:			
	Hydraulic Machines IIIA	Semester 1	MHMV301	14
	Mechanical Design IIIA	Semester 1	MMDV311	14
	Research and Project Management IIIA	Semester 1	MRPV301	14
	Strength of Materials IIIA	Semester 1	MSMV311	14
	Thermodynamics IIIA	Semester 1	MTDV301	14
	Applied Strength of Materials IIIB	Semester 2	MAMV302	14
	Capstone Project Mechanical IIIB ♦	Semester 2	MCPV302	42
	Corporate Citizenship for Engineering IIIB	Semester 2	CCCV302	14
	Credits Third Year	Minimum		140
	Total Credits			420

♦ Major module (please refer to the General Prospectus).

**10 BACHELOR OF HUMAN SETTLEMENT DEVELOPMENT: FULL-TIME
(QUALIFICATION CODE: 71000 – V1)
(NQF LEVEL: 8, TOTAL NQF CREDITS FOR QUALIFICATION: 494)**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

ADMISSION REQUIREMENTS

- An Admission Points Score (APS) of 36.
- Minimum statutory NSC requirements for degree entry must be met.
- English, Afrikaans or isiXhosa (home language or first additional language) on at least a level 3 (40-49%).
- NSC achievement rating of at least 4 (50-59%) for Mathematics or at least 6 (70-79%) for Mathematical Literacy.
- Applicants who do not meet the requirements for direct admission and have an APS of between 28 and 35 may be referred to write the Access Assessment Test before a decision is made on whether or not to admit the applicant to the course.=

Recommended NSC Subjects

- Accounting
- Business Studies
- Civil Technology
- Consumer Studies
- Economics
- Engineering Graphics & Design
- Geography
- Physical Sciences

APPLICABLE RULES

Re-admission Policy

The re-admission rules of the Faculty of Engineering, the Built Environment and Information Technology apply. Please refer to the section regarding Re-admission Requirements for Undergraduate Programmes under General Information and Regulations.

Obtaining the qualification

The qualification shall be obtained by successfully completing the modules prescribed by Senate. In addition, candidates must complete four months of work-integrated learning during recess periods in the course of their studies and submit reports for approval by the Programme Co-ordinator.

Awarding the qualification *cum laude*

The qualification shall be awarded *cum laude* if students comply with the requirements as stipulated in the General Prospectus.

Site of delivery

This qualification will be offered at the Missionvale Campus of the university.

DURATION

The qualification shall extend over at least four years of full-time study or at least six years of part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
First Year				
	Compulsory modules:			
	Human Settlement Management			
	Basic Principles and Theory of Human Settlement Development and Management	Semester 1	HSM101	15
	Theory of Land Use Planning and Management	Semester 2	HSM102	15
	Public Administration			
	Constitutional Framework for Public Administration	Semester 1	SPA112	6
	Regional, Metropolitan and Local Administration	Semester 2	SPA113	6
	Administration for Development	Semester 2	SPA114	6
	Economics			
	Introduction to Micro-economics	Semester 1	ECC101	12
	Introduction to Macro-economics	Semester 2	ECC102	12
	Computer Sciences			
	Computer Literacy	Semester 2	ITVL102	6
	Accounting			
	Accounting (Special) 101	Semester 1	RSS101	10
	Accounting (Special) 102	Semester 2	RSS102	5
	Sociology			
	Social and Environmental Issues	Semester 1	SSS261	10
	Political Studies			
	Political Issues, theories and concepts	Semester 2	SLP111	6
	Law			
	Local Government Law	Semester 2	JLG101	12
	Credits First Year	Minimum		121
		Presented	Module Code	Credit Value
Second Year				
	Compulsory modules:			
	Human Settlement Management			
	Land Use Management and Environment	Semester 1	HSM201	10
	Communities and Human Resources	Semester 1	HSM202	10
	Housing Finance and Administration	Semester 2	HSM203	10
	Public Administration			
	Public Policy Process, Procedures and Methods	Semester 1	SPA221	10
	Public Financing and Control	Semester 2	SPA222	10
	Law			
	Commercial Law	Semester 1	JHA131	12

		Presented	Module Code	Credit Value
	Sociology			
	Sociology of Development	Semester 2	SSS323	15
	House Design and Services			
	House Design and Related Building Standards	Semester 1	HDS201	10
	Services and Layouts of Residential Developments	Semester 2	HDS202	10
	Business Management			
	Introduction to Business Management and Entrepreneurship	Semester 1	EB121	12
	Introduction to the Business Functions	Semester 2	EB122	12
	Credits Second Year	Minimum		121
		Presented	Module Code	Credit Value
Third Year				
	Compulsory modules:			
	Human Settlement Management			
	Development Management Theory	Semester 1	HSM301	10
	Human Settlement Policies and Implementation	Semester 2	HSM302	10
	Social Housing Facilitation and Management	Semester 2	HSM303	10
	Public Administration			
	Local Government and Administration	Semester 1	SPA312	15
	Local and Regional Resource Management	Semester 2	SPA313	15
	Public Management Techniques	Semester 1	SPA314	15
	Project Management	Semester 2	SPA315	15
	House Construction and Maintenance			
	House Construction and Maintenance	Semester 1	HCM301	12
	Construction Management (Special)			
	Introduction to the Built Environment and Construction Management (Special)	Semester 1	CMS301	10
	Construction Contracts	Semester 2	CMS302	10
	Credits Third Year	Minimum		122
		Presented	Module Code	Credit Value
Fourth Year				
	Human Settlement Management			
	Sustainable Human Settlement and Urban Infrastructure Management ♦	Semester 1	HSM401	10
	Economic Development and Environmental Impact Management ♦	Semester 2	HSM402	10
	Advanced Project Management Applications ♦	Semester 1	HSM403	10

		Presented	Module Code	Credit Value
	Integrated Development Management			
	IDP Theory, Policies and Practice ♦	Semester 1	IDM401	10
	GIS for Human Settlement Managers ♦	Semester 2	IDM402	10
	Property Development and Management			
	Property Development and Management	Semester 1	HDM401	10
	Property Investment and Finance	Semester 2	HDM402	10
	Property Economics and Valuation	Semester 2	HDM403	10
	Law			
	Statutory Law relating to Human Settlements	Semester 1	JSL101	10
	Statistics			
	Statistical Methods for Behavioural Sciences	Semester 1	WSA111	7
	Research Methodology and Treatise			
	Research Methodology and Proposal	Semester 1	HSR401	10
	Research Project and Treatise (preferably linked to a Practical Project/Case study)	Semester 2	HSR402	23
	Credits Fourth Year	Minimum		130
	Total Credits			494

♦ Major modules (please refer to the General Prospectus).

**11 BACHELOR OF INFORMATION TECHNOLOGY: FULL-TIME
(QUALIFICATION CODE: 72001 – 01)
(NQF LEVEL: 7, TOTAL NQF CREDITS FOR QUALIFICATION: 360/362)**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

ADMISSION REQUIREMENTS

- Minimum NSC statutory requirements for degree entry must be met.
- An applicant with NSC Grade 12 Mathematics or Technical Mathematics requires a minimum Applicant Score of 370.
- NSC achievement rating of at least 50% for Mathematics or Technical Mathematics.

PREREQUISITE MODULES

A student will not be allowed to proceed to the following modules without first having passed the listed prerequisite modules or, in some cases, be simultaneously registered (at least) for the given co-requisite modules.

Module		Prerequisite		Co-requisite	
Name	Code	Name	Code	Name	Code
Information Technology Practice	IITP102	Introduction to Information Technology	IITF101		
Communication Network Fundamentals	ICNF102	Operating System Fundamentals	IOSF101		
Requirements Engineering	IREQ201	Information Technology Practice & IT Professional Practice	IITP102 & ITPP100		
Database Design & Development	IDBD201	Information Technology Practice & Programming Fundamentals 1B	IITP102 & WRAV102		
Interaction Design & Process Modelling	IDPM202	Requirements Engineering & Database Design & Development	IREQ201 & IDBD201		
Web Applications Development	IWDV202	Requirements Engineering & Database Design & Development	IREQ201 & IDBD201		
Network Management	INWM201	Communication Network Fundamentals	ICNF102		
Network Optimization and Security	INOS202	Network Management	INWM201		
Re-usable Design and Development	IRUD301	Interaction Design & Process Modelling	IDPM202		
Mobile Development	IMOB301	Interaction Design & Process Modelling	IDPM202		

Multi-platform & Cloud Systems	IMPS301	Interaction Design & Process Modelling & Interaction Design & Process Modelling	IDPM202 & IWDV202	Mobile Development	IMOB301
Integrated Enterprise Systems	IENT301	Interaction Design & Process Modelling & Interaction Design & Process Modelling	IDPM202 & IWDV202	Multi-platform & Cloud Systems	IMPS301
IT Management & Governance	ITMG302	Integrated Enterprise Systems	IENT301		
Emerging Technologies	IEMT302	Network Optimization and Security & Information Technology Practice	INOS202 & ITPP102	Integrated Enterprise Systems	IENT301
IT Project 3	ITPV302	Integrated Enterprise Systems, Re-usable Design and Development & Network Optimization and Security	IENT301, IRUD301 & INOS202		
Applied Programming	IAPP301	Applied Data Analytics & Database Design & Development	IADA201 & IDBD201		
Mathematics Special B 101	MATB111	Mathematics Special A 101	MATS101		
Programming Fundamentals 1B	WRAV102	Programming Fundamentals 1A	WRAV101		
Applied Data Analytics#	IADA201	Business Statistics & Programming Fundamentals 1B	STAV102 & WRAV102		
Maritime Information Systems	IMIS202	Introduction to the Maritime Environment	IMEV201		

RE-ADMISSION

Re-admission to the programme in a following academic year is subject to:

- candidates passing a minimum of 60 credits per academic year;
- candidates passing specified, pre-requisite modules.

DURATION

The qualification shall extend over a minimum of three years of full-time study. Please refer to the section regarding Maximum Period of Study under General Information and Regulations.

CURRICULUM

		Presented	Module Code	Credit Value
First Year				
Compulsory modules:				
	Mathematics Special A 101	Semester 1	MATS101	8
	Mathematics Special B 101	Semester 2	MATB111	8
	Business Statistics	Semester 1	STAV102	12
	Introduction to Information Technology	Semester 1	IITF101	14
	Information Technology Practice	Semester 2	IITP102	14

		Presented	Module Code	Credit Value
	Operating System Fundamentals	Semester 1	IOSF101	14
	Communication Network Fundamentals	Semester 2	ICNF102	14
	Programming Fundamentals 1A	Semester 1	WRAV101	8
	Programming Fundamentals 1B	Semester 2	WRAV102	8
	IT Professional Practice	Year	ITPP100	20
	Credits First Year			120
Second Year				
	Compulsory modules:			
	Applied Data Analytics	Semester 1	IADA201	12
	Requirements Engineering	Semester 1	IREQ201	10
	Database Design and Development	Semester 1	IDBD201	20
	Interaction Design and Process Modelling	Semester 2	IDPM202	15
	Web Applications Development	Semester 2	IWDV202	15
	Network Management	Semester 1	INWM201	15
	Network Optimisation and Security	Semester 2	INOS202	15
	Electives (Select one of the following options)			
	Manufacturing Option			
	Introduction to Manufacturing	Semester 1	IMNF201	10
	Introduction to Automation	Semester 2	IAUT202	10
	Health Informatics Option			
	Health Care Systems, Policies and Regulations	Semester 1	VHPR201	10
	Population-based health care	Semester 2	VPHC102	8
	Maritime Option			
	Introduction to the Maritime Environment	Semester 1	IMEV201	10
	Maritime Information Systems	Semester 2	IMIS202	10
	Credits Second Year			120/122
		Presented	Module Code	Credit Value
Third Year				
	Compulsory modules:			
	Re-usable Design and Development ♦	Semester 1	IRUD301	15
	Mobile Development	Semester 1	IMOB301	10
	Multi-platform and Cloud Systems	Semester 1	IMPS301	10
	Integrated Enterprise Systems ♦	Semester 1	IENT301	10
	IT Management and Governance	Semester 2	ITMG302	15
	Emerging Technologies	Semester 2	IEMT302	15
	Project ♦	Semester 2	ITPV302	30

		Presented	Module Code	Credit Value
Electives (continue with choice made in second year)				
Manufacturing & Maritime Option				
Applied Programming		Semester 1	IAPP301	15
Health Informatics Option				
Management in Health Care		Year	VMHC300	15
Credits Third Year				120
Total Credits				360/362

♦ Major modules (please refer to the General Prospectus).

Please note:

A maximum of 60 credits in the curriculum may be substituted subject to approval from the School Management Committee and the requirements of the NATED 151.

12 BACHELOR OF SCIENCE**12.1 BACHELOR OF SCIENCE IN CONSTRUCTION ECONOMICS:
FULL-TIME
(QUALIFICATION CODE: 47002 – 01)
(NQF LEVEL: 7, TOTAL NQF CREDITS FOR QUALIFICATION: 364)
(NO NEW INTAKE)****ADMISSION REQUIREMENTS**

- Admission Points Score of 36.
- Minimum NSC requirements for degree entry must be met.
- English, Afrikaans or isiXhosa (home language or first additional language) on at least level 3 (40-49%).
- NSC achievement rating of at least 4 (50-59%) for Mathematics.
- Applicants with an Admission Points Score between 26 and 35 may be referred to write the Access Assessment Battery before a decision is made on whether or not to admit the applicant to the course.
- Admission is subject to departmental selection.

Final year for admission

The final year for new admission into this programme was 2015.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2020.

Recommended NSC subjects

Engineering Graphics and Design
Physical Sciences

APPLICABLE RULES**Re-admission Policy**

Please refer to the section regarding Re-admission Requirements for Undergraduate Programmes under General Information and Regulations.

Obtaining the qualification

The qualification shall be obtained by completing the modules prescribed by Senate.

Awarding the qualification *cum laude*

Unless Senate decides otherwise, the qualification shall be awarded *cum laude* if students comply with the requirements as stipulated in the General Prospectus. The following modules shall be regarded as the major modules:

Quantities 301
Building Economics 301
Quantity Surveying 301

DURATION

The qualification shall extend over at least three years of full-time study. Please refer to the section regarding Maximum Period of Study under General Information and Regulations.

CURRICULUM

		Presented	Module Code	Credit Value
First Year				
	Compulsory modules:			
	Introduction to Micro-economics (Special)	Semester 1	ECS101	7
	Introduction to Macro-economics (Special)	Semester 2	ECS102	7
	Commercial Law 121	Semester 1	JHA121	12
	Commercial Law (Building Disciplines)	Semester 2	JHY101	6
	Building Science (Environment and Services) 1A	Semester 1	KES111	7
	Building Science (Environment and Services) 1B	Semester 2	KES112	7
	Basic Surveying 1A	Semester 1	KLS110	6
	Building Science (Materials and Methods) 1A	Semester 1	KMM111	7
	Building Science (Materials and Methods) 1B	Semester 2	KMM112	7
	Information Technology for Building Disciplines 101	Year	QIT101	2
	Quantities 101	Year	QQH101	16
	Quantity Surveying 101	Year	QQS101	12
	Computing Fundamentals 1.1	Semester 1	WRFC101	8
	Computing Fundamentals 1.2	Semester 2	WRFC102	8
	Credits First Year			112
		Presented	Module Code	Credit Value
Second Year				
	Compulsory modules:			
	Introduction to Business Management and Entrepreneurship	Semester 1	EB101	12
	Introduction to the Business Functions	Semester 2	EB102	12
	Building Science (Environment and Services) 2A	Semester 1	KES211	7
	Building Science (Environment and Services) 2B	Semester 2	KES212	7
	Building Science (Materials and Methods) 2A	Semester 1	KMM211	7
	Building Science (Materials and Methods) 2B	Semester 2	KMM212	7
	Building Economics 201	Year	QBE201	20
	Information Technology for Building Disciplines 201	Year	QIT201	2
	Quantities 201	Year	QQH201	16
	Quantity Surveying 201	Year	QQS201	12
	Accounting (Special) 101	Semester 1	RS101	10
	Accounting (Special) 102	Semester 2	RS102	5
	Credits Second Year			117

		Presented	Module Code	Credit Value
Third Year				
Compulsory modules:				
	Marketing Management	Semester 1	EBM201	14
	Logistics and Purchasing Management	Semester 2	EBM202	14
	Building Science (Environment and Services) 3A	Semester 1	KES311	7
	Building Science (Environment and Services) 3B	Semester 2	KES312	7
	Building Science (Materials and Methods) 3A	Semester 1	KMM311	7
	Building Science (Materials and Methods) 3B	Semester 2	KMM312	7
	Mathematics for Accounting	Semester 1	MACC101	12
	Building Economics 301 ♦	Year	QBE301	22
	Information Technology for Building Disciplines 301	Year	QIT301	4
	Quantities 301 ♦	Year	QQH301	16
	Quantity Surveying 301 ♦	Year	QQS301	13
	Business Statistics 102	Semester 2	STAE102	12
	Credits Third Year			135
	Total Credits			364

♦ Major modules (please refer to the General Prospectus).

**12.2 BACHELOR OF SCIENCE IN CONSTRUCTION ECONOMICS: FULL-TIME
(QUALIFICATION CODE: 72020 – 01)
(NQF LEVEL: 7, TOTAL NQF CREDITS FOR QUALIFICATION: 364)
(NO NEW INTAKE)**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

ADMISSION REQUIREMENTS

- Admission Points Score of 36.
- Minimum NSC requirements for degree entry must be met.
- English, Afrikaans or isiXhosa (home language or first additional language) on at least level 3 (40-49%).
- NSC achievement rating of at least 4 (50-59%) for Mathematics.
- Applicants with an Admission Points Score between 26 and 35 may be referred to write the Access Assessment Battery before a decision is made on whether or not to admit the applicant to the course.
- Admission is subject to departmental selection.

Final year for admission

The final year for new admission into this programme was 2016.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2021.

Recommended NSC subjects

Engineering Graphics and Design

Physical Sciences

APPLICABLE RULES**Re-admission Policy**

Please refer to the section regarding Re-admission Requirements for Undergraduate Programmes under General Information and Regulations.

Obtaining the qualification

The qualification shall be obtained by completing the modules prescribed by Senate.

Awarding the qualification *cum laude*

Unless Senate decides otherwise, the qualification shall be awarded *cum laude* if students comply with the requirements as stipulated in the General Prospectus. The following modules shall be regarded as the major modules:

Quantities 301

Building Economics 301

Quantity Surveying 301

DURATION

The qualification shall extend over at least three years of full-time study. Please refer to the section regarding Maximum Period of Study under General Information and Regulations.

CURRICULUM

		Presented	Module Code	Credit Value
First Year				
	Compulsory modules:			
	Introduction to Micro-economics (Special) I	Semester 1	ECSV101	7
	Introduction to Macro-economics (Special) I	Semester 2	ECSV102	7
	Commercial Law I	Semester 1	JHA131	12
	Commercial Law (Building Disciplines) I	Semester 2	JHYV102	6
	Building Science (Environment and Services) 1A	Semester 1	KESV101	7
	Building Science (Environment and Services) 1B	Semester 2	KESV102	7
	Basic Surveying I	Semester 1	KLSV101	6
	Building Science (Materials and Methods) 1A	Semester 1	KMMV101	7
	Building Science (Materials and Methods) 1B	Semester 2	KMMV102	7
	Information Technology for Building Disciplines I	Year	QITV100	2
	Quantities I	Year	QQHV100	16
	Quantity Surveying I	Year	QQSV100	12
	Computing Fundamentals 1.1	Semester 1	WRFV101	8
	Computing Fundamentals 1.2	Semester 2	WRFV102	8
	Credits First Year			112

		Presented	Module Code	Credit Value
Second Year				
Compulsory modules:				
	Introduction to Business Management and Entrepreneurship I	Semester 1	EB121	12
	Introduction to the Business Functions	Semester 2	EB122	12
	Building Science (Environment and Services) 2A	Semester 1	KESV201	7
	Building Science (Environment and Services) 2B	Semester 2	KESV202	7
	Building Science (Materials and Methods) 2A	Semester 1	KMMV201	7
	Building Science (Materials and Methods) 2B	Semester 2	KMMV202	7
	Building Economics 2	Year	QBEV200	20
	Information Technology for Building Disciplines 2	Year	QITV200	2
	Quantities 2	Year	QQHV200	16
	Quantity Surveying 2	Year	QQSV200	12
	Accounting (Special) 101	Semester 1	RSS101	10
	Accounting (Special) 102	Semester 2	RSS102	5
	Credits Second Year			117
Third Year				
Compulsory modules:				
	Marketing Management 2	Semester 1	EBMV201	14
	Logistics and Purchasing Management 2	Semester 2	EBMV202	14
	Building Science (Environment and Services) 3A	Semester 1	KESV301	7
	Building Science (Environment and Services) 3B	Semester 2	KESV302	7
	Building Science (Materials and Methods) 3A	Semester 1	KMMV301	7
	Building Science (Materials and Methods) 3B	Semester 2	KMMV302	7
	Mathematics for Accounting	Semester 1	MACV101	12
	Building Economics 3 ♦	Year	QBEV300	22
	Information Technology for Building Disciplines 3	Year	QITV300	4
	Quantities 3 ♦	Year	QQHV300	16
	Quantity Surveying 3 ♦	Year	QQSV300	13
	Business Statistics 102	Semester 2	STAV102	12
	Credits Third Year			135
	Total Credits			364

♦ Major modules (please refer to the General Prospectus).

**12.3 BACHELOR OF SCIENCE IN CONSTRUCTION ECONOMICS: QUANTITY SURVEYING WITH FINANCIAL AND BUSINESS MANAGEMENT: FULL-TIME
(QUALIFICATION CODE: 72021 – 01)
(NQF LEVEL: 7, TOTAL NQF CREDITS FOR QUALIFICATION: 368)**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

ADMISSION REQUIREMENTS

- Admission Points Score of 29 (achievement rating of Life Orientation excluded).
- Minimum NSC requirements for degree entry must be met.
- English, Afrikaans or isiXhosa (home language or first additional language) on at least level 3 (40-49%).
- NSC achievement rating of at least 4 (50-59%) for Mathematics.
- Applicants with an Admission Points Score of 27 and 28 (achievement rating of Life Orientation excluded) may be referred to write the Access Assessment Battery before a decision is made on whether or not to admit the applicant to the course.
- Admission is subject to departmental selection.

Recommended NSC subjects

Engineering Graphics and Design
Physical Sciences

APPLICABLE RULES

Re-admission Policy

Please refer to the section regarding Re-admission Requirements for Undergraduate Programmes under General Information and Regulations.

Obtaining the qualification

The qualification shall be obtained by completing the modules prescribed by Senate.

Awarding the qualification *cum laude*

Unless Senate decides otherwise, the qualification shall be awarded *cum laude* if students comply with the requirements as stipulated in the General Prospectus. The following modules shall be regarded as the major modules:

Quantities 3
Building Economics 3
Quantity Surveying 3

DURATION

The qualification shall extend over at least three years of full-time study. Please refer to the section regarding Maximum Period of Study under General Information and Regulations.

CURRICULUM

		Presented	Module Code	Credit Value
First Year				
	Compulsory modules:			
	Quantities 1	QQHV110	Year	20
	Quantity Surveying 1	QQSV110	Year	15
	Building Drawings 1	QBDV101	Semester 1	10
	Building Science (Environment & Services) 1A	KESV101	Semester 1	7
	Building Science (Environment & Services) 1B	KESV102	Semester 2	7
	Building Science (Materials & Methods) 1A	KMMV101	Semester 1	7
	Building Science (Materials & Methods) 1B	KMMV102	Semester 2	7
	Computing Fundamentals 1.1	WRFV101	Semester 1	8
	Computing Fundamentals 1.2	WRFV102	Semester 2	8
	Introduction to Micro-economics (Special)	ECSV101	Semester 1	7
	Introduction to Macro-economics (Special)	ECSV102	Semester 2	7
	Commercial Law 1	JHA131	Semester 1	12
	Commercial Law (Building Disciplines) 1	JHYV102	Semester 2	6
	Credits First Year			121
		Presented	Module Code	Credit Value
Second Year				
	Compulsory modules:			
	Quantities 2	QQHV210	Year	18
	Quantity Surveying 2	QQSV210	Year	15
	Building Economics 2	QBEV210	Year	18
	Building Science (Environment & Services) 2A	KESV201	Semester 1	7
	Building Science (Environment & Services) 2B	KESV202	Semester 2	7
	Building Science (Materials & Methods) 2A	KMMV201	Semester 1	7
	Building Science (Materials & Methods) 2B	KMMV202	Semester 2	7
	Accounting (Special) 101	RSS101	Semester 1	10
	Accounting (Special) 102	RSS102	Semester 2	5
	Business Management 101	EBCV101	Semester 1	7
	Business Management 102	EBCV102	Semester 2	7
	Mathematics for Accounting	MACV101	Semester 1	12
	Credits Second Year			120

		Presented	Module Code	Credit Value
Third Year				
Compulsory modules:				
	Quantities 3 ♦	QQHV310	Year	20
	Quantity Surveying 3 ♦	QQSV310	Year	15
	Building Economics 3 ♦	QBEM310	Year	26
	Building Science (Environment & Services) 3A	KESV301	Semester 1	7
	Building Science (Environment & Services) 3B	KESV302	Semester 2	7
	Building Science (Materials & Methods) 3A	KMMV301	Semester 1	7
	Building Science (Materials & Methods) 3B	KMMV302	Semester 2	7
	Marketing Management 2	EBMV201	Semester 1	14
	Business Management: Financial Management 301	EBMV301	Semester 1	24
	Credits Third Year			127
	Total Credits			368

♦ Major modules (please refer to the General Prospectus).

**12.4 BACHELOR OF SCIENCE IN CONSTRUCTION STUDIES: FULL-TIME
(QUALIFICATION CODE: 45603 – 01)
(NQF LEVEL: 6, TOTAL NQF CREDITS FOR QUALIFICATION: 383)**

ADMISSION REQUIREMENTS

- Admission Points Score of 36.
- Minimum NSC requirements for degree entry must be met.
- English, Afrikaans or isiXhosa (home language or first additional language) on at least level 3 (40-49%).
- NSC achievement rating of at least 4 (50-59%) for Mathematics.
- Applicants with an Admission Points Score between 26 and 35 may be referred to write the Access Assessment Battery before a decision is made on whether or not to admit the applicant to the course.

Recommended NSC subjects

Engineering Graphics and Design
Physical Sciences

APPLICABLE RULES

Re-admission Policy

Please refer to the section regarding Re-admission Requirements for Undergraduate Programmes under General Information and Regulations.

Study Excursions

Candidates are required to attend two study excursions, each of one week's duration, the first during the second to third year of study and the second during the Honours year of study.

Obtaining the qualification

The qualification shall be obtained by completing the modules prescribed by Senate. Before the qualification of Bachelor of Science in Construction Studies is awarded, candidates must be in possession of a valid First Aid certificate issued by a recognised First Aid organisation. Candidates shall make their own arrangements to obtain a First Aid certificate in their own time and to complete the necessary examinations.

Awarding the qualification *cum laude*

Unless Senate decides otherwise the qualification shall be awarded *cum laude* if candidates comply with the requirements of the general rule concerned, provided that:

The following shall be regarded as the major modules:

- Construction Management 3
- Building Science (Materials and Methods) 3
- Building Science (Environment and Services) 3
- Building Science (Structures) 3
- Production Analysis 3
- Building Economics 201

DURATION

The qualification shall extend over at least three years of full-time study. Please refer to the section regarding Maximum Period of Study under General Information and Regulations.

CURRICULUM

		Presented	Module Code	Credit Value
First Year				
Compulsory modules:				
	Geometric Drawing 101	Semester 1	AM101	8
	Mechanics and Thermodynamics	Semester 1	FBB101	7
	Electricity, Optics and Atomics	Semester 2	FBB102	7
	Building Science (Structures) 1A	Semester 1	KBS111	7
	Building Science (Structures) 1B	Semester 2	KBS112	7
	Building Science (Environment and Services) 1A	Semester 1	KES111	7
	Building Science (Environment and Services) 1B	Semester 2	KES112	7
	Basic Surveying 1A	Semester 1	KLS110	6
	Basic Surveying 1B	Semester 2	KLS120	6
	Building Science (Materials and Methods) 1A	Semester 1	KMM111	7
	Building Science (Materials and Methods) 1B	Semester 2	KMM112	7
	Production Analysis 101	Year	KPA101	16
	Mathematics (Special) A	Semester 1	MATA101	8
	Mathematics (Special) B	Semester 2	MATA102	8
	Information Technology for Building Disciplines 101	Year	QIT101	2
	Computing Fundamentals 1.1	Semester 1	WRFC101	8
	Computing Fundamentals 1.2	Semester 2	WRFC102	8
	Credits First Year			126

		Presented	Module Code	Credit Value
Second Year				
Compulsory modules:				
	Business Management 101 (for CM students only)	Semester 1	EBC101	7
	Business Management 102 (for CM students only)	Semester 2	EBC102	7
	Introduction to Micro-economics (Special)	Semester 1	ECS101	7
	Introduction to Macro-economics (Special)	Semester 2	ECS102	7
	Organisational Behaviour Special	Semester 1	EZGS201	12
	Building Science (Structures) 2A	Semester 1	KBS211	7
	Building Science (Structures) 2B	Semester 2	KBS212	7
	Building Science (Environment and Services) 2A	Semester 1	KES211	7
	Building Science (Environment and Services) 2B	Semester 2	KES212	7
	History of the Construction Industry 101	Semester 2	KH101	4
	Building Science (Materials and Methods) 2A	Semester 1	KMM211	7
	Building Science (Materials and Methods) 2B	Semester 2	KMM212	7
	Production Analysis 201	Year	KPA201	16
	Mathematics for Accountancy	Semester 1	MACC101	12
	Information Technology for Building Disciplines 201	Year	QIT201	2
	Business Statistics 102	Semester 2	STAE102	12
	Credits Second Year			128
		Presented	Module Code	Credit Value
Third Year				
Compulsory modules:				
	Construction Management 3A ♦	Semester 1	KBM311	12
	Construction Management 3B ♦	Semester 2	KBM312	12
	Building Science (Structures) 3A ♦	Semester 1	KBS311	7
	Building Science (Structures) 3B ♦	Semester 2	KBS312	7
	Building Science (Environment and Services) 3A ♦	Semester 1	KES311	7
	Building Science (Environment and Services) 3B ♦	Semester 2	KES312	7
	Building Science (Materials and Methods) 3A ♦	Semester 1	KMM311	7
	Building Science (Materials and Methods) 3B ♦	Semester 2	KMM312	7
	Production Analysis 3A ♦	Semester 1	KPA311	12
	Production Analysis 3B ♦	Semester 2	KPA312	12
	Building Economics 201 ♦	Year	QBE201	20
	Information Technology for Building Disciplines	Year	QIT301	4
	Accounting (Special) 101	Semester 1	RS101	10
	Accounting (Special) 102	Semester 2	RS102	5
	Credits Third Year			129
	Total Credits			383

♦ Major modules (please refer to the General Prospectus).

13 BACHELOR OF TECHNOLOGY**13.1 BACHELOR OF TECHNOLOGY (CONSTRUCTION MANAGEMENT):
FULL-TIME
(QUALIFICATION CODE: 4281 – 01)
(NQF LEVEL: 7, TOTAL NQF CREDITS FOR QUALIFICATION: 120)****ADMISSION REQUIREMENTS**

- The minimum admission requirement is the National Diploma: Building or a qualification deemed equivalent by the department and approved by the Faculty Management Committee (FMC).
- It is further expected of students to comply with the following requirements before being allowed entry to the qualification:
 - a weighted average of 60% in the final year of study in the diploma;
 - the student must obtain at least 60% for the major module (Construction Management III) in the final year of study in the diploma for entry into the Bachelor of Technology qualification.
- **Alternatively:**
Students obtaining between (55% - 59%) in either of the above criteria must submit a detailed breakdown of two years' proven post-diploma experience, under the auspices of a mentor professionally registered with either the SACPCMP, SACQSP, or a relevant Built Environment Professional Body, as well as periods of employment, certified by the relevant company.

Final year for admission

The final year for new admission into this programme will be 2019.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2022.

APPLICABLE RULES**Obtaining the qualification**

The qualification shall be obtained by completing the modules prescribed by Senate.

Awarding the qualification *cum laude*

Unless Senate decides otherwise, the qualification shall be awarded *cum laude* if candidates comply with the relevant General Rules for the Bachelor of Technology qualifications.

DURATION

The qualification shall extend over at least one year of full-time study. Studies may also be completed over two academic years in consultation with the Head of the Department.

CURRICULUM

		Presented	Module Code	Credit Value
Full-time				
Compulsory modules:				
	Appropriate Construction IV	Year	DAC4010	20
	Building Entrepreneurship IV	Year	DBE4010	20
	Construction Economics IV	Year	DCE4010	20
	Construction Management IV	Year	DCO4010	20
	Construction Law and Procedures IV	Year	DLP4010	20
	Sub-total			100
Select either option A or option B:				
A	Research Methodology IV (2 modules)		BNV4210	
	Research Methods and Techniques	Semester 1	BNV4221	10
	Project	Semester 2	BNV4232	10
B	Maintenance Management IV	Year	DMA4010	20
	Total Credits			120

13.2 BACHELOR OF TECHNOLOGY (ENGINEERING: CIVILSPECIALISING IN TRANSPORTATION ENGINEERING): PART-TIME (QUALIFICATION CODE: 4333 – 21) (NQF LEVEL: 7, TOTAL NQF CREDITS FOR QUALIFICATION: 120)

ADMISSION REQUIREMENTS

Students must have a 65% average for the National Diploma: Engineering: Civil.

Final year for admission

The final year for new admission into this programme will be 2019.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2022.

APPLICABLE RULES**Purpose Statement**

Persons achieving this qualification will be able to independently and competently apply an integration of theory, principles, proven techniques, practical experience and appropriate skills to the solution of open-ended and ill-defined problems in the field of Civil Engineering while operating within the relevant standards and codes. The qualification is intended for engineering practitioners in the Civil Engineering industry. The qualified person will be able to register with the Engineering Council of South Africa (ECSA) as a Candidate Engineering Technologist in the discipline of Civil Engineering. After a period of appropriate industry experience, the qualified person will be able to register with ECSA as a Professional Engineering Technologist.

Qualification Objectives

- This qualification provides the academic component required to register as a Professional Technologist in training at the Engineering Council of SA.
- The qualification also serves as the academic admission requirement for further postgraduate studies in Civil Engineering at Nelson Mandela University.

Format of offering

This qualification is offered on a block format, which broadly entails short periods of concentrated study at Nelson Mandela University, the so-called contact sessions, alternating with longer periods of self-study away from Nelson Mandela University. Generally, two modules (or one) will be offered per discipline per semester.

Qualification of offerings

The qualification aims to offer all the modules over a two-year cycle. For each module, the prerequisite knowledge will be documented and made available to prospective students. Students will thus be allowed into a qualification at any point in the cycle of offering of the qualification, but the onus will be on them to ensure that they gain the prerequisite knowledge.

The next two-year cycle of offerings will be scheduled as follows:

Sem/Year	Transport	Urban
1 of 2019	CMPM410 - Project Management IV	CMPM410 - Project Management IV
	CUUP410 - Urban Planning & Design IV	CUUP410 - Urban Planning & Design IV
2 of 2019	CTGD410 - Geometric Design IV	CTGD410 - Geometric Design IV
	CEEM410 - Environmental Management for Engineers IV	CEEM410 - Environmental Management for Engineers IV
Sem/Year	Transport	Urban
1 of 2020	CTTT410 - Transportation Technology IV	CTTT410 – Transportation Technology IV
	CTTE410 - Traffic Engineering IV	CWRD410 - Reticulation Design & Management IV
2 of 2020	CTPT410 - Pavement Technology IV	CTPT410 - Pavement Technology IV
	CTTP410 - Transportation Planning IV	CUSW410 - Solid Waste Management IV

The provisional dates for 2019 are as follows:

Semester 1: 2019

Subject	Discipline	Session 1	Session 2	Session 3	Session 4
CMPM410	T, U	28 – 30 Jan	18 – 19 Mar	6 – 8 May	24 – 26 Jun
CUUP410	T, U	30 Jan – 1 Feb	20 & 22 Mar	8 – 10 May	26 – 28 Jun

Semester 2: 2019

Subject	Discipline	Session 1	Session 2	Session 3	Session 4
CTGD410	T, U	8 – 10 Jul	23 & 25 Sep	28 – 30 Oct	25 – 27 Nov
CEEM410	T, U	10 – 12 Jul	26 – 27 Sep	30 Oct – 1 Nov	27 – 29 Nov

Notes on 2019:

In some cases the same day is shared by two subjects. The first subject is scheduled for the morning session and the second subject for the afternoon session.

The specified arrangements and qualifications will be adhered to as far as possible, but unforeseen circumstances, such as non-availability of lecturers or a low student entry, may force unavoidable changes.

Note that in some cases the same day is shared by two subjects. The first subject is scheduled for the morning session and the second subject for the afternoon session.

Evaluation Procedures

All the B Tech modules are classified as 100% class mark modules with Assessments taking place on a continuous basis. There are no formal examinations in these modules. In general, the evaluation for the theory module of each main module will be based on a minimum of three Assessments, e.g. two tests and one assignment. The project module will be evaluated separately and should have a minimum of two Assessments, e.g. one project and one assignment. The final mark for the main module will be a weighted average of these evaluation components, each carrying a 50% weight.

The weighting of each of these minimum of three evaluation components will be conveyed to students at the beginning of a qualification. In order to pass the main module, a student needs to obtain at least 50% for the final mark of each of the theory and project modules. Should a student not meet the minimum pass requirements for any of the modules of the main module, the result for the main module will be indicated as "Studies not yet completed", even though it is possible to obtain a combined mark of above 50% in such a case.

In the theory component of each main module, a sick test is scheduled at the end of the course if a student, for reasons beyond his/her control, is absent from a scheduled test. A motivational request should be lodged in writing to the Lecturer, with a copy to the Head of Department / B Tech Coordinator, within two weeks after the date of the test. This special evaluation is granted only to those students that missed an opportunity to write a test and contains all the work covered in the course. Due dates for assignments and projects should be strictly adhered to.

Re-admission Policy

A student who progresses at a slower rate than that set out in the following table, will be refused registration on the grounds of "poor academic performance".

Semester	Minimum amount of theory and/or project components that needs to be attained
1	2
2	4
3	8
4	12
5	14

Recognition of modules done at other HE institutions

The Department will recognise modules done at other HE institutions for exemption, according to the General Prospectus of Nelson Mandela University, subject to the following criteria:

- Exemptions will only be considered for the theory modules of any main module, provided that the student has registered at least once for the said module at Nelson Mandela University but has been unsuccessful in passing the module.
- The theory modules to be exempted according to (a) must appear in the curriculums offered by Nelson Mandela University.
- No more than two such B Tech theory modules may be thus exempted.

Obtaining the qualification

The qualification shall be obtained by completing the modules prescribed by Senate.

Awarding the qualification *cum laude*

Unless Senate decides otherwise, the qualification shall be awarded *cum laude* if candidates comply with the relevant General Rules for the Bachelor of Technology qualifications.

DURATION

The qualification shall extend over at least two years of part-time study (block format).

CURRICULUM

		Presented	Module Code	Credit Value
Main / Core Modules				
	Geometric Design IV ♦		CTGD410	
	Geometric Design IV (Theory)	Semester 2	CTGD4A2	7.5
	Geometric Design IV (Project)	Semester 2	CTGD4B2	7.5
	Pavement Technology IV ♦		CTPT410	
	Pavement Technology IV (Theory)	Semester 2	CTPT4A2	7.5
	Pavement Technology IV (Project)	Semester 2	CTPT4B2	7.5
	Transportation Technology IV		CTTT410	
	Transportation Technology IV (Theory)	Semester 1	CTTT4A1	7.5
	Transportation Technology IV (Project)	Semester 1	CTTT4B1	7.5
	Transportation Planning IV ♦		CTTP410	
	Transportation Planning IV (Theory)	Semester 2	CTTP4A2	7.5
	Transportation Planning IV (Project)	Semester 2	CTTP4B2	7.5
	Traffic Engineering IV ♦		CTTE410	
	Traffic Engineering IV (Theory)	Semester 1	CTTE4A1	7.5
	Traffic Engineering IV (Project)	Semester 1	CTTE4B1	7.5
	Credits			75
		Presented	Module Code	Credit Value
Additional / Elective Modules				
	Environmental Management for Engineers IV		CEEM410	
	Environmental Management for Engineers IV (Theory)	Semester 2	CEEM4A2	7.5
	Environmental Management for Engineers IV (Project)	Semester 2	CEEM4B2	7.5

		Presented	Module Code	Credit Value
	Project Management IV		CMPM410	
	Project Management IV (Theory)	Semester 1	CMPM4A1	7.5
	Project Management IV (Project)	Semester 1	CMPM4B1	7.5
	Urban Planning & Design IV		CUUP410	
	Urban Planning & Design IV (Theory)	Semester 1	CUUP4A1	7.5
	Urban Planning & Design IV (Project)	Semester 1	CUUP4B1	7.5
	Credits			45
	Total Credits			120

♦ Major modules (please refer to the General Prospectus).

13.3 BACHELOR OF TECHNOLOGY (ENGINEERING: CIVIL SPECIALISING IN URBAN ENGINEERING): PART-TIME (QUALIFICATION CODE: 4335 – 21) (NQF LEVEL: 7, TOTAL NQF CREDITS FOR QUALIFICATION: 120)

ADMISSION REQUIREMENTS

Students must have a 65% average for the National Diploma: Engineering: Civil.

Final year for admission

The final year for new admission into this programme will be 2019.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2022.

APPLICABLE RULES

Purpose Statement

Persons achieving this qualification will be able to independently and competently apply an integration of theory, principles, proven techniques, practical experience and appropriate skills to the solution of open-ended and ill-defined problems in the field of Civil Engineering while operating within the relevant standards and codes. The qualification is intended for engineering practitioners in the Civil Engineering industry. The qualified person will be able to register with the Engineering Council of South Africa (ECSA) as a Candidate Engineering Technologist in the discipline of Civil Engineering. After a period of appropriate industry experience, the qualified person will be able to register with ECSA as a Professional Engineering Technologist.

Qualification objectives

- This qualification provides the academic component required to register as a Professional Technologist in training at the Engineering Council of SA. Certain experiential requirements are also set by ECSA. This in turn also leads to international recognition.
- The qualification also serves as the academic admission requirement for further postgraduate studies in Civil Engineering at Nelson Mandela University.

Format of offering

This qualification is offered on a block format, which broadly entails short periods of concentrated study at Nelson Mandela University, the so-called contact sessions, alternating with longer periods of self-study away from Nelson Mandela University. Generally, two modules (or one) will be offered per discipline per semester.

Qualification of offerings

The qualification aims to offer all the modules over a two-year cycle. For each module, the prerequisite knowledge will be documented and made available to prospective students. Students will thus be allowed into a qualification at any point in the cycle of offering of the qualification, but the onus will be on them to ensure that they gain the prerequisite knowledge.

The next two-year cycle of offerings will be scheduled as follows:

Sem/Year	Transport	Urban
1 of 2019	CMPM410 - Project Management IV	CMPM410 - Project Management IV
	CUUP410 - Urban Planning & Design IV	CUUP410 - Urban Planning & Design IV
2 of 2019	CTGD410 - Geometric Design IV	CTGD410 - Geometric Design IV
	CEEM410 - Environmental Management for Engineers IV	CEEM410 - Environmental Management for Engineers IV
Sem/Year	Transport	Urban
1 of 2020	CTTT410 - Transportation Technology IV	CTTT410 – Transportation Technology IV
	CTTE410 - Traffic Engineering IV	CWRD410 - Reticulation Design & Management IV
2 of 2020	CTPT410 - Pavement Technology IV	CTPT410 - Pavement Technology IV
	CTTP410 - Transportation Planning IV	CUSW410 - Solid Waste Management IV

The provisional dates for 2019 are as follows:

Semester 1: 2019

Subject	Discipline	Session 1	Session 2	Session 3	Session 4
CMPM410	T, U	28 – 30 Jan	18 – 19 Mar	6 – 8 May	24 – 26 Jun
CUUP410	T, U	30 Jan – 1 Feb	20 & 22 Mar	8 – 10 May	26 – 28 Jun

Semester 2: 2019

Subject	Discipline	Session 1	Session 2	Session 3	Session 4
CTGD410	T, U	8 – 10 Jul	23 & 25 Sep	28 – 30 Oct	25 – 27 Nov
CEEM410	T, U	10 – 12 Jul	26 – 27 Sep	30 Oct – 1 Nov	27 – 29 Nov

Notes on 2019:

In some cases the same day is shared by two subjects. The first subject is scheduled for the morning session and the second subject for the afternoon session.

The specified arrangements and qualifications will be adhered to as far as possible, but unforeseen circumstances, such as non-availability of lecturers or a low student entry, may force unavoidable changes.

Note that in some cases the same day is shared by two subjects. The first subject is scheduled for the morning session and the second subject for the afternoon session.

Evaluation procedures

All the B Tech modules are classified as 100% class mark modules with Assessments taking place on a continuous basis. There are no formal examinations in these modules. In general, the evaluation for the theory module of each main module will be based on a minimum of three Assessments, e.g. two tests and one assignment. The project module will be evaluated separately and should have a minimum of two Assessments, e.g. one project and one assignment. The final mark for the main module will be a weighted average of these evaluation components, each carrying a 50% weight.

The weighting of each of these minimum of three evaluation components will be conveyed to students at the beginning of a qualification. In order to pass the main module, a student needs to obtain at least 50% for the final mark of each of the theory and project modules. Should a student not meet the minimum pass requirements for any of the modules of the main module, the result for the main module will be indicated as "Studies not yet completed", even though it is possible to obtain a combined mark of above 50% in such a case.

In the theory component of each main module, a sick test is scheduled at the end of the course if a student, for reasons beyond his/her control, is absent from a scheduled test. A motivational request should be lodged in writing to the Lecturer, with a copy to the Head of Department / B Tech Coordinator, within two weeks after the date of the test. This special evaluation is granted only to those students that missed an opportunity to write a test and contains all the work covered in the course. Due dates for assignments and projects should be strictly adhered to.

Re-admission policy

A student who progresses at a slower rate than that set out in the following table, will be refused registration on the grounds of "poor academic performance".

Semester	Minimum amount of theory and/or project components that needs to be attained
1	2
2	4
3	8
4	12
5	14

Recognition of modules done at other HE institutions

The Department will recognise modules done at other HE institutions for exemption, according to the General Prospectus of Nelson Mandela University, subject to the following criteria:

- a. Exemptions will only be considered for the theory modules of any main module, provided that the student has registered at least once for the said module at Nelson Mandela University but has been unsuccessful in passing the module.
- b. The theory modules to be exempted according to (a) must appear in the curriculums offered by Nelson Mandela University.

c. No more than two such B Tech theory modules may be thus exempted.

Obtaining the qualification

The qualification shall be obtained by completing the modules prescribed by Senate.

Awarding the qualification *cum laude*

Unless Senate decides otherwise, the qualification shall be awarded *cum laude* if candidates comply with the relevant General Rules for the Bachelor of Technology qualifications.

DURATION

The qualification shall extend over at least two years of part-time study (block format).

CURRICULUM

		Presented	Module Code	Credit Value
Main / Core Modules				
	Geometric Design IV ♦		CTGD410	
	Geometric Design IV (Theory)	Semester 2	CTGD4A2	7.5
	Geometric Design IV (Project)	Semester 2	CTGD4B2	7.5
	Pavement Technology IV ♦		CTPT410	
	Pavement Technology IV (Theory)	Semester 2	CTPT4A2	7.5
	Pavement Technology IV (Project)	Semester 2	CTPT4B2	7.5
	Urban Planning and Design IV		CUUP410	
	Urban Planning and Design IV (Theory)	Semester 1	CUUP4A1	7.5
	Urban Planning and Design IV (Project)	Semester 1	CUUP4B1	7.5
	Solid Waste Management IV		CUSW410	
	Solid Waste Management IV	Semester 2	CUSW4A2	7.5
	Solid Waste Management IV	Semester 2	CUSW4B2	7.5
	Reticulation Design and Management IV		CWRD410	
	Water Reticulation Systems IV	Semester 1	CWRD4A1	5
	Sewerage Reticulation Systems IV	Semester 1	CWRD4B1	5
	Stormwater Reticulation Systems IV	Semester 1	CWRD4C1	5
	Credits			75
		Presented	Module Code	Credit Value
Additional / Elective Modules				
	Transportation Technology IV		CTTT410	
	Transportation Technology IV (Theory)	Semester 1	CTTT4A1	7.5
	Transportation Technology IV (Project)	Semester 1	CTTT4B1	7.5
	Environmental Management for Engineers IV		CEEM410	
	Environmental Management for Engineers IV (Theory)	Semester 2	CEEM4A2	7.5
	Environmental Management for Engineers IV (Project)	Semester 2	CEEM4B2	7.5

		Presented	Module Code	Credit Value
	Project Management IV		CMPM410	
	Project Management IV (Theory)	Semester 1	CMPM4A1	7.5
	Project Management IV (Project)	Semester 1	CMPM4B1	7.5
	Credits			45
	Total Credits			120

♦ Major modules (please refer to the General Prospectus).

**13.4 BACHELOR OF TECHNOLOGY (ENGINEERING: ELECTRICAL): PART-TIME
(QUALIFICATION CODE: 4365 – 21)
(NQF LEVEL: 7, TOTAL NQF CREDITS FOR QUALIFICATION: 120)
(HEQC- AND ECSA-ACCREDITED)**

ADMISSION REQUIREMENTS

- Students must have a 65% average for the National Diploma: Engineering: Electrical; or
- Other and non-South African qualifications will be considered based on SAQA reports and merit and may require the submission of curricula and learning material. These applicants may be required to complete a language proficiency module.

Final year for admission

The final year for new admission into this programme will be 2019.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2022.

PREREQUISITE MODULES

- Design Project III
- Mathematics III

The other prerequisite modules will be determined by the sub-discipline of interest.

APPLICABLE RULES

Purpose Statement

Persons achieving this qualification will be competent to apply electrical engineering principles, innovative skills, advanced broadly-defined problem-solving techniques and managerial skills professionally in the field of electrical engineering.

Qualification Objectives

The qualified person must be able to:

- demonstrate a high level of theoretical knowledge for the purpose of applied research and innovative problem solving;
- plan and manage projects with due cognisance of all related codes of practice, professional ethics and the Labour Relations Act;
- demonstrate technical managerial skills required for financial decision making and negotiating;

- demonstrate the high level of theoretical and practical knowledge required to act professionally;
- communicate effectively at high levels;
- register with ECSA as a Candidate Professional Engineering Technologist in the field of Electrical Engineering.

Obtaining the qualification

The qualification shall be obtained by completing the modules prescribed by Senate.

Awarding the qualification *cum laude*

Unless Senate decides otherwise, the qualification shall be awarded *cum laude* if candidates comply with the relevant General Rules for the Bachelor of Technology qualifications.

DURATION

The qualification shall extend over a two-year continuous cycle of part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
First and Second Year				
Compulsory Module:				
	Industrial Project IV ♦	Year	EIP4010	36
Select seven of the following modules:				
On offer in 2019:				
	Audio Engineering IV	Semester 1	EAE4011	12
	Computer Networks IV	Semester 1	ECN4011	12
	Electrical Machines IV	Semester 1	EEM4011	12
	Engineering Management IV	Semester 2	EMM4112	15
	Opto Electronics IV	Semester 2	EOE4012	12
	Process Control IV	Semester 2	EPC4012	12
	Power Systems IV	Semester 2	EPS4012	12
	Protection Technology IV	Semester 1	EPT4011	12
	Engineering Mathematics IV	Semester 2	WIS4012	15
On offer in 2020:				
	Electronic Communication Systems IV	Semester 1	EES4011	12
	High Voltage Engineering IV	Semester 1	EHV4011	12
	Micro Systems Design IV	Semester 2	EMD4012	12
	Engineering Management IV	Semester 2	EMM4112	15
	Microcontroller Systems IV	Semester 1	EMS4011	12
	Electrical Protection IV	Semester 1	EPR4011	12
	Satellite Communications IV	Semester 2	ESC4112	12
	Engineering Mathematics IV	Semester 2	WIS4012	15
	Total Credits			120

♦ Major modules (please refer to the General Prospectus).

Please note:

A total of 2 modules may be taken from another Engineering qualification subject to approval by the relevant Head of Department and provided that the total number of credits for the qualification is adhered to.

The other prerequisite modules will be determined by the sub-discipline of interest.

SPECIALISATION AREAS

Bachelor of Technology: Engineering: Electrical qualification can be obtained by taking modules within three sub-disciplines of Electrical Engineering, namely, Power Systems, Digital/Industrial Automation Systems and Electronic Communication Systems.

To obtain the Bachelor of Technology: Engineering: Electrical from Nelson Mandela University, specific modules will be recommended, specific combination of modules for the various sub-disciplines are listed below:

POWER SYSTEMS	
Choose the following modules	
Industrial Project IV ♦	EIP4010
Electrical Machines IV	EEM4011
Engineering Management IV	EMM4112
Power Systems IV	EPS4012
Protection Technology IV	EPT4011
Engineering Mathematics IV	WIS4012
High Voltage Engineering IV	EHV4011
Electrical Protection IV	EPR4011

INDUSTRIAL AUTOMATION SYSTEMS	
Choose the following modules	
Industrial Project IV ♦	EIP4010
Computer Networks IV	ECN4011
Engineering Management IV	EMM4112
Process Control IV	EPC4012
Engineering Mathematics IV	WIS4012
Micro Systems Design IV	EMD4012
Microcontroller Systems IV	EMS4011
Project Engineering IV	IPE4111

ELECTRONIC COMMUNICATIONS SYSTEMS	
Choose the following modules	
Industrial Project IV ♦	EIP4010
Audio Engineering IV	EAE4011
Engineering Management IV	EMM4112
Opto Electronics IV	EOE4012
Engineering Mathematics IV	WIS4012

Electronic Communication Systems IV	EES4011
Satellite Communications IV	ESC4112
Microcontroller Systems IV	EMS4011

**13.5 BACHELOR OF TECHNOLOGY (ENGINEERING: INDUSTRIAL):
PART-TIME
(QUALIFICATION CODE: 4702 – 21)
(NQF LEVEL: 7, TOTAL NQF CREDITS FOR QUALIFICATION: 120)
(HEQC- AND ECSA-ACCREDITED)**

ADMISSION REQUIREMENTS

- Students must have a 65% average for the National Diploma; or
- Other and non-South African qualifications will be considered based on SAQA reports and merit and may require the submission of curricula and learning material. These applicants may be required to complete a language proficiency module.

Final year for admission

The final year for new admission into this programme will be 2019.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2022.

APPLICABLE RULES

Purpose Statement

Persons achieving this qualification will be able to analyse and solve independently broadly-defined manufacturing and service-related problems through the application of accepted Industrial Engineering techniques. They will be able to assess complex systems and calculate expected system performance. The qualification is intended for engineering practitioners in industry.

The qualified person will be able to register with the Engineering Council of South Africa (ECSA) as a Professional Technologist-in-Training in the field of Industrial Engineering.

Qualification Objectives

- Analyse, design and improve manufacturing and related services.
- Apply industrial engineering techniques and principles to analyse complex manufacturing and service-related operational problems.
- Develop and recommend alternatives for improving complex manufacturing and service-related operational problems.
- Design and develop complex manufacturing and service-related systems.
- Research related industrial engineering topics in a structured manner.
- Demonstrate theoretical and practical knowledge of specialised industrial engineering techniques.

Obtaining the qualification

The qualification shall be obtained by completing the modules prescribed by Senate.

Awarding the qualification *cum laude*

Unless Senate decides otherwise, the qualification shall be awarded *cum laude* if candidates comply with the relevant General Rules for the Bachelor of Technology qualifications.

DURATION

The qualification shall extend over a two-year continuous cycle of part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
First and Second Years				
Compulsory modules:				
	Information Systems IV ♦	Semester 1	IIS4111	15
	Logistics Engineering IV ♦	Semester 2	ILE4112	15
	Project Engineering IV ♦	Semester 1	IPE4111	15
	Entrepreneurship IV ♦	Semester 2	IPP4112	15
	Project Research IV ♦	Semester 1	IPR4111	15
	Production Technology IV ♦	Semester 2	IPT4112	15
	Quality Assurance IV ♦	Semester 2	IQA4112	15
	Systems Dynamics IV ♦	Semester 1	ISD4111	15
	Total Credits			120

♦ Major modules (please refer to the General Prospectus).

**13.6 BACHELOR OF TECHNOLOGY (ENGINEERING: MECHANICAL):
FULL-TIME/PART-TIME
(QUALIFICATION CODE: 4712 – 01/21)
(NQF LEVEL: 7, TOTAL NQF CREDITS FOR QUALIFICATION: 120)
(HEQC- AND ECSA-ACCREDITED)**

ADMISSION REQUIREMENTS

- Students must have a 65% average for the National Diploma; or
- Other and non-South African qualifications will be considered based on SAQA reports and merit and may require the submission of curricula and learning material. These applicants may be required to complete a language proficiency module.

Final year for admission

The final year for new admission into this programme will be 2019.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2022.

PREREQUISITE MODULES

- Applied Strengths of Materials III
- Electrotechnology I
- Hydraulic Machines III
- Mathematics III

- Mechanical Engineering Design III
- Steam Plant III

APPLICABLE RULES

Purpose Statement

Persons achieving this qualification will be able to integrate mechanical engineering principles independently, apply these to determine appropriate ways of approaching activities and establish and use criteria to judge processes and outcomes. This qualification is intended for engineering practitioners in industry.

The qualified person will be able to register with the Engineering Council of South Africa (ECSA) as a Professional Technologist-in-training in the field of Mechanical Engineering.

Qualification Objectives

- Apply mechanical engineering principles to diagnose and solve engineering problems.
- Apply management principles in an engineering environment.
- Demonstrate knowledge of mechanical engineering in one or more specialised fields.
- Communicate effectively in a technological environment.
- Engage in mechanical engineering design work individually and as part of a team.

Obtaining the qualification

The qualification shall be obtained by completing the modules prescribed by Senate.

Awarding the qualification *cum laude*

Unless Senate decides otherwise, the qualification shall be awarded *cum laude* if candidates comply with the relevant General Rules for the Bachelor of Technology qualifications.

DURATION

The qualification shall extend over a minimum period of one year. Modules are only offered in the evenings.

CURRICULUM

		Presented	Module Code	Credit Value
First and Second Year				
Compulsory modules:				
	Engineering Design Project IV	Year	MDM4110	30
	Strengths of Materials IV	Semester 1	MSL4111	15
	Stress Analysis IV	Semester 2	MSS4112	15
	Thermodynamics IV	Semester 1	MTD4111	15
	Refrigeration and Air Conditioning IV	Semester 2	MTR4112	15
	Sub-total			90
Select two of the following modules:				
	Engineering Management IV or Environmental Engineering IV	Semester 2	EMM4112 or EEN4112	15
	Automatic Control IV	Semester 1	MMC4111	15
	Mathematics IV	Semester 2	WIS4012	15
	Total Credits			120

**13.7 BACHELOR OF TECHNOLOGY (INFORMATION TECHNOLOGY:
COMMUNICATION NETWORKS): FULL-TIME
(QUALIFICATION CODE: 4213 – 01)
(NQF LEVEL: 7, TOTAL NQF CREDITS FOR QUALIFICATION: 120)**

ADMISSION REQUIREMENTS

National Diploma: Information Technology: Communication Networks or any equivalent qualification.

Final year for admission

The final year for new admission into this programme will be 2019.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2022.

APPLICABLE RULES

Obtaining the qualification

The qualification shall be obtained by completing the modules prescribed by Senate.

Awarding the qualification *cum laude*

Unless Senate decides otherwise, the qualification shall be awarded *cum laude* if candidates comply with the relevant General Rules for the Bachelor of Technology qualifications.

Prerequisite Modules

A student will not be allowed to proceed to the following modules without first having passed the listed prerequisite modules.

Module		Prerequisite	
Name	Code	Name	Code
Networks IV	NEW4001	Communication Networks III A & Communication Networks III B	WCN3011 & WCN3012 & CCNA 4 & CCNA - Security Certificates
Communication Networks IV	WCN4001	Communication Networks III A & Communication Networks III B	WCN3011 & WCN3012 & CCNA 4 & CCNA -Security Certificates
Advanced Communication Networks IV	WCN4102	Communication Networks IV & Networks IV	WCN4001 & NEW4001
Project IV	WCN4300	Communication Networks III A & Communication Networks III B	WCN3011 & WCN3012

DURATION

The qualification shall extend over a minimum of one year of full-time study.

CURRICULUM

		Presented	Module Code	Credit Value
Full-time				
Compulsory modules:				
	Research Methodology IV	Semester 1	BNV4521	12
	Information and Technology Management IV	Semester 1	ITC4001	12
	Networks IV	Semester 1	NEW4001	12
	Communication Networks IV	Semester 1	WCN4001	12
	Advanced Communication Networks IV	Semester 2	WCN4102	12
	Project IV (2 Credits)	Year	WCN4300	24
	Sub-total			84
Select three of the following modules:				
	Operating Systems IV	Semester 2	BOS4002	12
	Computer Security IV	Semester 2	CPS4002	12
	Support Services IV	Semester 2	CSO4002	12
	Information Security IV	Semester 1	ISC4001	12
	Total Credits			120

A maximum of 24 credits in the curriculum may be substituted subject to approval from the School Management Committee and the requirements of the NATED 151.

**13.8 BACHELOR OF TECHNOLOGY (INFORMATION TECHNOLOGY: SOFTWARE DEVELOPMENT): FULL-TIME
(QUALIFICATION CODE: 4206 – 01)
(NQF LEVEL: 7, TOTAL NQF CREDITS FOR QUALIFICATION: 120)**

ADMISSION REQUIREMENTS

National Diploma: Information Technology: Software Development or any equivalent qualification.

Final year for admission

The final year for new admission into this programme will be 2019.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2022.

APPLICABLE RULES**Obtaining the qualification**

The qualification shall be obtained by completing the modules prescribed by Senate.

Awarding the qualification *cum laude*

Unless Senate decides otherwise, the qualification shall be awarded *cum laude* if candidates comply with the relevant General Rules for the Bachelor of Technology qualifications.

Prerequisite Modules

A student will not be allowed to proceed to the following modules without first having passed the listed prerequisite modules.

Module		Prerequisite	
Name	Code	Name	Code
Development Software IV	ONT4101	Development Software III: Project & Development Software III: C#	ONT3660 & ONT3601
Advanced Development Software IV	ONT4202	Development Software IV	ONT4101
Project IV	ONT4300	Development Software III: Project & Development Software III: C#	ONT3660 & ONT3601
Knowledge Management IV	KNM4002	Information Systems II	WIH2100

DURATION

The qualification shall extend over a minimum of one year of full-time study.

CURRICULUM

		Presented	Module Code	Credit Value
Full-time				
Compulsory modules:				
	Research Methodology IV	Semester 1	BNV4521	12
	Information and Technology Management IV	Semester 1	ITC4001	12
	Development Software IV	Semester 1	ONT4101	12
	Advanced Development Software IV	Semester 2	ONT4202	12
	Project IV (2 Credits)	Year	ONT4300	24
	Sub-total			72
Select four of the following modules:				
	Artificial Intelligence IV	Semester 1	AIN4002	12
	Operating Systems IV	Semester 2	BOS4002	12
	Information Security IV	Semester 1	ISC4001	12
	Knowledge Management IV	Semester 2	KNM4002	12
	User Interfaces IV	Semester 2	UIF4002	12
	Computer Security IV	Semester 2	CPS4002	12
	Total Credits			120

A maximum of 24 credits in the curriculum may be substituted subject to approval from the School Management Committee and the requirements of NATED 151.

**13.9 BACHELOR OF TECHNOLOGY (OPERATIONS MANAGEMENT): PART-TIME
(QUALIFICATION CODE: 4584 – 21)
(NQF LEVEL: 7, TOTAL NQF CREDITS FOR QUALIFICATION: 120)**

ADMISSION REQUIREMENTS

- Students must have a 65% average for the National Diploma; or
- Other and non-South African qualifications will be considered based on SAQA reports and merit and may require the submission of curricula and learning material. These applicants may be required to complete a language proficiency module.

Final year for admission

The final year for new admission into this programme will be 2019.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2021.

APPLICABLE RULES

Purpose Statement

Persons achieving this qualification will acquire dynamic management skills which would ensure smooth operation within manufacturing and service concerns. They will be able to analyse and solve independently complex, open-ended manufacturing and service-related problems through the application of accepted operations management techniques.

Qualification Objectives

To enable students to acquire dynamic management aspects which would ensure smooth operation within manufacturing service concerns.

Obtaining the qualification

The qualification shall be obtained by completing the modules prescribed by Senate.

Awarding the qualification *cum laude*

Unless Senate decides otherwise, the qualification shall be awarded *cum laude* if candidates comply with the relevant General Rules for the Bachelor of Technology qualifications.

DURATION

The qualification shall extend over at least one year of part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
Part-time				
	Compulsory modules:			
	Financial Planning And Control III	Semester 2	BFA3112	30
	Introduction To Marketing Management I	Semester 1	BIG1111	24
	Research Methodology	Semester 1	BNR1111	6
	Operations Management IV	Semester 2	BPJ4412	30
	Operations Management Techniques IV	Semester 1	BPM4111	30
	Total Credits			120

**13.10 BACHELOR OF TECHNOLOGY (QUALITY): PART-TIME
(QUALIFICATION CODE: 4731 – 21)
(NQF LEVEL: 7, TOTAL NQF CREDITS FOR QUALIFICATION: 120)
(NO NEW INTAKE)**

ADMISSION REQUIREMENTS

- Students must have a 65% average for a National Diploma; or
- Mathematics 1 or equivalent is a pre-requisite for students who have not done Mathematics as part of their pre-requisite qualification.
- Other and non-South African qualifications will be considered based on SAQA reports and merit and may require the submission of curricula and learning material. These applicants may be required to complete a language proficiency module.

Final year for admission

The final year for new admission into this programme was 2018.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2021.

APPLICABLE RULES

Purpose Statement

Persons achieving this qualification will acquire dynamic quality management skills which would ensure smooth operation within manufacturing and service concerns. They will be able to analyse and solve independently complex, open-ended manufacturing and service quality and other related problems through the application of accepted quality management techniques.

Qualification Objectives

To enable students to determine the effectiveness of the quality system, appraising the current quality problem areas or potential areas, as well as to assist in the correction or minimisation of the problem areas concerned. Students will also have the ability to improve product/service quality in cooperation with the respective department in organisations.

Obtaining the qualification

The qualification shall be obtained by completing the modules prescribed by Senate.

Awarding the qualification *cum laude*

Unless Senate decides otherwise, the qualification shall be awarded *cum laude* if candidates comply with the relevant General Rules for the Bachelor of Technology qualifications.

Prerequisite modules

Module Name	Module Code	Prerequisite module
Statistical Quality Techniques IV	QST4212	QST3111
Quality Auditing Techniques IV	QAT4112	QMS3112 and QIP3111

DURATION

The qualification shall extend over at least two years of part-time study.

CURRICULUM

Please note: New intake restricted to the start of each year. The six compulsory modules are contact modules (formal classes) while Project IV is a project done in industry.

		Presented	Module Code	Credit Value
First Year				
	Compulsory modules:			
	TQM Improvement and Business Processes III	Semester 1	QIP3111	15
	Quality Management Systems III	Semester 2	QMS3112	15
	Statistical Quality Techniques III	Semester 1	QST3111	15
	Statistical Quality Techniques IV	Semester 2	QST4212	15
	Credits First Year			60
Second Year				
	Compulsory modules:			
	Quality Auditing Techniques IV	Semester 2	QAT4112	15
	Quality Planning and Implementation IV	Semester 1	QPI4111	15
	Project IV	Year	QPR4110	30
	Credits Second Year			60
	Total Credits			120

**13.11 BACHELOR OF TECHNOLOGY (QUANTITY SURVEYING): FULL-TIME
(QUALIFICATION CODE: 4261 – 01)
(NQF LEVEL: 7, TOTAL NQF CREDITS FOR QUALIFICATION: 120)**

ADMISSION REQUIREMENTS

- The minimum admission requirement is the National Diploma: Building or a qualification deemed equivalent by the department and approved by the Faculty Management Committee (FMC).
- It is further expected of students to comply with the following requirements before being allowed entry to the qualification:
 - a weighted average of 60% in the final year of study in the diploma;
 - the student must obtain at least 60% for the major module (Quantity Surveying III) in the final year of study in the diploma for entry into the specific Bachelor of Technology qualification.
- **Alternatively:**
Students obtaining between (55% - 59%) in either of the above criteria must submit a detailed breakdown of two years' proven post-diploma experience, under the auspices of a mentor professionally registered with either the SACPCMP, SACQSP, or a relevant Built Environment Professional Body, as well as periods of employment, certified by the relevant company.

Final year for admission

The final year for new admission into this programme will be 2019.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2022.

APPLICABLE RULES**Obtaining the qualification**

The qualification shall be obtained by completing the modules prescribed by Senate.

Awarding the qualification *cum laude*

Unless Senate decides otherwise, the qualification shall be awarded *cum laude* if candidates comply with the relevant General Rules for the Bachelor of Technology qualifications.

DURATION

The qualification shall extend over at least one year of full-time study. Studies may also be completed over two academic years in consultation with the Head of the Department.

CURRICULUM

		Presented	Module Code	Credit Value
Full-time				
Compulsory modules:				
Research Methodology IV				
	Research Methods and Techniques	Semester 1	BNV4221	10
	Project	Semester 2	BNV4232	10
	Building Entrepreneurship IV	Year	DBE4010	20
	Construction Economics IV	Year	DCE4010	20
	Construction Law and Procedures IV	Year	DLP4010	20
	Market Valuation IV	Year	DMV4010	20
	Quantity Surveying IV	Year	DQS4010	20
	Total Credits			120

14 BACHELOR OF SCIENCE HONOURS**14.1 BACHELOR OF SCIENCE HONOURS IN CONSTRUCTION MANAGEMENT:
FULL-TIME
(QUALIFICATION CODE: 45601 – 01)
(NQF LEVEL: 7, TOTAL NQF CREDITS FOR QUALIFICATION: 242)**

Note: The qualification of Bachelor of Science Honours in Construction Management is recognised by the Chartered Institute of Building (UK) as a qualification for membership.

ADMISSION REQUIREMENTS

Candidates shall be admitted to the study for the postgraduate qualification of Bachelor of Science Honours in Construction Management only if they hold the qualification Bachelor of Science (Construction Studies) or a qualification deemed by Senate to be equivalent thereto, or a Bachelor's qualification in one of the engineering or construction disciplines, or if they otherwise qualify for admission in the opinion of Senate.

Candidates may be required to undertake a selection procedure which may include written evaluations and/or an interview. If deemed necessary, candidates may be required to complete certain prescribed supplementary modules prior to commencing with the Bachelor of Science Honours in Construction Management qualification.

Final year for admission

The final year for new admission into this programme will be 2019.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2022.

APPLICABLE RULES**Treatise**

A treatise of between 12000 and 15000 words on an approved topic shall be required. A date in April for the submission of research proposals shall be determined by the Department. Candidates who have not progressed satisfactorily by the end of the first semester, shall not be permitted to continue with the treatise in the second semester. The candidate must submit a final draft of the treatise by not later than a date in November determined by the Department.

Three bound copies of the treatise must be submitted by not later than a date in January determined by the Department. The treatise (KRS401) and the modules Construction Management 4 (KBM441 and KBM442) must be completed concurrently.

Obtaining the qualification

The qualification shall be obtained by completing the modules prescribed by Senate.

Awarding the qualification *cum laude*

Unless Senate decides otherwise, the qualification shall be awarded *cum laude* if candidates comply with the relevant General Rules for Honours' qualifications.

DURATION

The qualification, which is partially offered on a modular basis, shall extend over a period of 42 full-time academic weeks, commencing during the 2nd half of January and ending during early February the following year. The Department of Construction Management may permit candidates to spread the qualification over two calendar years, if cogent reasons exist.

CURRICULUM

		Presented	Module Code	Credit Value
Full-time				
Compulsory modules:				
	Commercial Law 121	Semester 1	JHA121	12
	Introduction to Labour Law 102	Semester 1	JHL102	12
	Company Law 121	Semester 2	JHM121	12
	Commercial Law (Building Disciplines) 101	Semester 2	JHY101	6
	Construction Management 4A ♦	Semester 1	KBM441	40
	Construction Management 4B ♦	Semester 2	KBM442	40
	Project Management 4	Semester 2	KBP412	18
	Building Science (Materials and Methods) 4A	Semester 1	KMM415	12
	Building Science (Materials and Methods) 4B	Semester 2	KMM416	12
	Professional Practice for Construction Management 401	Semester 1	KPP401	9
	Professional Practice for Construction Management 402	Semester 2	KPP402	9
	Construction Management Treatise 4 ♦	Year	KRS401	36
	Building Economics Special 301	Semester 1	QBES301	8
	Property Economics 401	Year	QPE401	16
	Total Credits			242

♦ Major modules (please refer to the General Prospectus).

**14.2 BACHELOR OF SCIENCE HONOURS IN QUANTITY SURVEYING:
FULL-TIME
(QUALIFICATION CODE: 47003 – 01)
(NQF LEVEL: 8, TOTAL NQF CREDITS FOR QUALIFICATION: 186)
(NO NEW INTAKE)**

ADMISSION REQUIREMENTS

- Bachelor of Science in Construction Economics or a qualification deemed equivalent and approved by Senate, and
- A weighted average of at least 60% for major modules at third year level.

Please note: Places are limited and all applicants are subject to selection based on academic performance.

Final year for admission

The final year for new admission into this programme was 2015.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2020.

APPLICABLE RULES**Treatise**

A treatise of between 12000 and 15000 words on an approved topic shall be required. Candidates must submit a research topic for approval by the end of the first term of the academic year. The candidate must submit one draft copy of the completed treatise by not later than the date determined by the Department. Two final copies of the treatise must be submitted for the purpose of examination by the end of November. Two bound copies of the treatise must be submitted by not later than a date in January determined by the Department.

Obtaining the qualification

The qualification shall be obtained by completing the modules prescribed by Senate.

Awarding the qualification *cum laude*

Unless Senate decides otherwise, the qualification shall be awarded *cum laude* if students comply with the requirements stipulated in the General Prospectus. The following shall be regarded as the major modules:

Quantities 401
Quantity Surveying 401
Building Economics 401
Property Economics 401

DURATION

The qualification shall extend over at least one year of full-time study. The qualification can also be completed over two academic years in consultation with the Head of Department.

CURRICULUM

		Presented	Module Code	Credit Value
Full-time				
Compulsory modules:				
	Professional Practice 501	Semester 1	AC501	9
	Professional Practice 502	Semester 2	AC502	9
	Business Management: Financial Management 301	Semester 1	EBM301	24
	Business Management: General and Strategic Management 302	Semester 2	EBM302	24
	Building Economics 401 ♦	Year	QBE401	30
	Information Technology for Building Disciplines 401	Year	QIT401	4
	Property Economics 401 ♦	Year	QPE401	16
	Quantities 401 ♦	Year	QQH401	24
	Quantity Surveying 401 ♦	Year	QQS401	10
	Treatise 401	Year	QRS401	36
	Total Credits			186

♦ Major modules (please refer to the General Prospectus).

**14.3 BACHELOR OF SCIENCE HONOURS IN QUANTITY SURVEYING:
FULL-TIME
(QUALIFICATION CODE: 73003 – 01)
(NQF LEVEL: 8, TOTAL NQF CREDITS FOR QUALIFICATION: 186)
(NO NEW INTAKE)**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

ADMISSION REQUIREMENTS

- Bachelor of Science in Construction Economics or a qualification deemed equivalent and approved by Senate, and
- A weighted average of at least 60% for major modules at third year level.

Please note: Places are limited and all applicants are subject to selection based on academic performance.

Final year for admission

The final year for new admission into this programme was 2016.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2021.

APPLICABLE RULES

Treatise

A treatise of between 12000 and 15000 words on an approved topic shall be required. Candidates must submit a research topic for approval by the end of the first term of the academic year. The candidate must submit one draft copy of the completed treatise by not later than 31 August. Three final copies of the treatise must be submitted for the purpose of examination by the end of November.

Obtaining the qualification

The qualification shall be obtained by completing the modules prescribed by Senate.

Awarding the qualification *cum laude*

Unless Senate decides otherwise, the qualification shall be awarded *cum laude* if students comply with the requirements stipulated in the General Prospectus. The following shall be regarded as the major modules:

Quantities 4
Quantity Surveying 4
Building Economics 4
Property Economics 4

DURATION

The qualification shall extend over at least one year of full-time study. The qualification can also be completed over two academic years in consultation with the Head of Department.

CURRICULUM

		Presented	Module Code	Credit Value
First Year				
Compulsory modules:				
	Professional Practice 501	Semester 1	ACV501	9
	Professional Practice 502	Semester 2	ACV502	9
	Business Management: Financial Management 301	Semester 1	EBMV301	24
	Business Management: General and Strategic Management 302	Semester 2	EBMV302	24
	Building Economics 4 ♦	Year	QBEV400	30
	Information Technology Building Discipline 4	Year	QITV400	4
	Property Economics 4 ♦	Year	QPEV400	16
	Quantities 4 ♦	Year	QQHV400	24
	Quantity Surveying 4 ♦	Year	QQSV400	10
	Treatise 4	Year	QRSV400	36
	Total Credits			186

♦ Major modules (please refer to the General Prospectus).

**14.4 BACHELOR OF SCIENCE HONOURS IN QUANTITY SURVEYING:
FULL-TIME
(QUALIFICATION CODE: 73004 – 01)
(NQF LEVEL: 8, TOTAL NQF CREDITS FOR QUALIFICATION: 151)**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

ADMISSION REQUIREMENTS

- Bachelor of Science in Construction Economics or a qualification deemed equivalent and approved by Senate, and
- A weighted average of at least 60% for major modules at third year level.

Please note: Places are limited and all applicants are subject to selection based on academic performance.

APPLICABLE RULES**Treatise**

A treatise of between 12000 and 15000 words on an approved topic shall be required. Candidates must submit a research topic for approval by the end of the first term of the academic year. The candidate must submit one draft copy of the completed treatise by not later than 31 August. Three final copies of the treatise must be submitted for the purpose of examination by the end of November.

Obtaining the qualification

The qualification shall be obtained by completing the modules prescribed by Senate.

Awarding the qualification *cum laude*

Unless Senate decides otherwise, the qualification shall be awarded *cum laude* if students comply with the requirements stipulated in the General Prospectus. The following shall be regarded as the major modules:

Quantities 4
Quantity Surveying 4
Building Economics 4
Property Economics 4

DURATION

The qualification shall extend over at least one year of full-time study. The qualification can also be completed over two academic years in consultation with the Head of Department.

CURRICULUM

		Presented	Module Code	Credit Value
First Year				
Compulsory modules:				
	Quantities 4 ♦	Year	QQHV410	20
	Quantity Surveying 4 ♦	Year	QQSV400	10
	Building Economics 4 ♦	Year	QBEV410	25
	Property Economics 4 ♦	Year	QPEV400	16
	Professional Practice 4	Year	QPPV410	20
	Business Management: General and Strategic Management 302	Semester 2	EBMV302	24
	Treatise 4	Year	QRSV400	36
	Total Credits			151

♦ Major modules (please refer to the General Prospectus).

15 MASTER OF TECHNOLOGY**15.1 MASTER OF TECHNOLOGY (CONSTRUCTION MANAGEMENT)
(RESEARCH): FULL-TIME/PART-TIME
QUALIFICATION CODE: 5281 – 01/21)
(NQF LEVEL: 9, TOTAL NQF CREDITS FOR QUALIFICATION: 120)
(NO NEW INTAKE)****ADMISSION REQUIREMENTS**

- Unless Senate decides otherwise, candidates shall be registered for the Master of Technology qualification if they have obtained the Bachelor of Technology: Construction Management; or have obtained an equivalent qualification in a related field approved by Senate.
- The qualification is research-based and candidates are required to do a dissertation.
- Candidates are required to do a recognised module in “Research Methodology” before registration of the research proposal.

Final year for admission

The final year for new admission into this programme was 2016.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2022.

APPLICABLE RULES**Obtaining the qualification**

The qualification shall be obtained by complying with the requirements set out in the *General Rules for Masters' Degrees*.

DURATION

The qualification shall extend over a minimum of one year or a maximum of four years of full-time or part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
	Compulsory module:			
	Dissertation	Year	MCM500	120

**15.2 MASTER OF TECHNOLOGY (ENGINEERING: CIVIL) (RESEARCH):
FULL-TIME/PART-TIME
(QUALIFICATION CODE: 5332 – 01/21)
(NQF LEVEL: 9, TOTAL NQF CREDITS FOR QUALIFICATION: 120)
(NO NEW INTAKE)**

ADMISSION REQUIREMENTS

- Students must have a 65% average for the Bachelor of Technology: Engineering: Civil or equivalent.
- The research proposal should preferably be aligned with the faculty research themes.

Final year for admission

The final year for new admission into this programme was 2015.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2020.

APPLICABLE RULES

Obtaining the qualification

See *General Rules for Masters' Degrees* in the General Prospectus.

DURATION

The qualification shall extend over a minimum of one year or a maximum of four years of full-time or part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
	Compulsory module:			
	Dissertation	Year	CRE5000	120

**15.3 MASTER OF TECHNOLOGY (ENGINEERING: ELECTRICAL) (RESEARCH):
FULL-TIME/PART-TIME
(QUALIFICATION CODE: 6352 – 01/21)
(NQF LEVEL: 9, TOTAL NQF CREDITS FOR QUALIFICATION: 120)
(NO NEW INTAKE)**

ADMISSION REQUIREMENTS

- Students must have a 65% average for the Bachelor of Technology: Engineering: Electrical or equivalent.
- The research proposal should preferably be aligned with the faculty research themes.

Final year for admission

The final year for new admission into this programme was 2015.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2020.

APPLICABLE RULES**Qualification objectives**

In their dissertations, students must prove that they understand a particular problem in the industry and are able to set it out logically, are able to arrive at logical conclusions or a diagnosis, and are then able to make proposals for the improvement/elimination of the problem. The dissertation must comply with the normal requirements and rules with regard to scope, quality and layout.

Obtaining the qualification

See *General Rules for Masters' Degrees* in the General Prospectus.

DURATION

The qualification shall extend over a minimum of one year or a maximum of four years of full-time or part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
	Compulsory module:			
	Dissertation	Year	EMT5000	120

**15.4 MASTER OF TECHNOLOGY (ENGINEERING: INDUSTRIAL) (RESEARCH):
FULL-TIME/PART-TIME
(QUALIFICATION CODE: 6731 – 01/21)
(NQF LEVEL: 9, TOTAL NQF CREDITS FOR QUALIFICATION: 120)
(NO NEW INTAKE)**

ADMISSION REQUIREMENTS

- Students must have a 65% average for the Bachelor of Technology: Engineering: Industrial or equivalent.
- The research proposal should preferably be aligned with the faculty research themes.

Final year for admission

The final year for new admission into this programme was 2015.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2020.

APPLICABLE RULES**Qualification Objectives**

Students must prove that they understand a particular problem in industry and can set it out logically, are able to arrive at coherent conclusions or diagnosis, and are able to make proposals for the improvement/elimination of the problem. The dissertation must comply with the normal general technical requirements and rules with regard to scope, quality and layout.

Obtaining the qualification

See *General Rules for Masters' Degrees* in the General Prospectus.

DURATION

The qualification shall extend over a minimum of one year or a maximum of four years of full-time or part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
	Compulsory module:			
	Dissertation	Year	T673110	120

**15.5 MASTER OF TECHNOLOGY (ENGINEERING: MECHANICAL)(RESEARCH):
FULL-TIME/PART-TIME
(QUALIFICATION CODE: 6721 – 01/21)
(NQF LEVEL: 9, TOTAL NQF CREDITS FOR QUALIFICATION: 120)
(NO NEW INTAKE)**

ADMISSION REQUIREMENTS

- Students must have a 65% average for the Bachelor of Technology: Engineering: Mechanical or equivalent.
- The research proposal should preferably be aligned with the faculty research themes.

Final year for admission

The final year for new admission into this programme was 2015.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2020.

APPLICABLE RULES**Qualification Objectives**

In their dissertations students must prove that they understand a particular problem in mechanical engineering and are able to set it out logically, are able to arrive at logical conclusions or a diagnosis, and are then able to make proposals for their improvement/the elimination of the problem. The dissertation must comply with the normal requirements and rules with regard to scope, quality and layout.

Obtaining the qualification

See *General Rules for Masters' Degrees* in the General Prospectus.

DURATION

The qualification shall extend over a minimum of one year or a maximum of four years of full-time or part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
	Compulsory module:			
	Dissertation	Year	T672110	120

**15.6 MASTER OF TECHNOLOGY (INFORMATION TECHNOLOGY)
(RESEARCH): FULL-TIME/PART-TIME
(QUALIFICATION CODE: 6203 – 01/21)
(NQF LEVEL: 9, TOTAL NQF CREDITS FOR QUALIFICATION: 120)
(NO NEW INTAKE)**

ADMISSION REQUIREMENTS

- Bachelor of Technology: Information Technology with an average of at least 60% and including credits for the modules Research Methodology IV and Project IV.

OR

- An equivalent M + 4 qualification in an Information Technology-related area with an average of at least 60%. The suitability of the qualification is subject to the discretion of the Faculty Management Committee.

AND

- Refer to the *General Rules for Master's and Doctoral Degrees* in the Nelson Mandela University General Prospectus.

Final year for admission

The final year for new admission into this programme was 2015.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2020.

APPLICABLE RULES**Qualification Objectives**

- To provide students with the opportunity to practice research skills in order to prepare themselves for their role as technologists.
- To provide students with the opportunity to correlate theory with actual information technology practice.
- To afford students the opportunity to make contributions to both the theory and practice of information technology through the products of their research.

Obtaining the qualification

See *General Rules for Master's and Doctoral Degrees* in the General Prospectus.

DURATION

The qualification shall extend over a minimum of one year or a maximum of four years of full-time or part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
	Compulsory module:			
	Dissertation	Year	T620300	120

**15.7 MASTER OF TECHNOLOGY (OPERATIONS MANAGEMENT) (RESEARCH):
FULL-TIME/PART-TIME
(QUALIFICATION CODE: 6582 – 01/21)
(NQF LEVEL: 9, TOTAL NQF CREDITS FOR QUALIFICATION: 120)
(NO NEW INTAKE)**

ADMISSION REQUIREMENTS

- Students must have a 65% average for the Bachelor of Technology: Operations Management or equivalent.
- The research proposal should preferably be aligned with the faculty research themes.

Final year for admission

The final year for new admission into this programme was 2015.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2020.

APPLICABLE RULES**Obtaining the qualification**

See *General Rules for Masters' Degrees* in the General Prospectus.

DURATION

The qualification shall extend over a minimum of one year or a maximum of four years of full-time or part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
	Compulsory module:			
	Dissertation	Year	MDT5000	120

**15.8 MASTER OF TECHNOLOGY (OPERATIONS: QUALITY) (RESEARCH):
FULL-TIME/PART-TIME
(QUALIFICATION CODE: 5731 – 01/21)
(NQF LEVEL: 8, TOTAL NQF CREDITS FOR QUALIFICATION: 120)
(NO NEW INTAKE)**

ADMISSION REQUIREMENTS

- Students must have a 65% average for the Bachelor of Technology: Quality or equivalent.
- The research proposal should preferably be aligned with the faculty research themes.

Final year for admission

The final year for new admission into this programme was 2016.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2022.

APPLICABLE RULES

Qualification Objectives

Students must prove that they understand a particular quality problem or situation in industry and are able to set it out logically, are able to arrive at coherent conclusions or diagnosis, and are able to make proposals for the improvement/elimination of the problem or situation. The dissertation must comply with the normal general technical requirements and rules regarding scope, quality and layout.

Obtaining the qualification

See *General Rules for Masters' Degrees* in the General Prospectus.

DURATION

The qualification shall extend over a minimum of one year or a maximum of four years of full-time or part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
	Compulsory module:			
	Dissertation	Year	QMT5110	120

**15.9 MASTER OF TECHNOLOGY (QUANTITY SURVEYING) (RESEARCH):
FULL-TIME/PART-TIME
(QUALIFICATION CODE: 5261 – 01/21)
(NQF LEVEL: 9, TOTAL NQF CREDITS FOR QUALIFICATION: 120)
(NO NEW INTAKE)**

ADMISSION REQUIREMENTS

- Unless Senate decides otherwise, candidates shall be registered for the Master of Technology qualification if they have obtained the Bachelor of Technology: Quantity Surveying or have obtained an equivalent qualification in a related field approved by Senate.
- The qualification is research-based and candidates are required to do a dissertation.
- Candidates are required to do a recognised module in “Research Methodology” before registration of the research proposal.

Final year for admission

The final year for new admission into this programme was 2016.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2022.

APPLICABLE RULES

Obtaining the qualification

The qualification shall be obtained by complying with the requirements set out in the *General Rules for Master’s and Doctoral Degrees*.

DURATION

The qualification shall extend over a minimum of one year or a maximum of four years of full-time or part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
	Compulsory module:			
	Dissertation	Year	MQS5000	120

16 MASTER QUALIFICATIONS**16.1 MASTER OF ENGINEERING (CIVIL) (RESEARCH): FULL-TIME/PART-TIME
(QUALIFICATION CODE: 75057 – 01/21)
(NQF LEVEL: 9, TOTAL NQF CREDITS FOR QUALIFICATION: 180)**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

ADMISSION REQUIREMENTS

- Students must have a 65% average for the Bachelor of Technology: Engineering: Civil or equivalent.
- The research proposal should preferably be aligned with the faculty research themes.

APPLICABLE RULES**Obtaining the qualification**

See *General Rules for Masters' Degrees* in the General Prospectus.

DURATION

The qualification shall extend over a minimum of one year or a maximum of four years of full-time or part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
	Compulsory module:			
	Dissertation	Year	CRE500	180

**16.2 MASTER OF ENGINEERING (ELECTRICAL) (RESEARCH):
FULL-TIME/PART-TIME
(QUALIFICATION CODE: 75058 – 01/21)
(NQF LEVEL: 9, TOTAL NQF CREDITS FOR QUALIFICATION: 180)**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

ADMISSION REQUIREMENTS

- Students must have a 65% average for the Bachelor of Technology: Engineering: Electrical or equivalent.
- The research proposal should preferably be aligned with the faculty research themes.

APPLICABLE RULES**Qualification objectives**

In their dissertations, students must prove that they understand a particular problem in the industry and are able to set it out logically, are able to arrive at logical conclusions or a diagnosis, and are then able to make proposals for the improvement/elimination of the problem. The dissertation must comply with the normal requirements and rules with regard to scope, quality and layout.

Obtaining the qualification

See *General Rules for Master's and Doctoral Degrees* in the General Prospectus.

DURATION

The qualification shall extend over a minimum of one year or a maximum of four years of full-time or part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
	Compulsory module:			
	Dissertation	Year	EMT500	180

**16.3 MASTER OF ENGINEERING (INDUSTRIAL) (RESEARCH):
FULL-TIME/PART-TIME
(QUALIFICATION CODE: 75060 – 01/21)
(NQF LEVEL: 9, TOTAL NQF CREDITS FOR QUALIFICATION: 180)**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

ADMISSION REQUIREMENTS

- Students must have a 65% average for the Bachelor of Technology: Engineering: Industrial or equivalent.
- The research proposal should preferably be aligned with the faculty research themes.

APPLICABLE RULES**Qualification Objectives**

Students must prove that they understand a particular problem in industry and can set it out logically, are able to arrive at coherent conclusions or diagnosis, and are able to make proposals for the improvement/elimination of the problem. The dissertation must comply with the normal general technical requirements and rules with regard to scope, quality and layout.

Obtaining the qualification

See *General Rules for Master's and Doctoral Degrees* in the General Prospectus.

DURATION

The qualification shall extend over a minimum of one year or a maximum of four years of full-time or part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
	Compulsory module:			
	Dissertation	Year	MIE500	180

**16.4 MASTER OF ENGINEERING (MECHANICAL) (RESEARCH):
FULL-TIME/PART-TIME
(QUALIFICATION CODE: 75059 – 01/21)
(NQF LEVEL: 9, TOTAL NQF CREDITS FOR QUALIFICATION: 180)**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

ADMISSION REQUIREMENTS

- Students must have a 65% average for the Bachelor of Technology: Engineering: Mechanical or equivalent.
- The research proposal should preferably be aligned with the faculty research themes.

APPLICABLE RULES

Qualification Objectives

In their dissertations students must prove that they understand a particular problem in mechanical engineering and are able to set it out logically, are able to arrive at logical conclusions or a diagnosis, and are then able to make proposals for their improvement/the elimination of the problem. The dissertation must comply with the normal requirements and rules with regard to scope, quality and layout.

Obtaining the qualification

See *General Rules for Master's and Doctoral Degrees* in the General Prospectus.

DURATION

The qualification shall extend over a minimum of one year or a maximum of four years of full-time or part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
	Compulsory module:			
	Dissertation	Year	EMV500	180

**16.5 MASTER OF ENGINEERING IN MECHATRONICS (RESEARCH):
FULL-TIME/PART-TIME
(QUALIFICATION CODE: 75001 – 01/21)
(NQF LEVEL: 9, TOTAL NQF CREDITS FOR QUALIFICATION: 180)
(NO NEW INTAKE)**

ADMISSION REQUIREMENTS

- Candidates shall be admitted to the study for the qualification of Master of Engineering in Mechatronics only if they hold the qualification of Bachelor of Engineering or Bachelor of Science in Engineering or a qualification deemed by Senate to be equivalent thereto, or if they otherwise qualify for admission in the opinion of Senate.
- Candidates who have completed Bachelor of Technology in a relevant field may be eligible, at the discretion of the Faculty Management Committee. Additional coursework may, however, be prescribed.
- All candidates shall be subject to selection criteria as laid down by the department.

Final year for admission

The final year for new admission into this programme was 2015.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2020.

APPLICABLE RULES**Obtaining the qualification**

See *General Rules for Master's and Doctoral Degrees* in the General Prospectus.

DURATION

The qualification shall extend over a minimum of one year or a maximum of four years of full-time or part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
	Compulsory module:			
	Dissertation	Year	EMP500	180

**16.6 MASTER OF ENGINEERING IN MECHATRONICS (RESEARCH):
FULL-TIME/PART-TIME
(QUALIFICATION CODE: 75055 – 01/21)
(NQF LEVEL: 9, TOTAL NQF CREDITS FOR QUALIFICATION: 180)**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

ADMISSION REQUIREMENTS

- Candidates shall be admitted to the study for the qualification of Master of Engineering in Mechatronics only if they hold the qualification of Bachelor of Engineering or Bachelor of Science in Engineering or a qualification deemed by Senate to be equivalent thereto, or if they otherwise qualify for admission in the opinion of Senate.
- Candidates who have completed Bachelor of Technology in a relevant field may be eligible, at the discretion of the Faculty Management Committee. Additional coursework may, however, be prescribed.
- All candidates shall be subject to selection criteria as laid down by the department.

APPLICABLE RULES**Obtaining the qualification**

See *General Rules for Master's and Doctoral Degrees* in the General Prospectus.

DURATION

The qualification shall extend over a minimum of one year or a maximum of four years of full-time or part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
Compulsory module:				
	Dissertation	Year	EMPV500	180

**16.7 MASTER OF INFORMATION TECHNOLOGY (RESEARCH):
FULL-TIME/PART-TIME
(QUALIFICATION CODE: 75052 – 01/21)
(NQF LEVEL: 9, TOTAL NQF CREDITS FOR QUALIFICATION: 180)**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

ADMISSION REQUIREMENTS

- Bachelor of Technology: Information Technology with an average of at least 60% and including credits for the modules Research Methodology IV and Project IV.

OR

- An equivalent M + 4 qualification in an Information Technology-related area with an average of at least 60%. The suitability of the qualification is subject to the discretion of the Faculty Management Committee.

AND

- Refer to the *General Rules for Master's and Doctoral Degrees* in the Nelson Mandela University General Prospectus.

APPLICABLE RULES**Qualification Objectives**

- To provide students with the opportunity to practice research skills in order to prepare themselves for their role as technologists.
- To provide students with the opportunity to correlate theory with actual information technology practice.
- To afford students the opportunity to make contributions to both the theory and practice of information technology through the products of their research.

Obtaining the qualification

See *General Rules for Masters' Degrees* in the General Prospectus.

DURATION

The qualification shall extend over a minimum of one year or a maximum of four years of full-time or part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
Compulsory module:				
	Dissertation	Year	ICT500	180

**16.8 MASTER OF OPERATIONS MANAGEMENT (RESEARCH):
FULL-TIME/PART-TIME
(QUALIFICATION CODE: 75053 – 01/21)
(NQF LEVEL: 9, TOTAL NQF CREDITS FOR QUALIFICATION: 180)**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

ADMISSION REQUIREMENTS

- Students must have a 65% average for the Bachelor of Technology: Operations Management or equivalent.
- The research proposal should preferably be aligned with the faculty research themes.

APPLICABLE RULES

Obtaining the qualification

See *General Rules for Master's and Doctoral Degrees* in the General Prospectus.

DURATION

The qualification shall extend over a minimum of one year or a maximum of four years of full-time or part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
	Compulsory module:			
	Dissertation	Year	MDT500	180

**16.9 MASTER OF PHILOSOPHY IN INFORMATION TECHNOLOGY GOVERNANCE
(COURSE WORK AND RESEARCH): PART-TIME
(QUALIFICATION CODE: 75050 – 21)
(NQF LEVEL: 9, TOTAL NQF CREDITS FOR QUALIFICATION: 180)**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

ADMISSION REQUIREMENTS

- A relevant 120-credit NQF Level 8 learning programme with an information technology (IT), information systems (IS) or auditing focus with at least three years of relevant industry experience.
- If applications exceed 25 candidates, selection will be done on a first come first served basis.

Re-admission

Students (only part-time allowed) must pass at least two modules per year to acquire re-admission in the following year.

DURATION

The qualification shall extend over a minimum of two years of part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
First Year				
	Compulsory modules:			
	Information Technology Management	Trimester 1	RITM501	15
	Information Technology Risk Management	Trimester 1	RTRM501	15
	Information Security Management	Trimester 2	RISV502	15
	Information Technology Service Management	Trimester 2	RTSM502	15
	Information Systems Assurance	Trimester 3	RISA503	15
	Information Technology Law	Trimester 3	JILT503	15
	Credits First Year			90
Second Year				
	Compulsory module: select one of the following:			
	Research Treatise: IS Auditing	Every year	RRIS500	90
	Research Treatise: IT Law	Every year	JRTV500	
	Research Treatise: IT Management	Every year	RRTI500	
	Total Credits			180

**16.10 MASTER OF SCIENCE IN CONSTRUCTION ECONOMICS (RESEARCH):
FULL-TIME/PART-TIME
(QUALIFICATION CODE: 47101 – 01/21)
(NQF LEVEL: 9, TOTAL NQF CREDITS FOR QUALIFICATION: 120)
(NO NEW INTAKE)**

ADMISSION REQUIREMENTS

Candidates shall be admitted to the study for the qualification of Master of Science in Construction Economics only if they hold the qualification of Bachelor of Science Honours in Quantity Surveying or a qualification deemed by Senate to be equivalent thereto.

Final year for admission

The final year for new admission into this programme was 2015.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2020.

APPLICABLE RULES**Obtaining the qualification**

The qualification shall be awarded to a person who has been a candidate for the qualification for at least one year and who has completed a dissertation on an approved topic, and who has passed:

- an oral examination on a prescribed topic in the field of Quantity Surveying in a case where the research for the dissertation was carried out independently; or
- a written examination on the module of the dissertation and/or any other prescribed topic in the field of Quantity Surveying in a case where the research for the dissertation consisted of a building project or building-system prepared by the candidate as leader of a team of related specialists.

See *General Rules for Master's and Doctoral Degrees* in the General Prospectus.

DURATION

The qualification shall extend over at least one year of full-time or part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
	Compulsory module:			
	Dissertation	Year	Q505	120

**16.11 MASTER OF SCIENCE IN CONSTRUCTION ECONOMICS (RESEARCH):
FULL-TIME/PART-TIME
(QUALIFICATION CODE: 75010 – 01/21)
(NQF LEVEL: 9, TOTAL NQF CREDITS FOR QUALIFICATION: 120)**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

ADMISSION REQUIREMENTS

Candidates shall be admitted to the study for the qualification of Master of Science in Construction Economics only if they hold the qualification of Bachelor of Science Honours in Quantity Surveying or a qualification deemed by Senate to be equivalent thereto.

APPLICABLE RULES

Obtaining the qualification

The qualification shall be awarded to a person who has been a candidate for the qualification for at least one year and who has completed a dissertation on an approved topic, and who has passed:

- an oral examination on a prescribed topic in the field of Quantity Surveying in a case where the research for the dissertation was carried out independently; or
- a written examination on the module of the dissertation and/or any other prescribed topic in the field of Quantity Surveying in a case where the research for the dissertation consisted of a building project or building-system prepared by the candidate as leader of a team of related specialists.

See *General Rules for Master's and Doctoral Degrees* in the General Prospectus.

DURATION

The qualification shall extend over at least one year of full-time or part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
	Compulsory module:			
	Dissertation	Year	QV500	120

**16.12 MASTER OF SCIENCE IN CONSTRUCTION MANAGEMENT (RESEARCH):
FULL-TIME/PART-TIME
(QUALIFICATION CODE: 47600 – 01/21)
(NQF LEVEL: 9, TOTAL NQF CREDITS FOR QUALIFICATION: 120)
(NO NEW INTAKE)**

ADMISSION REQUIREMENTS

- Candidates shall be admitted to the study for the qualification of Master of Science in Construction Management only if they hold the qualification of Bachelor of Science Honours in Construction Management, or
- a qualification deemed by Senate to be equivalent thereto, or
- if they hold at least a four-year Bachelor of Science qualification in one of the engineering or building disciplines and have had at least two years' appropriate postgraduate practical experience, or
- if they otherwise qualify for admission in the opinion of Senate.
- All students shall be subject to a selection process as laid down by the department and approved at the Faculty Management Committee.

Final year for admission

The final year for new admission into this programme was 2015.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2020.

APPLICABLE RULES**Obtaining the qualification**

See *General Rules for Master's and Doctoral Degrees* in the General Prospectus.

DURATION

The qualification shall extend over at least one year of full-time or part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
	Compulsory module:			
	Dissertation	Year	KRA505	120

**16.13 MASTER OF SCIENCE IN CONSTRUCTION MANAGEMENT (RESEARCH):
FULL-TIME/PART-TIME
(QUALIFICATION CODE: 75011 – 01/21)
(NQF LEVEL: 9, TOTAL NQF CREDITS FOR QUALIFICATION: 180)**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

ADMISSION REQUIREMENTS

- Candidates shall be admitted to the study for the qualification of Master of Science in Construction Management only if they hold the qualification of Bachelor of Science Honours in Construction Management, or
- a qualification deemed by Senate to be equivalent thereto, or
- if they hold at least a four-year Bachelor of Science qualification in one of the engineering or building disciplines and have had at least two years' appropriate postgraduate practical experience, or
- if they otherwise qualify for admission in the opinion of Senate.
- All students shall be subject to a selection process as laid down by the department and approved at the Faculty Management Committee.

APPLICABLE RULES

Obtaining the qualification

See *General Rules for Master's and Doctoral Degrees* in the General Prospectus.

DURATION

The qualification shall extend over at least one year of full-time or part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
	Compulsory module:			
	Dissertation	Year	KRAV500	180

**17 MASTER OF SCIENCE IN THE BUILT ENVIRONMENT: PART-TIME
(QUALIFICATION CODES: 47654/75024, 47653/75023, 47650/75020,
47652/75022, 47651/75021 – 21)**

(Offered jointly by the Departments of Quantity Surveying and Construction Management.)

ADMISSION REQUIREMENTS

Unless Senate decides otherwise, candidates shall be in possession of the following minimum qualifications in order to qualify for admission: a Bachelor of Science Honours qualification in Quantity Surveying or Construction Management; or a Master of Architecture (Professional) qualification; or a four-year bachelor's qualification in a building discipline; or Bachelor of Technology qualification in Quantity Surveying, Construction Management or Architecture obtained from a technikon or technical university, together with a minimum of five years of relevant working experience; or a professional diploma in Quantity Surveying (RQS or ARICS), Construction Management or Architecture, together with a minimum of seven years of relevant working experience.

DURATION

The qualification shall extend over two years of part-time studies.

APPLICABLE RULES

Except if otherwise provided, the qualification of Master of Science in the Built Environment shall be awarded in accordance with the General Rules for Masters' qualifications.

Fields of study

One of the following fields may be selected:

- Facilities Management (47650/75020),
- Property Economics and Valuation (47651/75021),
- Project Management (47652/75022),
- Construction Management (47653/75023), or
- Construction Health and Safety Management (47654/75024)

The certificate for the qualification shall bear an endorsement, signifying the field of study.

Integrated assessment

In all modules, assessment is continuous and supplemented by end-of-semester and/or year-end examinations. Assignments are submitted for evaluation within the overall qualification. A mark of at least 50% for the assignment is a prerequisite for admission to the examination in any module. Re-assessments will be scheduled at the end of the block following the block in which the examination was written. No more than two re-assessments will be permitted in the qualification.

Obtaining the qualification

The qualification shall be obtained on completion of a course work programme (prescribed and elective modules), a supervised research programme and the submission of a treatise for examination.

**17.1 MASTER OF SCIENCE IN THE BUILT ENVIRONMENT (CONSTRUCTION HEALTH AND SAFETY MANAGEMENT): PART-TIME
(QUALIFICATION CODE: 47654 – 21)
(NQF LEVEL: 9, TOTAL NQF CREDITS FOR QUALIFICATION: 225)
(NO NEW INTAKE)**

(Offered jointly by the Departments of Quantity Surveying and Construction Management.)

ADMISSION REQUIREMENTS

Unless Senate decides otherwise, candidates shall be in possession of one the following minimum qualifications in order to qualify for admission:

- a Bachelor of Science Honours qualification in Quantity Surveying or Construction Management;
- a Master of Architecture (Professional) qualification;
- a four-year Bachelor's qualification in a building discipline;
- a Bachelor of Technology qualification in Quantity Surveying, Construction Management or Architecture obtained from a technikon or technical university, together with a minimum of five years of relevant working experience;
- a professional diploma in Quantity Surveying (RQS or ARICS), Construction Management or Architecture, together with a minimum of seven years' relevant working experience.
- All students shall be subject to a selection process as laid down by the department and approved at the Faculty Management Committee, if completing an entrance essay.

Final year for admission

The final year for new admission into this programme was 2015.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2020.

APPLICABLE RULES

Except if otherwise provided, the qualification of Master of Science in the Built Environment shall be awarded in accordance with the *General Rules for Master's and Doctoral Degrees*.

Integrated Assessment

In all modules, assessment is continuous and supplemented by end-of-semester and/or year-end examinations. Assignments are submitted for evaluation within the overall qualification. A mark of at least 50% for the assignment is a prerequisite for admission to the examination in any module. Re-assessments will be scheduled at the end of the block following the block in which the examination was written. No more than two re-assessments will be permitted in the qualification.

Obtaining the qualification

The qualification shall be obtained on completion of a course work programme (prescribed and elective modules), a supervised research programme and the submission of a treatise for examination.

DURATION

The qualification shall extend over at least two years of part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
First Year				
	Compulsory modules:			
	Accounting and Project Finance	Block offering	KAF510	15
	Health and Safety		KHS510	15
	Corporate Strategy		QCS510	15
	Management Information System for Construction and IT Applications		QIT510	15
	Research Methodology		QRT510	15
	Credits First Year			75
Second Year				
	Compulsory modules:			
	Environmental Management	Block offering	KEM510	15
	Health and Safety Management (B)		KHS511	15
	Risk Management		KRM510	15
	Treatise		KRT510	75
	Design Management		QDM510	15
	Select one of the following modules or any other module approved by the programme director:			
	Project Strategy and PMBOK	Block offering	KPS510	15
	Human Resources		QHR510	15
	Credits Second Year			150
	Total Credits			225

**17.2 MASTER OF SCIENCE IN THE BUILT ENVIRONMENT (CONSTRUCTION HEALTH AND SAFETY MANAGEMENT): PART-TIME
(QUALIFICATION CODE: 75024 – 21)
(NQF LEVEL: 9, TOTAL NQF CREDITS FOR QUALIFICATION: 225)**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

(Offered jointly by the Departments of Quantity Surveying and Construction Management.)

ADMISSION REQUIREMENTS

Unless Senate decides otherwise, candidates shall be in possession of one the following minimum qualifications in order to qualify for admission:

- a Bachelor of Science Honours qualification in Quantity Surveying or Construction Management;
- a Master of Architecture (Professional) qualification;
- a four-year Bachelor's qualification in a building discipline;
- a Bachelor of Technology qualification in Quantity Surveying, Construction Management or Architecture obtained from a technikon or technical university, together with a minimum of five years of relevant working experience;
- a professional diploma in Quantity Surveying (RQS or ARICS), Construction Management or Architecture, together with a minimum of seven years' relevant working experience.
- All students shall be subject to a selection process as laid down by the department and approved at the Faculty Management Committee, if completing an entrance essay.

APPLICABLE RULES

Except if otherwise provided, the qualification of Master of Science in the Built Environment shall be awarded in accordance with the *General Rules for Master's and Doctoral Degrees*.

Integrated Assessment

In all modules, assessment is continuous and supplemented by end-of-semester and/or year-end examinations. Assignments are submitted for evaluation within the overall qualification. A mark of at least 50% for the assignment is a prerequisite for admission to the examination in any module. Re-assessments will be scheduled at the end of the block following the block in which the examination was written. No more than two re-assessments will be permitted in the qualification.

Obtaining the qualification

The qualification shall be obtained on completion of a course work programme (prescribed and elective modules), a supervised research programme and the submission of a treatise for examination.

DURATION

The qualification shall extend over at least two years of part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
First Year				
	Compulsory modules:			
	Accounting and Project Finance	Block offering	KAFV502	15
	Health and Safety		KHSV502	15
	Corporate Strategy		QCSV502	15
	Management Information System for Construction and IT Applications		QITV502	15
	Research Methodology		QRTV502	15
	Credits First Year			75
		Presented	Module Code	Credit Value
Second Year				
	Compulsory modules:			
	Environmental Management	Block offering	KEMV502	15
	Health and Safety Management (B)		KHSV500	15
	Risk Management		KRMV502	15
	Treatise		KRTV510	75
	Design Management		QDMV500	15
	Select one of the following modules or any other module approved by the programme director:			
	Project Strategy and PMBOK	Block offering	KPSV502	15
	Human Resources		QHRV501	15
	Credits Second Year			150
	Total Credits			225

**17.3 MASTER OF SCIENCE IN THE BUILT ENVIRONMENT (CONSTRUCTION MANAGEMENT): PART-TIME
(QUALIFICATION CODE: 47653 – 21)
(NQF LEVEL: 9, TOTAL NQF CREDITS FOR QUALIFICATION: 225)
(NO NEW INTAKE)**

(Offered jointly by the Departments of Quantity Surveying and Construction Management.)

ADMISSION REQUIREMENTS

Unless Senate decides otherwise, candidates shall be in possession of one the following minimum qualifications in order to qualify for admission:

- a Bachelor of Science Honours qualification in Quantity Surveying or Construction Management;
- a Master of Architecture (Professional) qualification;
- a four-year Bachelor's qualification in a building discipline;
- a Bachelor of Technology qualification in Quantity Surveying, Construction Management or Architecture obtained from a technikon or technical university, together with a minimum of five years of relevant working experience;
- a professional diploma in Quantity Surveying (RQS or ARICS), Construction Management or Architecture, together with a minimum of seven years' relevant working experience.
- All students shall be subject to a selection process as laid down by the department and approved at the Faculty Management Committee, if completing an entrance essay.

Final year for admission

The final year for new admission into this programme was 2015.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2020.

APPLICABLE RULES

Except if otherwise provided, the qualification of Master of Science in the Built Environment shall be awarded in accordance with the *General Rules for Master's and Doctoral Degrees*.

Integrated Assessment

In all modules, assessment is continuous and supplemented by end-of-semester and/or year-end examinations. Assignments are submitted for evaluation within the overall qualification. A mark of at least 50% for the assignment is a prerequisite for admission to the examination in any module. Re-assessments will be scheduled at the end of the block following the block in which the examination was written. No more than two re-assessments will be permitted in the qualification.

Obtaining the qualification

The qualification shall be obtained on completion of a course work programme (prescribed and elective modules), a supervised research programme and the submission of a treatise for examination.

DURATION

The qualification shall extend over at least two years of part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
First Year				
	Compulsory modules:			
	Accounting and Project Finance	Block offering	KAF510	15
	Health and Safety A		KHS510	15
	Corporate Strategy		QCS510	15
	Management Information System for Construction and IT Applications		QIT510	15
	Research Methodology		QRT510	15
	Credits First Year			75
Second Year				
	Compulsory modules:			
	Construction Marketing	Block offering	KCM510	15
	International Construction		KPM510	15
	Risk Management		KRM510	15
	Treatise		KRT510	75
	Human Resources Management (including Leadership and Communication)		QHR510	15
	Select one of the following modules or any other module approved by the programme director:			
	Environmental Management	Block offering	KEM510	15
	Project Strategy and PMBOK		KPS510	15
	Total Quality Management		KTQ510	15
	Construction Contracts and Procurement		QLL510	15
	Credits Second Year			150
	Total Credits			225

**17.4 MASTER OF SCIENCE IN THE BUILT ENVIRONMENT (CONSTRUCTION MANAGEMENT): PART-TIME
(QUALIFICATION CODE: 75023 – 21)
(NQF LEVEL: 9, TOTAL NQF CREDITS FOR QUALIFICATION: 225)**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

(Offered jointly by the Departments of Quantity Surveying and Construction Management.)

ADMISSION REQUIREMENTS

Unless Senate decides otherwise, candidates shall be in possession of one the following minimum qualifications in order to qualify for admission:

- a Bachelor of Science Honours qualification in Quantity Surveying or Construction Management;
- a Master of Architecture (Professional) qualification;
- a four-year Bachelor's qualification in a building discipline;
- a Bachelor of Technology qualification in Quantity Surveying, Construction Management or Architecture obtained from a technikon or technical university, together with a minimum of five years of relevant working experience;
- a professional diploma in Quantity Surveying (RQS or ARICS), Construction Management or Architecture, together with a minimum of seven years' relevant working experience.
- All students shall be subject to a selection process as laid down by the department and approved at the Faculty Management Committee, if completing an entrance essay.

APPLICABLE RULES

Except if otherwise provided, the qualification of Master of Science in the Built Environment shall be awarded in accordance with the *General Rules for Master's and Doctoral Degrees*.

Integrated Assessment

In all modules, assessment is continuous and supplemented by end-of-semester and/or year-end examinations. Assignments are submitted for evaluation within the overall qualification. A mark of at least 50% for the assignment is a prerequisite for admission to the examination in any module. Re-assessments will be scheduled at the end of the block following the block in which the examination was written. No more than two re-assessments will be permitted in the qualification.

Obtaining the qualification

The qualification shall be obtained on completion of a course work programme (prescribed and elective modules), a supervised research programme and the submission of a treatise for examination.

DURATION

The qualification shall extend over at least two years of part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
First Year				
	Compulsory modules:			
	Accounting and Project Finance	Block offering	KAFV502	15
	Health and Safety A		KHSV502	15
	Corporate Strategy		QCSV502	15
	Management Information System for Construction and IT Applications		QITV502	15
	Research Methodology		QRTV502	15
	Credits First Year			75
		Presented	Module Code	Credit Value
Second Year				
	Compulsory modules:			
	Construction Marketing	Block offering	KCMV502	15
	International Construction		KPMV502	15
	Risk Management		KRMV502	15
	Treatise		KRTV510	75
	Human Resources Management (including Leadership and Communication)		QHRV501	15
	Select one of the following modules or any other module approved by the programme director:			
	Environmental Management	Block offering	KEMV502	15
	Project Strategy and PMBOK		KPSV502	15
	Total Quality Management		KTQV502	15
	Construction Contracts and Procurement		QLLV502	15
	Credits Second Year			150
	Total Credits			225

**17.5 MASTER OF SCIENCE IN THE BUILT ENVIRONMENT (FACILITIES MANAGEMENT): PART-TIME
(QUALIFICATION CODE: 47650 – 21)
(NQF LEVEL: 9, TOTAL NQF CREDITS FOR QUALIFICATION: 210)
(NO NEW INTAKE)**

(Offered jointly by the Departments of Quantity Surveying and Construction Management.)

ADMISSION REQUIREMENTS

Unless Senate decides otherwise, candidates shall be in possession of one the following minimum qualifications in order to qualify for admission:

- a Bachelor of Science Honours qualification in Quantity Surveying or Construction Management;
- a Master of Architecture (Professional) qualification;
- a four-year Bachelor's qualification in a building discipline;
- a Bachelor of Technology qualification in Quantity Surveying, Construction Management or Architecture obtained from a technikon or technical university, together with a minimum of five years of relevant working experience;
- a professional diploma in Quantity Surveying (RQS or ARICS), Construction Management or Architecture, together with a minimum of seven years' relevant working experience.
- All students shall be subject to a selection process as laid down by the department and approved at the Faculty Management Committee, if completing an entrance essay.

Final year for admission

The final year for new admission into this programme was 2015.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2020.

APPLICABLE RULES

Except if otherwise provided, the qualification of Master of Science in the Built Environment shall be awarded in accordance with the *General Rules for Master's and Doctoral Degrees*.

Integrated Assessment

In all modules, assessment is continuous and supplemented by end-of-semester and/or year-end examinations. Assignments are submitted for evaluation within the overall qualification. A mark of at least 50% for the assignment is a prerequisite for admission to the examination in any module. Re-assessments will be scheduled at the end of the block following the block in which the examination was written. No more than two re-assessments will be permitted in the qualification.

Obtaining the qualification

The qualification shall be obtained on completion of a course work programme (prescribed and elective modules), a supervised research programme and the submission of a treatise for examination.

DURATION

The qualification shall extend over at least two years of part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
First Year				
	Compulsory modules:			
	Accounting and Project Finance	Block offering	KAF510	15
	Corporate Strategy		QCS510	15
	Management Information System for Construction and IT Applications		QIT510	15
	Research Methodology		QRT510	15
	Strategic Asset and Facilities Management		QSM510	15
	Credits First Year			75
Second Year				
	Compulsory modules:			
	Building Energy Analysis and Management	Block offering	KBE510	15
	Facilities Operations Management		QFM510	15
	Property Investment and Portfolio Analysis		QPI510	15
	Treatise		QRS510	75
	Select one of the following modules or any other module approved by the programme director:			
	Facilities Management: Contracts and Procurement	Block offering	QFC510	15
	Human Resources Management		QHR510	15
	Credits Second Year			135
	Total Credits			210

**17.6 MASTER OF SCIENCE IN THE BUILT ENVIRONMENT (FACILITIES MANAGEMENT): PART-TIME
(QUALIFICATION CODE: 75020 – 21)
(NQF LEVEL: 9, TOTAL NQF CREDITS FOR QUALIFICATION: 210)**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

(Offered jointly by the Departments of Quantity Surveying and Construction Management.)

ADMISSION REQUIREMENTS

Unless Senate decides otherwise, candidates shall be in possession of one the following minimum qualifications in order to qualify for admission:

- a Bachelor of Science Honours qualification in Quantity Surveying or Construction Management;
- a Master of Architecture (Professional) qualification;
- a four-year Bachelor's qualification in a building discipline;
- a Bachelor of Technology qualification in Quantity Surveying, Construction Management or Architecture obtained from a technikon or technical university, together with a minimum of five years of relevant working experience;
- a professional diploma in Quantity Surveying (RQS or ARICS), Construction Management or Architecture, together with a minimum of seven years' relevant working experience.
- All students shall be subject to a selection process as laid down by the department and approved at the Faculty Management Committee, if completing an entrance essay.

APPLICABLE RULES

Except if otherwise provided, the qualification of Master of Science in the Built Environment shall be awarded in accordance with the *General Rules for Master's and Doctoral Degrees*.

Integrated Assessment

In all modules, assessment is continuous and supplemented by end-of-semester and/or year-end examinations. Assignments are submitted for evaluation within the overall qualification. A mark of at least 50% for the assignment is a prerequisite for admission to the examination in any module. Re-assessments will be scheduled at the end of the block following the block in which the examination was written. No more than two re-assessments will be permitted in the qualification.

Obtaining the qualification

The qualification shall be obtained on completion of a course work programme (prescribed and elective modules), a supervised research programme and the submission of a treatise for examination.

DURATION

The qualification shall extend over at least two years of part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
First Year				
	Compulsory modules:			
	Accounting and Project Finance	Block offering	KAFV502	15
	Corporate Strategy		QCSV502	15
	Management Information System for Construction and IT Applications		QITV502	15
	Research Methodology		QRTV502	15
	Strategic Asset and Facilities Management		QSMV502	15
	Credits First Year			75
		Presented	Module Code	Credit Value
Second Year				
	Compulsory modules:			
	Building Energy Analysis and Management	Block offering	KBEV502	15
	Facilities Operations Management		QFMV502	15
	Property Investment and Portfolio Analysis		QPIV501	15
	Treatise		QRSV510	75
	Select one of the following modules or any other module approved by the programme director:			
	Facilities Management: Contracts and Procurement	Block offering	QFCV502	15
	Human Resources Management		QHRV501	15
	Credits Second Year			135
	Total Credits			210

**17.7 MASTER OF SCIENCE IN THE BUILT ENVIRONMENT (PROJECT MANAGEMENT): PART-TIME
(QUALIFICATION CODE: 47652 - 21)
(NQF LEVEL: 8, TOTAL NQF CREDITS FOR QUALIFICATION: 225)
(NO NEW INTAKE)**

(Offered jointly by the Departments of Quantity Surveying and Construction Management.)

ADMISSION REQUIREMENTS

Unless Senate decides otherwise, candidates shall be in possession of one the following minimum qualifications in order to qualify for admission:

- a Bachelor of Science Honours qualification in Quantity Surveying or Construction Management;
- a Master of Architecture (Professional) qualification;
- a four-year Bachelor's qualification in a building discipline;
- a Bachelor of Technology qualification in Quantity Surveying, Construction Management or Architecture obtained from a technikon or technical university, together with a minimum of five years of relevant working experience;
- a professional diploma in Quantity Surveying (RQS or ARICS), Construction Management or Architecture, together with a minimum of seven years' relevant working experience.
- All students shall be subject to a selection process as laid down by the department and approved at the Faculty Management Committee, if completing an entrance essay.

Final year for admission

The final year for new admission into this programme was 2015.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2020.

APPLICABLE RULES

Except if otherwise provided, the qualification of Master of Science in the Built Environment shall be awarded in accordance with the *General Rules for Master's and Doctoral Degrees*.

Integrated Assessment

In all modules, assessment is continuous and supplemented by end-of-semester and/or year-end examinations. Assignments are submitted for evaluation within the overall qualification. A mark of at least 50% for the assignment is a prerequisite for admission to the examination in any module. Re-assessments will be scheduled at the end of the block following the block in which the examination was written. No more than two re-assessments will be permitted in the qualification.

Obtaining the qualification

The qualification shall be obtained on completion of a course work programme (prescribed and elective modules), a supervised research programme and the submission of a treatise for examination.

DURATION

The qualification shall extend over at least two years of part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
First Year				
	Compulsory modules:			
	Accounting and Project Finance	Block offering	KAF510	15
	Business and Construction Economics		QBE510	15
	Corporate Strategy		QCS510	15
	Management Information System for Construction & IT Applications		QIT510	15
	Research Methodology		QRT510	15
	Credits First Year			75
		Presented	Module Code	Credit Value
Second Year				
	Compulsory modules:			
	Management Science and Project Control	Block offering	KMS510	15
	Project Strategy and PMBOK		KPS510	15
	Treatise		KRT510	75
	Design Management		QDM510	15
	Human Resources Management		QHR510	15
	Select one of the following modules or any other module approved by the programme director:			
	Capital Equipment Purchasing	Block offering	KEP510	15
	International Construction		KPM510	15
	Technology Management		KTM510	15
	Construction Contracts & Procurement		QLL510	15
	Credits Second Year			150
	Total Credits			225

**17.8 MASTER OF SCIENCE IN THE BUILT ENVIRONMENT (PROJECT MANAGEMENT): PART-TIME
(QUALIFICATION CODE: 75022 - 21)
(NQF LEVEL: 9, TOTAL NQF CREDITS FOR QUALIFICATION: 225)**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

(Offered jointly by the Departments of Quantity Surveying and Construction Management.)

ADMISSION REQUIREMENTS

Unless Senate decides otherwise, candidates shall be in possession of one the following minimum qualifications in order to qualify for admission:

- a Bachelor of Science Honours qualification in Quantity Surveying or Construction Management;
- a Master of Architecture (Professional) qualification;
- a four-year Bachelor's qualification in a building discipline;
- a Bachelor of Technology qualification in Quantity Surveying, Construction Management or Architecture obtained from a technikon or technical university, together with a minimum of five years of relevant working experience;
- a professional diploma in Quantity Surveying (RQS or ARICS), Construction Management or Architecture, together with a minimum of seven years' relevant working experience.
- All students shall be subject to a selection process as laid down by the department and approved at the Faculty Management Committee, if completing an entrance essay.

APPLICABLE RULES

Except if otherwise provided, the qualification of Master of Science in the Built Environment shall be awarded in accordance with the *General Rules for Master's and Doctoral Degrees*.

Integrated Assessment

In all modules, assessment is continuous and supplemented by end-of-semester and/or year-end examinations. Assignments are submitted for evaluation within the overall qualification. A mark of at least 50% for the assignment is a prerequisite for admission to the examination in any module. Re-assessments will be scheduled at the end of the block following the block in which the examination was written. No more than two re-assessments will be permitted in the qualification.

Obtaining the qualification

The qualification shall be obtained on completion of a course work programme (prescribed and elective modules), a supervised research programme and the submission of a treatise for examination.

DURATION

The qualification shall extend over at least two years of part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
First Year				
	Compulsory modules:			
	Accounting and Project Finance	Block offering	KAFV502	15
	Business and Construction Economics		QBEV502	15
	Corporate Strategy		QCSV502	15
	Management Information System for Construction & IT Applications		QITV502	15
	Research Methodology		QRTV502	15
	Credits First Year			75
		Presented	Module Code	Credit Value
Second Year				
	Compulsory modules:			
	Management Science and Project Control	Block offering	KMSV502	15
	Project Strategy and PMBOK		KPSV502	15
	Treatise		KRTV501	75
	Design Management		QDMV500	15
	Human Resources Management		QHRV501	15
	Select one of the following modules or any other module approved by the programme director:			
	Capital Equipment Purchasing	Block offering	KEPV502	15
	International Construction		KPMV502	15
	Technology Management		KTMV502	15
	Construction Contracts & Procurement		QLLV502	15
	Credits Second Year			150
	Total Credits			225

17.9 MASTER OF SCIENCE IN THE BUILT ENVIRONMENT (PROPERTY ECONOMICS AND VALUATION: PART-TIME (QUALIFICATION CODE: 47651 – 21) (NQF LEVEL: 9, TOTAL NQF CREDITS FOR QUALIFICATION: 210) (NO NEW INTAKE)

(Offered jointly by the Departments of Quantity Surveying and Construction Management.)

ADMISSION REQUIREMENTS

Unless Senate decides otherwise, candidates shall be in possession of one the following minimum qualifications in order to qualify for admission:

- a Bachelor of Science Honours qualification in Quantity Surveying or Construction Management;
- a Master of Architecture (Professional) qualification;
- a four-year Bachelor's qualification in a building discipline;
- a Bachelor of Technology qualification in Quantity Surveying, Construction Management or Architecture obtained from a technikon or technical university, together with a minimum of five years of relevant working experience;
- a professional diploma in Quantity Surveying (RQS or ARICS), Construction Management or Architecture, together with a minimum of seven years' relevant working experience.
- All students shall be subject to a selection process as laid down by the department and approved at the Faculty Management Committee, if completing an entrance essay.

Final year for admission

The final year for new admission into this programme was 2015.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2020.

APPLICABLE RULES

Except if otherwise provided, the qualification of Master of Science in the Built Environment shall be awarded in accordance with the *General Rules for Master's and Doctoral Degrees*.

Integrated Assessment

In all modules, assessment is continuous and supplemented by end-of-semester and/or year-end examinations. Assignments are submitted for evaluation within the overall qualification. A mark of at least 50% for the assignment is a prerequisite for admission to the examination in any module. Re-assessments will be scheduled at the end of the block following the block in which the examination was written. No more than two re-assessments will be permitted in the qualification.

Obtaining the qualification

The qualification shall be obtained on completion of a course work programme (prescribed and elective modules), a supervised research programme and the submission of a treatise for examination.

DURATION

The qualification shall extend over at least two years of part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
First Year				
	Compulsory modules:			
	Accounting and Project Finance	Block offering	KAF510	15
	Corporate Strategy		QCS510	15
	Management Information System for Construction and IT Applications		QIT510	15
	Research Methodology		QRT510	15
	Strategic Asset and Facilities Management		QSM510	15
	Credits First Year			75
		Presented	Module Code	Credit Value
Second Year				
	Compulsory modules:			
	Property Development Planning and Appraisal	Block offering	QPD510	15
	Property Investment and Portfolio Analysis		QPI510	15
	Property Valuation		QPV510	15
	Treatise		QRS510	75
	Select one of the following modules or any other module approved by the programme director:			
	Construction Marketing	Block offering	KCM510	15
	Property Legal and Institutional Framework		QLF510	15
	Credits Second Year			135
	Total Credits			210

**17.10 MASTER OF SCIENCE IN THE BUILT ENVIRONMENT (PROPERTY ECONOMICS AND VALUATION): PART-TIME
(QUALIFICATION CODE: 75021 – 21)
(NQF LEVEL: 9, TOTAL NQF CREDITS FOR QUALIFICATION: 210)**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

(Offered jointly by the Departments of Quantity Surveying and Construction Management.)

ADMISSION REQUIREMENTS

Unless Senate decides otherwise, candidates shall be in possession of one the following minimum qualifications in order to qualify for admission:

- a Bachelor of Science Honours qualification in Quantity Surveying or Construction Management;
- a Master of Architecture (Professional) qualification;
- a four-year Bachelor's qualification in a building discipline;
- a Bachelor of Technology qualification in Quantity Surveying, Construction Management or Architecture obtained from a technikon or technical university, together with a minimum of five years of relevant working experience;
- a professional diploma in Quantity Surveying (RQS or ARICS), Construction Management or Architecture, together with a minimum of seven years' relevant working experience.
- All students shall be subject to a selection process as laid down by the department and approved at the Faculty Management Committee, if completing an entrance essay.

APPLICABLE RULES

Except if otherwise provided, the qualification of Master of Science in the Built Environment shall be awarded in accordance with the *General Rules for Master's and Doctoral Degrees*.

Integrated Assessment

In all modules, assessment is continuous and supplemented by end-of-semester and/or year-end examinations. Assignments are submitted for evaluation within the overall qualification. A mark of at least 50% for the assignment is a prerequisite for admission to the examination in any module. Re-assessments will be scheduled at the end of the block following the block in which the examination was written. No more than two re-assessments will be permitted in the qualification.

Obtaining the qualification

The qualification shall be obtained on completion of a course work programme (prescribed and elective modules), a supervised research programme and the submission of a treatise for examination.

DURATION

The qualification shall extend over at least two years of part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
First Year				
	Compulsory modules:			
	Accounting and Project Finance	Block offering	KAFV502	15
	Corporate Strategy		QCSV502	15
	Management Information System for Construction and IT Applications		QITV502	15
	Research Methodology		QRTV502	15
	Strategic Asset and Facilities Management		QSMV502	15
	Credits First Year			
		Presented	Module Code	Credit Value
Second Year				
	Compulsory modules:			
	Property Development Planning and Appraisal	Block offering	QPDV502	15
	Property Investment and Portfolio Analysis		QPIV501	15
	Property Valuation		QPVV501	15
	Treatise		QRSV510	75
	Select one of the following modules or any other module approved by the programme director:			
	Construction Marketing	Block offering	KCMV502	15
	Property Legal and Institutional Framework		QLFV502	15
	Credits Second Year			135
	Total Credits			210

18 DOCTOR OF TECHNOLOGY**18.1 DOCTOR OF TECHNOLOGY (ENGINEERING: ELECTRICAL) (RESEARCH):
FULL-TIME/PART-TIME
(QUALIFICATION CODE: 7350 – 01/21)
(NQF LEVEL: 10, TOTAL NQF CREDITS FOR QUALIFICATION: 120)
(NO NEW INTAKE)****ADMISSION REQUIREMENTS**

- Master of Technology: Engineering: Electrical or an equivalent qualification.
- A detailed CV must be presented in the case of equivalent qualifications.

Final year for admission

The final year for new admission into this programme was 2015.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2022.

APPLICABLE RULES**Qualification Objectives**

To enable students to attain an advanced level of research competence. The thesis produced by a student must provide proof of original and creative thinking and problem solving and make a real contribution to the solving of a particular problem in the industry to which their research applies.

Obtaining the qualification

See *General Rules for Master's and Doctoral Degrees* in the General Prospectus.

DURATION

The qualification shall extend over a minimum of two years or a maximum of six years of full-time or part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
	Compulsory module:			
	Thesis	Year	EDT6000	120

**18.2 DOCTOR OF TECHNOLOGY (ENGINEERING: MECHANICAL) (RESEARCH):
FULL-TIME/PART-TIME
(QUALIFICATION CODE: 7721 – 01/21)
(NQF LEVEL: 10, TOTAL NQF CREDITS FOR QUALIFICATION: 120)
(NO NEW INTAKE)**

ADMISSION REQUIREMENTS

Master of Technology: Engineering: Mechanical or an equivalent qualification.

Final year for admission

The final year for new admission into this programme was 2015.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2022.

APPLICABLE RULES

Qualification Objectives

To enable students to attain an advanced level of research competence. The thesis produced by a student must provide proof of original and creative thinking and problem-solving and make a real contribution to the solving of a particular problem in the industry to which their research applies.

Obtaining the qualification

See *General Rules for Master's and Doctoral Degrees* in the General Prospectus.

DURATION

The qualification shall extend over a minimum of two years or a maximum of six years of full-time or part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
	Compulsory module:			
	Thesis	Year	T772110	120

**18.3 DOCTOR OF TECHNOLOGY (OPERATIONS MANAGEMENT) (RESEARCH):
FULL-TIME/PART-TIME
(QUALIFICATION CODE: 7581 – 01/21)
(NQF LEVEL: 10, TOTAL NQF CREDITS FOR QUALIFICATION: 120)
(NO NEW INTAKE)**

ADMISSION REQUIREMENTS

Master of Technology: Operations Management or equivalent qualification.

Final year for admission

The final year for new admission into this programme was 2015.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2022.

APPLICABLE RULES

Qualification Objectives

To enable students to attain an advanced level of research competence. The dissertation produced by a student must provide proof of original and creative thinking and problem-solving and make a real contribution to the solving of the particular problem in the industry to which their research applies.

Obtaining the qualification

See *General Rules for Master's and Doctoral Degrees* in the General Prospectus.

DURATION

The qualification shall extend over a minimum of two years or a maximum of six years of full-time or part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
	Compulsory module:			
	Thesis	Year	MDT6000	120

19 DOCTOR OF ENGINEERING**19.1 DOCTOR OF ENGINEERING (RESEARCH): FULL-TIME/PART-TIME
(QUALIFICATION CODE: 76007 – 01/21)
(NQF LEVEL: 10, TOTAL NQF CREDITS FOR QUALIFICATION: 360)**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

ADMISSION REQUIREMENTS

- Master of Technology: Engineering: Electrical or an equivalent qualification.
- A detailed CV must be presented in the case of equivalent qualifications.

APPLICABLE RULES**Qualification Objectives**

To enable students to attain an advanced level of research competence. The thesis produced by a student must provide proof of original and creative thinking and problem solving and make a real contribution to the solving of a particular problem in the industry to which their research applies.

Obtaining the qualification

See *General Rules for Master's and Doctoral Degrees* in the General Prospectus.

DURATION

The qualification shall extend over a minimum of two years or a maximum of six years of full-time or part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
	Compulsory module:			
	Thesis	Year	EDT600	360

**19.2 DOCTOR OF ENGINEERING (RESEARCH): FULL-TIME/PART-TIME
(QUALIFICATION CODE: 76009 – 01/21)
(NQF LEVEL: 10, TOTAL NQF CREDITS FOR QUALIFICATION: 360)**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

ADMISSION REQUIREMENTS

Master of Technology: Engineering: Mechanical or Master of Engineering (Mechanical) (Research) or an equivalent qualification.

APPLICABLE RULES**Qualification Objectives**

To enable students to attain an advanced level of research competence. The thesis produced by a student must provide proof of original and creative thinking and problem-solving and make a real contribution to the solving of a particular problem in the industry to which their research applies.

Obtaining the qualification

See *General Rules for Master's and Doctoral Degrees* in the General Prospectus.

DURATION

The qualification shall extend over a minimum of two years or a maximum of six years of full-time or part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
	Compulsory module:			
	Thesis	Year	EMV600	360

20 DOCTOR OF PHILOSOPHY**20.1 DOCTOR OF PHILOSOPHY IN CONSTRUCTION ECONOMICS (RESEARCH):
FULL-TIME/PART-TIME
(QUALIFICATION CODE: 47201 – 01/21)
(NQF LEVEL: 10, TOTAL NQF CREDITS FOR QUALIFICATION: 240)
(NO NEW INTAKE)****ADMISSION REQUIREMENTS**

Candidates shall be admitted to the study for the qualification of Doctor of Philosophy in Construction Economics only if they hold the qualification of Bachelor of Science Honours in Quantity Surveying with seven years' appropriate postgraduate practical experience, or if they hold the qualification of Master of Science in Construction Economics, or if they hold a Master's qualification in a related discipline.

Final year for admission

The final year for new admission into this programme was 2015.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2022.

APPLICABLE RULES**Obtaining the qualification**

The qualification shall be obtained by complying with the requirements set out in the *General Rules for Master's and Doctoral Degrees*, or presenting a thesis which complies with the requirements set out in the *General Rules for Master's and Doctoral Degrees*, based on the candidates' research publications, work in practice and/or research work, which shows that they are authorities in their field.

Special examination arrangements

External examiners, who are recognised authorities in the specific field, shall be appointed by the Faculty Management Committee.

DURATION

The qualification shall extend over a minimum of two years or a maximum of six years of full-time or part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
	Compulsory module:			
	Thesis	Year	Q605	240

**20.2 DOCTOR OF PHILOSOPHY IN CONSTRUCTION ECONOMICS (RESEARCH):
FULL-TIME/PART-TIME
(QUALIFICATION CODE: 76004 – 01/21)
(NQF LEVEL: 10, TOTAL NQF CREDITS FOR QUALIFICATION: 360)**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

ADMISSION REQUIREMENTS

Candidates shall be admitted to the study for the qualification of Doctor of Philosophy in Construction Economics only if they hold the qualification of Bachelor of Science Honours in Quantity Surveying with seven years' appropriate postgraduate practical experience, or if they hold the qualification of Master of Science in Construction Economics, or if they hold a Master's qualification in a related discipline.

APPLICABLE RULES

Obtaining the qualification

The qualification shall be obtained by complying with the requirements set out in the *General Rules for Master's and Doctoral Degrees*, or presenting a thesis which complies with the requirements set out in the *General Rules for Master's and Doctoral Degrees*, based on the candidates' research publications, work in practice and/or research work, which shows that they are authorities in their field.

Special examination arrangements

External examiners, who are recognised authorities in the specific field, shall be appointed by the Faculty Management Committee.

DURATION

The qualification shall extend over a minimum of two years or a maximum of six years of full-time or part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
	Compulsory module:			
	Thesis	Year	QV600	360

**20.3 DOCTOR OF PHILOSOPHY IN CONSTRUCTION MANAGEMENT
(RESEARCH): FULL-TIME/PART-TIME
(QUALIFICATION CODE: 47700 – 01/21)
(NQF LEVEL: 10, TOTAL NQF CREDITS FOR QUALIFICATION: 240)
(NO NEW INTAKE)**

ADMISSION REQUIREMENTS

One of the following:

- BSchHons in Construction Management with seven years' appropriate postgraduate experience;
- MSc in Construction Management or a qualification deemed by Senate to be equivalent thereto;
- A Master's degree in a related discipline; or
- If they otherwise qualify for admission in the opinion of Senate; and
- Students shall be subject to a selection process as laid down by the department and approved at Faculty Management Committee, if completing an entrance essay.

Final year for admission

The final year for new admission into this programme was 2015.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2022.

APPLICABLE RULES

Special Examination Arrangements

External examiners, who are recognised authorities in the specific field, shall be appointed by the Faculty Management Committee.

Obtaining the qualification

The qualification shall be obtained by complying with the requirements set out in the *General Rules for Master's and Doctoral Degrees*, or presenting a thesis which complies with the requirements set out in the *General Rules for Master's and Doctoral Degrees*, based on the candidates' research publications, work in practice and/or research work, which shows that they are authorities in their field.

DURATION

The qualification shall extend over a minimum of two years of full-time or part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
	Compulsory module:			
	Thesis	Year	KRA605	240

**20.4 DOCTOR OF PHILOSOPHY IN CONSTRUCTION MANAGEMENT
(RESEARCH): FULL-TIME/PART-TIME
(QUALIFICATION CODE: 76003 – 01/21)
(NQF LEVEL: 10, TOTAL NQF CREDITS FOR QUALIFICATION: 360)**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

ADMISSION REQUIREMENTS

One of the following:

- BScHons in Construction Management with seven years' appropriate postgraduate experience;
- MSc in Construction Management or a qualification deemed by Senate to be equivalent thereto;
- A Master's degree in a related discipline; or
- If they otherwise qualify for admission in the opinion of Senate; and
- Students shall be subject to a selection process as laid down by the department and approved at Faculty Management Committee, if completing an entrance essay.

APPLICABLE RULES

Special Examination Arrangements

External examiners, who are recognised authorities in the specific field, shall be appointed by the Faculty Management Committee.

Obtaining the qualification

The qualification shall be obtained by complying with the requirements set out in the *General Rules for Master's and Doctoral Degrees*, or presenting a thesis which complies with the requirements set out in the *General Rules for Master's and Doctoral Degrees*, based on the candidates' research publications, work in practice and/or research work, which shows that they are authorities in their field.

DURATION

The qualification shall extend over a minimum of two years of full-time or part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
	Compulsory module:			
	Thesis	Year	KRAV600	360

**20.5 DOCTOR OF PHILOSOPHY IN ENGINEERING (MECHANICAL) (RESEARCH):
FULL-TIME/PART-TIME
(QUALIFICATION CODE: 76010 – 01/21)
(NQF LEVEL: 10, TOTAL NQF CREDITS FOR QUALIFICATION: 360)**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

ADMISSION REQUIREMENTS

A Mechanical Engineering qualification at the Master's level or a Master's qualification deemed by Senate to be equivalent thereto.

APPLICABLE RULES

Qualification Objectives

To enable students to attain an advanced level of research competence. The thesis produced by a student must provide proof of original and creative thinking and problem-solving and make a real contribution to the solving of a particular problem in the industry to which their research applies.

Obtaining the qualification

See *General Rules for Master's and Doctoral Degrees* in the General Prospectus.

DURATION

The qualification shall extend over a minimum of two years or a maximum of six years of full-time or part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
	Compulsory module:			
	Thesis	Year	EMM600	360

**20.6 DOCTOR OF PHILOSOPHY IN ENGINEERING (MECHATRONICS)
(RESEARCH): FULL-TIME/PART-TIME
(QUALIFICATION CODE: 76002 – 01/21)
(NQF LEVEL: 10, TOTAL NQF CREDITS FOR QUALIFICATION: 360)**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

ADMISSION REQUIREMENTS

- A Master's qualification in Engineering, or a Master's qualification deemed by Senate to be equivalent thereto.
- Students must have, in the opinion of Senate, attained through practical experience or otherwise a level of competence which is adequate for the purpose of studies for the degree of Doctor of Philosophy in Engineering (Mechatronics). Recognition of prior learning (RPL) may also be applied.

APPLICABLE RULES

Special Examination Arrangements

External examiners, who are recognised authorities in the specific field, shall be appointed by the Faculty Management Committee.

Obtaining the qualification

The qualification shall be obtained by complying with the requirements set out in the *General Rules for Master's and Doctoral Degrees*.

DURATION

The qualification shall extend over at least two years of study and a maximum period of six years.

CURRICULUM

		Presented	Module Code	Credit Value
	Compulsory module:			
	Thesis	Year	EMP600	360

**20.7 DOCTOR OF PHILOSOPHY IN INFORMATION TECHNOLOGY (RESEARCH):
FULL-TIME/PART-TIME
(QUALIFICATION CODE: 76001 – 01/21)
(NQF LEVEL: 10, TOTAL NQF CREDITS FOR QUALIFICATION: 240)
(NO NEW INTAKE)**

ADMISSION REQUIREMENTS

- Master of Technology: Information Technology with a pass mark of at least 65%.
- Alternatively a suitably equivalent qualification, which is subject to the discretion of the Faculty Management Committee.

AND

- Refer to the *General Rules for Master's and Doctoral Degrees* in the Nelson Mandela University General Prospectus.

Final year for admission

The final year for new admission into this programme was 2015.

Completion of qualification

The final year for all students to comply with all requirements for this qualification is 2022.

APPLICABLE RULES**Obtaining the qualification**

See *General Rules for Master's and Doctoral Degrees* in the General Prospectus.

DURATION

The qualification shall extend over a minimum of two years or a maximum of six years of full-time or part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
	Compulsory module:			
	Thesis	Year	IT600	240

**20.8 DOCTOR OF PHILOSOPHY IN INFORMATION TECHNOLOGY (RESEARCH):
FULL-TIME/PART-TIME
(QUALIFICATION CODE: 76005 – 01/21)
(NQF LEVEL: 10, TOTAL NQF CREDITS FOR QUALIFICATION: 360)**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

ADMISSION REQUIREMENTS

- Master of Technology: Information Technology with a pass mark of at least 65%.
- Alternatively a suitably equivalent qualification, which is subject to the discretion of the Faculty Management Committee.

AND

- Refer to the *General Rules for Master's and Doctoral Degrees* in the Nelson Mandela University General Prospectus.

APPLICABLE RULES

Obtaining the qualification

See *General Rules for Master's and Doctoral Degrees* in the General Prospectus.

DURATION

The qualification shall extend over a minimum of two years or a maximum of six years of full-time or part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
	Compulsory module:			
	Thesis	Year	ITV600	360

**20.9 DOCTOR OF PHILOSOPHY (OPERATIONS MANAGEMENT) (RESEARCH):
FULL-TIME/PART-TIME
(QUALIFICATION CODE: 76008 – 01/21)
(NQF LEVEL: 10, TOTAL NQF CREDITS FOR QUALIFICATION: 360)**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

ADMISSION REQUIREMENTS

Master of Technology: Operations Management or equivalent qualification.

APPLICABLE RULES

Qualification Objectives

To enable students to attain an advanced level of research competence. The dissertation produced by a student must provide proof of original and creative thinking and problem-solving and make a real contribution to the solving of the particular problem in the industry to which their research applies.

Obtaining the qualification

See *General Rules for Master's and Doctoral Degrees* in the General Prospectus.

DURATION

The qualification shall extend over a minimum of two years or a maximum of six years of full-time or part-time study.

CURRICULUM

		Presented	Module Code	Credit Value
	Compulsory module:			
	Thesis	Year	MDT600	360

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