

Bachelor of Engineering

These Program Rules should be read in conjunction with the University's policies (<http://www.adelaide.edu.au/policies>).

1 General

The degree of Bachelor of Engineering may be awarded in the Pass or Honours grade. The award of the Honours grade shall be made for meritorious performance in the program with greatest weight given to performance in the later years.

The Honours grade may be awarded in one of the following classifications: First Class, Second Class Division A, Second Class Division B.

2 Duration of program

The program shall extend over four years of full-time study. Details of these programs are set out in 6.5.1- 6.5.19 below.

3 Admission

3.1 Transfers between programs

The Faculty of Engineering, Computer and Mathematical Sciences may permit a student to transfer with credit from one Engineering program to another. A student may also be permitted to transfer from other programs (offered by the University or another institution) to an Engineering program. Prospective transfer students should first consult the Faculty.

The Faculty has developed a transfer credit scheme between certain Technical and Further Education (TAFE) programs and the Bachelor of Engineering program. Applications for credit transfer from TAFE programs can be made to the Faculty upon admission.

4 Enrolment

4.1 Approval of program of study

During the enrolment period before the beginning of each academic year, students who are so directed must obtain the approval of the Dean or nominee of the Faculty of Engineering, Computer and Mathematical Sciences to enrol for the courses they wish to study. The Dean or nominee, in exceptional circumstances, may approve minor variations to the course completion requirements of individual students.

4.2 Unless exempted, all international students are required to undertake a specialist course ENG 3003 Engineering Communication EAL. The course provides language development in English as a second language for the purposes of oral and written communication in the context of the study of Engineering. Students normally undertake this course in their first semester of study. This course is substituted in lieu of another course in the program and students must seek advice from the Faculty on this substitution.

4.3 Except with the permission of the Faculty, students who have either completed or partially completed a Bachelor of Engineering from the University—or from another institution that is accepted by the Faculty as equivalent—will be required to complete courses from section 6 of these Academic Program Rules with a minimum aggregate units value of 36, including Level III courses with an aggregate units value of at least 6, and Level IV courses with an aggregate units value of at least 18.

5 Assessment and examinations

i A student shall not be eligible to attend for examination unless the prescribed work has been completed to the satisfaction of the teaching staff concerned. A student who is not eligible to attend for examination shall be deemed to have failed the examination.

ii In determining a student's final result in a course (or part of a course) the examiners may take into account oral, written, practical and examination work, provided that the student has been given adequate notice of the way in which work will be taken into account and of its relative importance in the final result.

iii There shall be four classifications of pass at an annual examination in any course for the degree, as follows: Pass with High Distinction, Pass with Distinction, Pass with Credit, Pass.

iv A student who fails to pass in any course shall again complete the required work in that course to the satisfaction of the teaching staff concerned, unless exempted by the Faculty.

v A student who has twice failed to pass the examination in any course or division of a course may not present again for instruction or examination therein unless the student's plan of study is approved by the Dean or nominee. For the purpose of this Rule a student who is refused permission to sit for examination in any course or division of a course shall be deemed to have failed to pass the examination.

6 Qualification requirements

6.1 General

- i A student shall regularly attend lectures and do written, laboratory, and other practical work (where such is required), and pass examinations in the courses prescribed for one of the following Engineering programs:
 - a (Architectural)
 - b (Chemical - with the option of specialising in Minerals Processing or Sustainable Energy)
 - c (Civil and Environmental)
 - d (Civil and Structural)
 - e (Computational)
 - f (Computer Systems)
 - g (Electrical and Electronic – with the option of specialising in Avionics)
 - h (Electrical and Sustainable Energy)
 - i (Mechanical)
 - j (Mechanical and Aerospace)
 - k (Mechanical and Automotive)
 - l (Mechanical and Sports)
 - m (Mechanical and Sustainable Energy)
 - n (Mechatronic)
 - o (Mining)
 - p (Petroleum)
 - q (Pharmaceutical)
 - r (Software)
 - s (Telecommunications)
- ii Before being admitted to the degree a student shall also submit satisfactory evidence of completion of a period of practical experience in work approved by the Faculty as appropriate to the program that the student has followed.

6.2 Level I Mathematics requirements

Students who have undertaken SACE Stage 2 Specialist Mathematics (or equivalent) will be required to enrol in Mathematics IA followed by Mathematics IB. Students who have not undertaken SACE Stage 2 Specialist Mathematics will be required to enrol in Mathematics IM, followed by Mathematics IA with Mathematics IB taken in Summer Semester to complete the Mathematics requirements at Level I. The satisfactory completion of Mathematics IM is in addition to the normal requirements of the Bachelor of Engineering.

6.3 Practical experience

i General

For all engineering programs, a total of twelve weeks' practical experience (of which a minimum 6 weeks should be under the supervision of a professional engineer) is required and this should be undertaken during the University vacations and normally completed before beginning the work of Level IV of the program.

The Faculty may grant either partial or total exemption from these requirements to a student who produces satisfactory evidence of practical experience obtained before their first enrolment in the Faculty; and in special cases, the Faculty may grant dispensation from the requirements.

Credit will not normally be given for periods of less than three consecutive weeks.

A student should seek a variety of practical experience appropriate to the student's academic level.

Before beginning a period of practical experience, a student may ensure that it will be satisfactory to the Faculty by consulting the Head of the School or nominee, concerned.

Upon completion of each period of practical experience, a student is required to submit a prescribed practical experience form to the Faculty for approval. This submission must include a statement of practical experience gained and must be certified by the employer.

ii Mechanical, Mechanical and Aerospace, Mechanical and Automotive, Mechanical and Sports, Mechatronic

Students must complete Workshop Practice, which will normally occupy a one-week period during a semester break. On satisfactory completion of this component of Mechatronics IM or Sports Engineering I, students will be automatically credited with one-week engineering experience towards the 12-week work experience requirement.

6.4 Combined programs and double degree programs

Students may enhance their engineering qualification by combining studies in Engineering with studies in other Schools or Faculties. The current options are:

6.4.1 Bachelor of Engineering and Bachelor of Laws - B.E./LL.B

Students in Computer Systems, Electrical and Electronic, Mechanical, and Telecommunications Engineering programs may elect to complete both the Bachelor of Engineering and Bachelor of Laws degrees, provided they are accepted into the LL.B program. Students wishing to pursue this program of study may apply for admission through the South Australian Tertiary Admissions Centre.

For further details, see the relevant Law studies within the B.E. program under Sections 6.5 of these Academic Program Rules.

6.4.2 Bachelor of Engineering and Bachelor of Science - B.E./B.Sc.

6.4.2.1 Direct Entry

i Students may enrol directly in a program of study leading, after five years of full-time study (or six years in the case of BE(Mechanical and Aerospace)/BSc) (or the part time equivalent thereof), to the award of both the degree of Bachelor of Engineering and the degree of Bachelor of Science in the Faculty of Sciences. The following options are available:

B.E. (Chemical)/B.Sc.

B.E. (Civil and Environmental)/B.Sc.

B.E. (Civil and Structural)/B.Sc.

B.E. (Mechanical)/B.Sc.

B.E. (Mechanical and Aerospace)/B.Sc.

B.E. (Mining)/B.Sc.

ii Students enrolled in one of these programs are required to complete satisfactorily the Engineering and Science components described within the relevant sections of these Rules.

6.4.2.2 Direct Entry B.E.(Elec.)/B.Sc.(Physics)

Students may enrol directly in a program of study leading, after five years of full-time study (or the part-time equivalent) to the combined award of Bachelor of Engineering (Electrical and Electronic) and Bachelor of Science.

To qualify for the combined award, students are required to complete satisfactorily the Engineering and Science components described within the relevant section of these Rules.

6.4.2.3 Direct Entry B.E.(Chem)/B.Sc.(Biotech)

Students may enrol directly in a program of study leading, after five years of full-time study (or the part-time equivalent) to the award of both the degrees of Bachelor of Engineering (Chemical) and Bachelor of Science (Biotechnology).

To qualify for the double awards, students are required to complete satisfactorily the Engineering and Science components described within the relevant section of these Rules.

6.4.2.4 Direct Entry B.E.(Petroleum)/B.Sc (Geology and Geophysics)

Students may enrol directly in a program of study leading, after five years of full-time study (or the part-time equivalent) to the combined award of Bachelor of Engineering (Petroleum) and Bachelor of Science.

To qualify for the combined award, students are required to complete satisfactorily the Engineering and Science components described within the relevant section of these Rules.

6.4.3 Bachelor of Engineering and Bachelor of Mathematical and Computer Sciences - B.E./B.Ma.& Comp.Sc.

6.4.3.1 Students may enrol directly in a program of study leading, after five years of full-time study (or the part time equivalent thereof), to the award of both the degree of Bachelor of Engineering and the degree of Bachelor of Mathematical and Computer Sciences. The following options are available:

B.E.(Chemical)/B.Ma. & Comp.Sc.

B.E.(Civil and Environmental)/B.Ma. & Comp.Sc.

B.E.(Civil and Structural)/B.Ma. & Comp.Sc.

B.E.(Computer Systems)/B.Ma. & Comp.Sc.

B.E.(Electrical and Electronic)/B.Ma. & Comp.Sc.

B.E.(Mechanical)/B.Ma. & Comp.Sc.

B.E.(Mechanical and Aerospace)/B.Ma. & Comp.Sc.

B.E.(Mechanical and Automotive)/B.Ma. & Comp.Sc.

B.E.(Mechatronic)/B.Ma. & Comp.Sc.

B.E.(Mining)/B.Ma. & Comp.Sc.

B.E.(Telecommunications)/B.Ma. & Comp.Sc.

To qualify for these awards, students are required to complete satisfactorily the Engineering, and Mathematical and Computer Sciences components described within the relevant section of these Rules.

Students who commence this program, but who subsequently decide that they do not wish to proceed in both areas of study, may transfer their enrolment to the single B.E. or B.Ma. & Comp.Sc. program with appropriate credit for courses completed.

6.4.3.2 Later Year Entry

Engineering students may intermit their Engineering studies for a year to undertake additional studies in Mathematical and Computer Sciences in order to qualify for the degree of B.Ma.&Comp.Sc.

6.4.4 Bachelor of Engineering and Bachelor of Arts - B.E./B.A.

i The combined award is available in Chemical, Civil and Environmental, Civil and Structural, Computer Systems, Electrical and Electronic, Mechanical, Mechatronic and Telecommunications Engineering. Students may qualify for the combined award after five years of full-time study in which the requirements of the degrees of B.E. and B.A. have been merged. In some cases, students may need to take an overload to complete the program in five years.

ii Students who commence this program but who subsequently decide that they do not wish to proceed in both areas of study may transfer their enrolment to the single B.E. or the B.A. program, with appropriate credit for courses completed.

iii Students may transfer into the combined program after partially completing the requirements of either the B.E. or the B.A. program. This may, however, affect the total time taken to complete the combined program. Students should consult the Faculty to discuss their proposed program of studies.

iv Status

On application to the Faculty, students may be granted transfer credit for studies completed at the University or another approved institution. In the case of studies completed at another approved institution, credit transfer in Humanities and Social Sciences courses will normally only be granted in respect of studies valued at a maximum of 6 units, and normally not including studies towards the major.

v Program of Studies

The details of a student's program will depend upon the Engineering elective and the Humanities and Social Sciences courses chosen. The order in which courses are taken will need to take into consideration any prerequisite requirements and students will need to discuss their program of studies with the relevant Faculty.

To qualify for the combined award, students are required to complete satisfactorily the Engineering and Arts components described within the relevant section of these Rules.

vi Honours

In the Engineering component, Honours are awarded for meritorious performance in the program (taken over the Engineering courses only). In the Arts component, the award of Honours requires one further year of study devoted exclusively to the Honours program.

6.4.5 Bachelor of Engineering and Bachelor of Economics - B.E./B.Ec.

i Students may enrol directly in a program of study leading, after five years of full-time study (or the part-time equivalent), to the award of both the degree of Bachelor of Engineering and the degree of Bachelor of Economics. The following options are available:

B.E.(Chemical)/B.Ec.

B.E.(Civil and Environmental)/B.Ec.

B.E.(Civil and Structural)/B.Ec.

B.E.(Computer Systems)/B.Ec.

B.E.(Electrical and Electronic)/B.Ec.

B.E.(Mechanical)/B.Ec.

B.E.(Telecommunications)/B.Ec.

ii To qualify for the double award, students are required to complete satisfactorily the Engineering and Economics components described within the relevant section of these Rules.

6.4.6 Bachelor of Engineering and Bachelor of Finance - B.E./B.Fin.

i Students may enrol directly in a program of study leading, after five years of full-time study (or the part-time equivalent), to the award of both the degree of Bachelor of Engineering and the degree of Bachelor of Finance. The following options are available:

B.E.(Chemical)/B.Fin.

B.E.(Civil and Environmental)/B.Fin.

B.E.(Civil and Structural)/B.Fin.

B.E.(Computer Systems)/B.Fin.

B.E.(Electrical and Electronic)/B.Fin.

B.E.(Mechanical)/B.Fin.

B.E.(Telecommunications)/B.Fin.

- ii To qualify for the double awards, students are required to complete satisfactorily the Engineering and Finance components described within the relevant section of these Rules.

6.4.7. Combined Engineering Degrees

The following options are available:

B.E.(Civil and Structural)/B.E.(Civil and Environmental)

B.E.(Petroleum)/B.E.(Chemical)

B.E.(Petroleum)/B.E.(Civil and Structural)

B.E.(Petroleum)/B.E.(Mechanical)

B.E.(Petroleum)/B.E.(Mining)

Students may enrol directly in a program of study leading, after five years of full-time study (or the part-time equivalent) to the combined award of the degrees. To qualify for the combined award, students are required to complete satisfactorily the Engineering components described within the relevant section of these Rules.

6.5 Academic programs

6.5.1 Architectural Engineering

6.5.1.1 B.E.(Architectural)

Students are required to complete satisfactorily courses to the value of 24 units at each of Levels I, II, III and IV:

Level I

C&ENVENG 1010 Engineering Mechanics - Statics	3
C&ENVENG 1012 Engineering Modelling & Analysis IA	3
C&ENVENG 1013 Introduction to Architectural Engineering.....	3
DESST 1504 Representation 1	3
DESST 1506 Design Studio 2	6
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3

*See Clause 6.2 regarding Level I Mathematics requirements.

Level II

C&ENVENG 2025 Strength of Materials IIA.....	3
C&ENVENG 2069 Geotechnical Engineering IIA	3
C&ENVENG 2070 Engineering Modelling & Analysis IIA	3
C&ENVENG 2072 Structural Engineering Design	3
DESST 1508 Environment 1	3
DESST 2518 Construction 2	3
MATHS 2201 Engineering Mathematics I	3
MECH ENG 2021 Thermo-Fluids I	3

Level III

C&ENVENG 3001 Structural Mechanics IIIA.....	3
C&ENVENG 3005 Structural Design III (Concrete)	3
C&ENVENG 3007 Structural Design III (Steel)	3
C&ENVENG 3012 Geotechnical Engineering Design III	3
C&ENVENG 3078 Engineering Management & Planning IIIA.....	3
MECH ENG 3102 Heat Transfer & Thermodynamics	3
DEST 2517 Environment 2.....	3
DEST 3511 Sustainable Commercial Building Design.....	3

Level IV

C&ENVENG 4003A/B Civil & Structural Research Project Part 1 & 2	6
C&ENVENG 4034 Engineering Management IV	3
MECH ENG 4107 Air-Conditioning	3
C&ENVENG 4068 Computer Methods of Structural Analysis & Design	3
Elective courses ^	9

^ Students who are not selected for Honours will be required to complete two additional final year elective courses instead of the Architectural Engineering Research Project.

Electives

Students may also, with the approval of the Head of School, replace one or more elective courses with appropriate courses offered by other schools in the University.

The elective courses offered by the School in any one year will depend on staff availability, and will be chosen from the following:

Structural Engineering

C&ENVENG 4069 Advanced Reinforced Concrete	3
C&ENVENG 4070 Seismic Design of Masonry Buildings.....	3
C&ENVENG 4107 Prestressed Concrete Structures.....	3
C&ENVENG 4111 Structural Dynamics and Applications.....	3
C&ENVENG 4099 Structural Response to Blast Loading	3

Geotechnical/Mining Engineering

C&ENVENG 4106 Introduction to Geostatistics	3
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Alternatively, students may substitute up to 3 units of Level II or III courses offered by the School of Mathematics.

6.5.2 Chemical Engineering

6.5.2.1 B.E.(Chemical)

Students are required to complete satisfactorily courses to the value of 24 units at each of Levels I, II, III and IV.

Level I

CHEM ENG 1007 Process Engineering I	3
CHEM ENG 1011 Introduction to Process Modelling	3
CHEM ENG 1010 Professional Practice I	3
CHEM 1100 Chemistry IA ⁺	3
<i>and</i>	
CHEM 1200 Chemistry IB ⁺	3
<i>or</i>	
CHEM 1101 Foundations of Chemistry IA ⁺	3
<i>and</i>	
CHEM 1201 Foundations of Chemistry IB ⁺	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
BIOLOGY 1101 Biology 1: Molecules, Genes and Cells	3
<i>or</i>	
GEOLOGY 1103 Earth Systems 1	3
<i>or</i>	
GEOLOGY 1104 Geology for Engineers 1	3

⁺ Students with a Subject Achievement score of at least 13 in SACE Stage 2 Chemistry or equivalent must enrol in CHEM 1100/1200. All other students must enrol in CHEM 1101/1201.

Level II

CHEM 2530 Environmental & Analytical Chemistry II.....	3
<i>or</i>	
CHEM 2510 Chemistry IIA ⁺⁺	3
CHEM ENG 2010 Introduction to Process Simulation	3
CHEM ENG 2011 Chemical Engineering Thermodynamics	3
CHEM ENG 2013 Advanced Process Modelling	3
CHEM ENG 2014 Process Heat Transfer	3
CHEM ENG 2016 Professional Practice II	3
CHEM ENG 2018 Process Fluid Mechanics.....	3
MATHS 2201 Engineering Mathematics I	3

++CHEM 2510 Chemistry IIA requires either passes in both CHEM 1100 & CHEM 1200 or credits in both CHEM 1101 & CHEM 1201 as prerequisites.

Level III

CHEM ENG 3036 Unit Operations Laboratory	3
CHEM ENG 3024 Professional Practice III	3
CHEM ENG 3029 Materials III	3
CHEM ENG 3030 Simulation & Concept Design	3
CHEM ENG 3031 Process Control & Utilities.....	3
CHEM ENG 3033 Chemical Engineering Applications C	3
CHEM ENG 3034 Chemical Engineering Applications B	3
CHEM ENG 3035 Chemical Engineering Applications A	3

Level IV

CHEM ENG 4014 Plant Design Project	6
CHEM ENG 4034 Professional Practice IV	3
CHEM ENG 4050 Chemical Engineering Applications D	3
CHEM ENG 4056 Research Practice	3
CHEM ENG 4055 Advanced Unit Operations Laboratory	3
<i>or</i>	
CHEM ENG 4054 Research Project (H)#	3
Electives	6

*Students accepted into the Honours Stream will take Research Project(H) and other students will take Advanced Unit Operations Laboratory

Electives

CHEM ENG 4043 Special Studies in Chemical Engineering	3
CHEM ENG 4040 Chemical Engineering Research Elective	3
CHEM ENG 4044 Minerals Processing	3
CHEM ENG 4046 Combustion Processes	3
CHEM ENG 4032 Composite & Multiphase Polymers.....	3
CHEM ENG 4039 Environmental Engineering	3
CHEM ENG 4045 Introduction to Nanotechnology.....	3
CHEM ENG 4048 Bio-Fuels, Biomass & Wastes.....	3
CHEM ENG 4049 Biomolecular Engineering.....	3
CHEM ENG 4051 Water & Wastewater Engineering	3
CHEM ENG 4052 Food Process Engineering	3
CHEM ENG 4053 Pinch Analysis & Process Synthesis	3

6.5.2.2 B.E.(Chemical – Minerals Processing)

Level I

CHEM 1100 Chemistry IA ⁺	3
<i>and</i>	
CHEM 1200 Chemistry IB ⁺	3
<i>or</i>	
CHEM 1101 Foundations of Chemistry IA ⁺	3
<i>and</i>	
CHEM 1201 Foundations of Chemistry IB ⁺	3
GEOLOGY 1000 Geology for Engineers.....	3
CHEM ENG 1007 Process Engineering I	3
CHEM ENG 1010 Professional Practice 1	3
CHEM ENG 1011 Introduction to Process Modelling	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3

+Students with a Subject Achievement score of at least 13 in SACE Stage 2 Chemistry or equivalent must enrol in CHEM 1100/1200. All other students must enrol in CHEM 1101/1201.

Level II

CHEM 2530 Environmental & Analytical Chemistry II	3
<i>or</i>	
CHEM 2510 Chemistry IIA ⁺⁺	3
CHEM ENG 2019 Introduction to Minerals Processing.....	3
CHEM ENG 2010 Introduction to Process Simulation	3
CHEM ENG 2014 Process Heat Transfer	3
CHEM ENG 2018 Process Fluid Mechanics.....	3
CHEM ENG 2016 Professional Practice II	3
CHEM ENG 2011 Chemical Engineering Thermodynamics	3
MATHS 2201 Engineering Mathematics I	3

⁺⁺CHEM 2510 Chemistry IIA requires either passes in both CHEM 1100 & CHEM 1200 or credits in both CHEM 1101 & CHEM 1201 as prerequisites.

Level III

CHEM ENG3036 Unit Operations Laboratory	3
CHEM ENG 3024 Professional Practice III	3
CHEM ENG 3029 Materials III	3
CHEM ENG 3030 Simulation & Concept Design	3
CHEM ENG 3031 Process Control & Utilities.....	3
CHEM ENG 3033 Chemical Engineering Applications C	3
CHEM ENG 3034 Chemical Engineering Applications B	3
CHEM ENG 3035 Chemical Engineering Applications A	3

Level IV (indicative only)

CHEM ENG 4034 Professional Practice IV.....	3
Pyrometallurgy.....	3
CHEM ENG 4056 Research Practice	3
Hydro & Electro Metallurgy.....	3
CHEM ENG 4054 Research Project H#	3
<i>or</i>	
CHEM ENG 4055 Advanced Unit Operations Laboratory	3

Minerals Processing Design Project.....	6
Electives	3

*Students accepted into the Honours Stream will take Research Project(H) and other students will take Advanced Unit Operations Laboratory

Electives

CHEM ENG 4048 Bio-Fuels, Biomass & Wastes.....	3
CHEM ENG 4040 Chemical Engineering Research Elective	3
CHEM ENG 4046 Combustion Processes	3
CHEM ENG 4039 Environmental Engineering	3
CHEM ENG 4043 Special Studies in Chemical Engineering.....	3
CHEM ENG 4032 Composite & Multiphase Polymers.....	3
CHEM ENG 4045 Introduction to Nanotechnology.....	3
CHEM ENG 4049 Biomolecular Engineering.....	3
CHEM ENG 4051 Water and Wastewater Engineering	3
CHEM ENG 4052 Food Process Engineering	3
CHEM ENG 4053 Pinch Analysis & Process Synthesis	3

6.5.2.3 B.E.(Chemical – Sustainable Energy)

Level I

CHEM ENG 1007 Process Engineering I	3
CHEM ENG1011 Introduction to Process Modelling	3
CHEM ENG 1010 Professional Practice I	3

CHEM 1100 Chemistry IA ⁺	3
<i>and</i>	

CHEM 1200 Chemistry IB ⁺	3
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or

CHEM 1101 Foundations of Chemistry IA ⁺	3
<i>and</i>	
CHEM 1201 Foundations of Chemistry IB ⁺	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
GEOLOGY 1103 Earth Systems	3
<i>or</i>	
GEOLOGY 1104 Geology for Engineers.....	3
+ Students with a Subject Achievement score of at least 13 in SACE Stage 2 Chemistry or equivalent must enrol in CHEM 1100/1200. All other students must enrol in CHEM 1101/1201.	
Level II	
CHEM ENG 2010 Introduction to Process Simulation	3
CHEM ENG 2011 Chemical Engineering Thermodynamics	3
CHEM ENG 2013 Advanced Process Modelling	3
CHEM ENG 2014 Process Heat Transfer	3
CHEM ENG 2016 Professional Practice II	3
CHEM ENG 2018 Process Fluid Mechanics.....	3
MATHS 2201 Engineering Mathematics I	3
MECH ENG 3105 Sustainability & the Environment.....	3
Level III	
CHEM ENG3036 Unit Operations Laboratory	3
CHEM ENG 3024 Professional Practice III	3
CHEM ENG 3029 Materials III	3
CHEM ENG 3030 Simulation & Concept Design	3
CHEM ENG 3031 Process Control & Utilities.....	3
CHEM ENG 3033 Chemical Engineering Applications C	3
CHEM ENG 3034 Chemical Engineering Applications B	3
CHEM ENG 3035 Chemical Engineering Applications A	3
Level IV	
CHEM ENG 4034 Professional Practice IV.....	3
CHEM ENG 4048 Bio-Fuels, Biomass & Wastes.....	3
CHEM ENG 4014 Plant Design Project	6
CHEM ENG 4055 Advanced Unit Operations Laboratory	3
<i>or</i>	
CHEM ENG 4054 Research Project H [#]	3
CHEM ENG 4053 Pinch Analysis & Process Synthesis	3
CHEM ENG 4056 Research Practice.....	3
TECHCOMM 3006 Energy Management, Economics & Policy.....	3

[#]Students accepted into the Honours Stream will take Research Project (H) and other students will take Advanced Unit Operations Laboratory

6.5.2.4 B.E.(Chemical)/B.A.

To satisfy the Arts component of this program, students must undertake 30 units of Arts courses, which includes an approved major sequence (24 units). The remaining 6 units can be undertaken at any level. Students should consult the Bachelor of Arts academic program rules for the list of approved major sequences and the specific requirements of each.

To satisfy the BE (Chemical) component of this program students are required to satisfactorily complete the courses listed below:

Level I

CHEM 1100 Chemistry IA ⁺	3
<i>and</i>	
CHEM 1200 Chemistry IB ⁺	3
<i>or</i>	
CHEM 1101 Foundations of Chemistry IA ⁺	3
<i>and</i>	
CHEM 1201 Foundations of Chemistry IB ⁺	3

CHEM ENG 1007 Process Engineering I	3
CHEM ENG 1011 Introduction to Process Modelling	3
CHEM ENG 1010 Professional Practice I	3
MATHS 1011 Mathematics IA*	3
MATHS 1012 Mathematics IB*	3
MATHS 1013 Mathematics IM*	3
BIOLOGY 1101 Biology 1: Molecules, Genes and Cells	3
or	
GEOLOGY 1103 Earth Systems	3
or	
GEOLOGY 1104 Geology for Engineers	3
+ Students with a Subject Achievement score of at least 13 in SACE Stage 2 Chemistry or equivalent must enrol in CHEM 1100 /1200. All other students must enrol in CHEM 1101/1201.	
*See Clause 6.2 regarding Level I Mathematics requirements.	
Level II	
CHEM ENG 2010 Introduction to Process Simulation	3
CHEM ENG 2011 Chemical Engineering Thermodynamics	3
CHEM ENG 2013 Advanced Process Modelling	3
CHEM ENG 2014 Process Heat Transfer	3
CHEM ENG 2016 Professional Practice II	3
CHEM ENG 2018 Process Fluid Mechanics.....	3
MATHS 2201 Engineering Mathematics I	3
Arts Course	3
Level III	
CHEM ENG 3036 Unit Operations Laboratory	3
CHEM ENG 3024 Professional Practice III	3
CHEM ENG 3029 Materials III	3
CHEM ENG 3030 Simulation & Concept Design	3
CHEM ENG 3031 Process Control & Utilities.....	3
CHEM ENG 3033 Chemical Engineering Applications C	3
CHEM ENG 3034 Chemical Engineering Applications B	3
CHEM ENG 3035 Chemical Engineering Applications A	3
Level IV	
CHEM ENG 4056 Research Practice	6
CHEM ENG 4034 Professional Practice IV.....	3
CHEM ENG 4055 Advanced Unit Operations Laboratory	3
or	
CHEM ENG 4054 Research Project (H)#	3
CHEM ENG 4050 Chemical Engineering Applications D	3
Arts course	3
Chemical Engineering Elective course.....	3
#Students accepted into the Honours Stream will take Research Project (H) and other students will take Advanced Unit Operations laboratory	
Electives	
CHEM ENG 4043 Special Studies in Chemical Engineering.....	3
CHEM ENG 4040 Chemical Engineering Research Elective	3
CHEM ENG 4044 Minerals Processing	3
CHEM ENG 4046 Combustion Processes	3
CHEM ENG 4032 Composite & Multiphase Polymers.....	3
CHEM ENG 4039 Environmental Engineering	3
CHEM ENG 4045 Introduction to Nanotechnology.....	3
CHEM ENG 4048 Bio-Fuels, Biomass & Wastes.....	3
CHEM ENG 4049 Biomolecular Engineering.....	3

CHEM ENG 4053 Pinch Analysis & Process Synthesis	3
CHEM ENG 4052 Food Process Engineering	3
CHEM ENG 4051 Water & Wastewater Engineering	3
Level V	
Advanced Level Arts courses	24

6.5.2.5 B.E.(Chemical)/B.Ec.

To qualify for both the award of the degree of B.E.(Chemical) and the degree of B.Ec., students are required to complete satisfactorily courses as indicated below:

Level I

CHEM 1100 Chemistry IA ⁺	3
<i>and</i>	
CHEM 1200 Chemistry IB ⁺	3
<i>or</i>	
CHEM 1101 Foundations of Chemistry IA ⁺	3
<i>and</i>	
CHEM 1201 Foundations of Chemistry IB ⁺	3
CHEM ENG 1007 Process Engineering I	3
CHEM ENG 1011 Introduction to Process Modelling	3
CHEM ENG 1010 Professional Practice I	3
ECON 1004 Principles of Microeconomics 1	3
MATHS 1011 Mathematics IA *	3
MATHS 1012 Mathematics IB*	3
MATHS 1013 Mathematics IM*	3

⁺Students with a Subject Achievement score of at least 13 in SACE Stage 2 Chemistry or equivalent must enrol in CHEM 1100 /1200. All other students must enrol in CHEM 1101/1201.

*See Clause 6.2 regarding Level I Mathematics requirements

Level II

CHEM ENG 2010 Introduction to Process Simulation	3
CHEM ENG 2011 Chemical Engineering Thermodynamics	3
CHEM ENG 2014 Process Heat Transfer	3
CHEM ENG 2016 Professional Practice II	3
CHEM ENG 2018 Process Fluid Mechanics.....	3
ECON 1000 Principles of Macroeconomics I	3
ECON 2507 Intermediate Macroeconomics II	3
MATHS 2201 Engineering Mathematics I	3

Level III

CHEM ENG3036 Unit Operations laboratory	3
CHEM ENG 3024 Professional Practice III	3
CHEM ENG 3029 Materials III	3
CHEM ENG 3030 Simulation & Concept Design	3
CHEM ENG 3031 Process Control & Utilities.....	3
CHEM ENG 3033 Chemical Engineering Applications C	3
CHEM ENG 3034 Chemical Engineering Applications B	3
CHEM ENG 3035 Chemical Engineering Applications A	3

Level IV

COMMGMGT 2500 Organisational Behaviour II.....	3
ECON 2504 Intermediate Econometrics II.....	3
<i>or</i>	
ECON 2503 Intermediate Mathematical Economics II	3
ECON 2506 Intermediate Microeconomics A II	3
CHEM ENG 4034 Professional Practice IV.....	3
CHEM ENG 4056 Research Practice.3	
CHEM ENG 4055 Advanced Unit Operations Laboratory	3

<i>or</i>	
CHEM ENG 4054 Research Project (H) [#]	3
CHEM ENG 4050 Chemical Engineering Applications D	3
Chemical Engineering Elective	3
[#] Students accepted into the Honours Stream will take Research Project(H) and other students will take Advanced Unit Operations Laboratory	
Level V	
CHEM ENG 4014 Plant Design Project	6
Level III Economics courses	18
Electives	
CHEM ENG 4043 Special Studies in Chemical Engineering	3
CHEM ENG 4040 Chemical Engineering Research Elective	3
CHEM ENG 4044 Minerals Processing	3
CHEM ENG 4046 Combustion Processes	3
CHEM ENG 4032 Composite & Multiphase Polymers.....	3
CHEM ENG 4039 Environmental Engineering	3
CHEM ENG 4045 Introduction to Nanotechnology.....	3
CHEM ENG 4048 Bio-Fuels, Biomass & Wastes.....	3
CHEM ENG 4049 Biomolecular Engineering.....	3
CHEM ENG 4054 Pinch Analysis & Process Synthesis	3
CHEM ENG 4052 Food Process Engineering	3
CHEM ENG 4051 Water and Wastewater Engineering	3

6.5.2.6 B.E.(Chemical)/B.Fin.

To qualify for both the award of the degree of B.E.(Chemical) and the degree of B.Fin, students are required to complete satisfactorily courses as indicated below:

Level I	
CHEM 1100 Chemistry IA ⁺	3
<i>and</i>	
CHEM 1200 Chemistry IB ⁺	3
<i>or</i>	
CHEM 1101 Foundations of Chemistry IA ⁺	3
<i>and</i>	
CHEM 1201 Foundations of Chemistry IB ⁺	3
CHEM ENG 1007 Process Engineering I	3
CHEM ENG1011 Introduction to Process Modelling	3
CHEM ENG 1010 Professional Practice I	3
ACCTING 1002 Accounting for Decision Makers.....	3
MATHS 1011 Mathematics IA*	3
MATHS 1012 Mathematics IB*	3
MATHS 1013 Mathematics IM*	3

⁺Students with a Subject Achievement score of at least 13 in SACE Stage 2 Chemistry or equivalent must enrol in CHEM 1100 /1200. All other students must enrol in CHEM 1101/1201.

*See Clause 6.2 regarding Level I Mathematics requirements.

Level II	
CHEM ENG 2010 Introduction to Process Simulation	3
CHEM ENG 2011 Chemical Engineering Thermodynamics	3
CHEM ENG 2014 Process Heat Transfer	3
CHEM ENG 2016 Professional Practice II	3
CHEM ENG 2018 Process Fluid Mechanics.....	3
ECON 1000 Principles of Macroeconomics I	3
ECON 1004 Principles of Microeconomics I	3
MATHS 2201 Engineering Mathematics I	3

Level III

ECON 1009 International Financial Institutions & Markets I.....	3
CHEM ENG 3036 Unit Operations Laboratory	3
CHEM ENG 3024 Professional Practice III	3
CHEM ENG 3030 Simulation & Concept Design	3
CHEM ENG 3031 Process Control & Utilities.....	3
CHEM ENG 3029 Materials III	3
CHEM ENG 3034 Chemical Engineering Applications B	3
CHEM ENG 3035 Chemical Engineering Applications A	3
Level IV	
CORPFIN 2500 Business Finance II.....	3
CORPFIN 2501 Financial Institutions Management II.....	3
ECON 2504 Intermediate Econometrics II.....	3
ECON 2508 Financial Economics II	3
CHEM ENG 4034 Professional Practice IV.....	3
CHEM ENG4056 Research Practice.....	3
CHEM ENG 4055 Advanced Unit Operations Laboratory	3
<i>or</i>	
CHEM ENG 4054 Research Project (H)#	3
CHEM ENG 4050 Chemical Engineering Applications D	3
*Students accepted into the Honours Stream will take Research Project (H) and other students will take Advanced Unit Operations Laboratory.	
Level V	
CHEM ENG 3033 Chemical Engineering Applications C	3
CHEM ENG 4014 Plant Design Project	6
CORPFIN 3501 Portfolio Theory & Management III.....	3
<i>and either</i>	
APP MTH 3012 Financial Modelling: Tools & Techniques.....	3
<i>or</i>	
CORPFIN 3502 Options, Futures & Risk Management III	3
Level III Finance courses.....	6
Chemical Engineering Elective	3
Electives	
CHEM ENG 4032 Composite & Multiphase Polymers.....	3
CHEM ENG 4039 Environmental Engineering	3
CHEM ENG 4040 Chemical Engineering Research Elective	3
CHEM ENG 4043 Special Studies in Chemical Engineering.....	3
CHEM ENG 4044 Minerals Processing	3
CHEM ENG 4045 Introduction to Nanotechnology.....	3
CHEM ENG 4046 Combustion Processes	3
CHEM ENG 4048 Bio-Fuels, Biomass & Wastes.....	3
CHEM ENG 4049 Bio-molecular Engineering.....	3
CHEM ENG 4053 Pinch Analysis & Process Synthesis	3
CHEM ENG 4052 Food Process Engineering	3
CHEM ENG 4051 Water & Wastewater Engineering.....	3

6.5.2.7 B.E.(Chemical)/B.Ma.&Comp.Sc.(Computer Science focus)

To qualify for both the award of the degree of B.E.(Chemical) and the degree of B.Ma.Comp.Sc. with a Computer Science Major, students are required to complete satisfactorily:

Level I	
CHEM 1100 Chemistry IA ⁺	3
<i>and</i>	
CHEM 1200 Chemistry IB ⁺	3
<i>or</i>	
CHEM 1101 Foundations of Chemistry IA ⁺	3

and

CHEM 1201 Foundations of Chemistry IB ⁺	3
CHEM ENG 1007 Process Engineering I	3
CHEM ENG 1010 Professional Practice I	3
COMP SCI 1201 Introduction to Programming for Engineers	3
COMP SCI 1202 Object Oriented Programming E	3
MATHS 1011 Mathematics IA*	3
MATHS 1012 Mathematics IB*	3
MATHS 1013 Mathematics IM*	3

⁺Students with a Subject Achievement score of at least 13 in SACE Stage 2 Chemistry or equivalent must enrol in CHEM 1100 /1200. All other students must enrol in CHEM 1101/1201.

*See Clause 6.2 regarding Level I Mathematics requirements.

Level II

CHEM ENG 2010 Introduction to Process Simulation	3
CHEM ENG 2011 Chemical Engineering Thermodynamics	3
CHEM ENG 2014 Process Heat Transfer	3
CHEM ENG 2016 Professional Practice II	3
CHEM ENG 2018 Process Fluid Mechanics.....	3
COMP SCI 2000 Computer Systems	3
COMP SCI 1203 Algorithm Design and Data Structures for Engineers	3
MATHS 2201 Engineering Mathematics I	3

Level III

CHEM ENG 2013 Advanced Process Modelling	3
CHEM 2530 Environmental & Analytical Chemistry II	3

or

CHEM 2510 Chemistry IIA ⁺⁺	3
CHEM ENG3036 Unit Operations Laboratory	3
CHEM ENG 3024 Professional Practice III	3
CHEM ENG 3030 Simulation & Concept Design	3
CHEM ENG 3031 Process Control & Utilities.....	3
CHEM ENG 3034 Chemical Engineering Applications B	3
CHEM ENG 3035 Chemical Engineering Applications A	3

⁺⁺CHEM 2510 Chemistry IIA requires either passes in both CHEM 1100 and CHEM 1200 or credits in both CHEM 1101 and CHEM 1201 as prerequisites.

Level IV

Level III Computer Science courses	18
CHEM ENG 3029 Materials III	3
CHEM ENG 3033 Chemical Engineering Applications C	3

Level V

CHEM ENG 4014 Plant Design Project	6
CHEM ENG 4034 Professional Practice IV	3
CHEM ENG 4055 Advanced Unit Operations Laboratory	

or

CHEM ENG 4054 Research Project (H) [#]	3
CHEM ENG 4050 Chemical Engineering Applications D	3

Electives	6
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[#]Students accepted into the Honours Stream will take Research Project (H) and other students will take Advanced Unit Operations Laboratory

Electives

CHEM ENG 4043 Special Studies in Chemical Engineering	3
CHEM ENG 4040 Chemical Engineering Research Elective	3
CHEM ENG 4044 Minerals Processing	3
CHEM ENG 4046 Combustion Processes	3

CHEM ENG 4032 Composite & Multiphase Polymers.....	3
CHEM ENG 4039 Environmental Engineering	3
CHEM ENG 4045 Introduction to Nanotechnology.....	3
CHEM ENG 4048 Bio-Fuels, Biomass & Wastes.....	3
CHEM ENG 4049 Biomolecular Engineering.....	3
CHEM ENG 4053 Pinch Analysis & Process Synthesis	3
CHEM ENG 4052 Food Process Engineering	3
CHEM ENG 4051 Water & Wastewater Engineering.....	3

6.5.2.8 B.E (Chemical)/ B.Ma.Comp.Sc. (Mathematics focus)

To qualify for both the award of the degree of B.E.(Chemical) and the degree of B.MaComp.Sc. with a Mathematics focus, students are required to complete satisfactorily:

Level I

CHEM 1100 Chemistry IA ⁺	3
<i>and</i>	
CHEM 1200 Chemistry IB ⁺	3
<i>or</i>	
CHEM 1101 Foundations of Chemistry IA ⁺	3
<i>and</i>	
CHEM 1201 Foundations of Chemistry IB ⁺	3
CHEM ENG 1007 Process Engineering I	3
CHEM ENG1011 Introduction to Process Modelling	3
CHEM ENG 1010 Professional Practice I.....	3
MATHS 1011 Mathematics IA*	3
MATHS 1012 Mathematics IB*	3
MATHS 1013 Mathematics IM*	3
BIOLOGY 1101 Biology I: Molecules, Genes and Cells	3
<i>Or</i>	
GEOLOGY 1103 Earth Systems.....	3
<i>Or</i>	
GEOLOGY 1104 Geology for Engineers 1.....	3

⁺ Students with a Subject Achievement score of at least 13 in SACE Stage 2 Chemistry or equivalent must enrol in CHEM 1100 /1200. All other students must enrol in CHEM 1101/1201.

*See Clause 6.2 regarding Level I Mathematics requirements.

Level II

CHEM ENG 2010 Introduction to Process Simulation	3
CHEM ENG 2011 Chemical Engineering Thermodynamics	3
CHEM ENG 2014 Process Heat Transfer	3
CHEM ENG 2016 Professional Practice II.....	3
CHEM ENG 2018 Process Fluid Mechanics.....	3
CHEM 2510 Chemistry IIA ⁺⁺	3
<i>or</i>	
CHEM ENG 2530 Environmental & Analytical Chemistry II	3
MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Mathematics II	3

⁺⁺CHEM 2100 Chemistry IIA requires either passes in both CHEM 1100 & CHEM 1200 or credits in both CHEM 1101 & CHEM 1201 as prerequisites

Level III

CHEM ENG3036 Unit Operations Laboratory	3
CHEM ENG 3024 Professional Practice III	3
CHEM ENG 3029 Materials III	3
CHEM ENG 3030 Simulation & Concept Design	3
CHEM ENG 3031 Process Control & Utilities.....	3
CHEM ENG 3033 Chemical Engineering Applications C	3

CHEM ENG 3034 Chemical Engineering Applications B	3
CHEM ENG 3035 Chemical Engineering Applications A	3
Level IV	
Mathematics courses*	24
*24 units of additional Mathematics courses of which 18 units must be at Level III	
Level V	
CHEM ENG 4014 Plant Design Project	6
CHEM ENG 4034 Professional Practice IV	3
CHEM ENG 4056 Research Practice	3
CHEM ENG 4055 Advanced Unit Operations Laboratory	3
<i>or</i>	
CHEM ENG 4054 Research Project (H) [#]	3
CHEM ENG 4050 Chemical Engineering Applications D	3
Chemical Engineering Electives	6
[#] Students accepted into the Honours Stream will take Research Project (H) and other students will take Advanced Unit Operations Laboratory	
Chemical Engineering Electives	
CHEM ENG 4043 Special Studies in Chemical Engineering	3
CHEM ENG 4040 Chemical Engineering Research Elective	3
CHEM ENG 4044 Minerals Processing	3
CHEM ENG 4046 Combustion Processes	3
CHEM ENG 4032 Composite & Multiphase Polymers	3
CHEM ENG 4039 Environmental Engineering	3
CHEM ENG 4045 Introduction to Nanotechnology	3
CHEM ENG 4048 Bio-Fuels, Biomass & Wastes	3
CHEM ENG 4049 Biomolecular Engineering	3
CHEM ENG 4053 Pinch Analysis & Process Synthesis	3
CHEM ENG 4052 Food Process Engineering	3
CHEM ENG 4051 Water and Wastewater Engineering	3

6.5.2.9 B.E.(Chemical)/B.Sc.

To qualify for a Bachelor of Science award, students must complete a major pursuant to Bachelor of Science Program Rules 5.4.

To qualify for both the award of the degree of B.E.(Chemical) and the award of the degree of B.Sc., students are required to complete satisfactorily the courses listed below:

Level I	
CHEM 1100 Chemistry 1A	3
CHEM 1200 Chemistry 1B ⁺	3
CHEM ENG 1007 Process Engineering I	3
CHEM ENG1011 Introduction to Process Modelling	3
CHEM ENG 2016 Professional Practice II	3
MATHS 1011 Mathematics IA*	3
MATHS 1012 Mathematics IB*	3
MATHS 1013 Mathematics IM*	3
Level I Science Course	3
⁺ If students wish to undertake another Level I Science course option (timetabling permitting) they should discuss this with School Course Advisers	
*See Clause 6.2 regarding Level I Mathematics requirements.	
Level II	
CHEM ENG 2010 Introduction to Process Simulation	3
CHEM ENG 2011 Chemical Engineering Thermodynamics	3
CHEM ENG 2014 Process Heat Transfer	3
CHEM ENG 2018 Process Fluid Mechanics	3
MATHS 2201 Engineering Mathematics I	3

Level II Science Courses.....	9
Level III	
CHEM ENG 3036 Unit Operations Laboratory	3
CHEM ENG 3024 Professional Practice III	3
CHEM ENG 3029 Materials III	3
CHEM ENG 3030 Simulation & Concept Design	3
CHEM ENG 3031 Process Control & Utilities.....	3
CHEM ENG 3033 Chemical Engineering Applications C	3
CHEM ENG 3034 Chemical Engineering Applications B	3
CHEM ENG 3035 Chemical Engineering Applications A	3
Level IV	
Level III Science Courses.....	24
Level V	
CHEM ENG 4014 Plant Design Project.....	6
CHEM ENG 4034 Professional Practice IV.....	3
CHEM ENG 4055 Advanced Unit Operations Laboratory	3
<i>or</i>	
CHEM ENG 4054 Research Project (H) [#]	3
CHEM ENG 4050 Chemical Engineering Applications D	3
Chemical Engineering Electives	6
[#] Students accepted into the Honours Stream will take Research Project (H) and other students will take Advanced Unit Operations Laboratory.	
Chemical Engineering Electives	
CHEM ENG 4032 Composite & Multiphase Polymers.....	3
CHEM ENG 4039 Environmental Engineering	3
CHEM ENG 4040 Chemical Engineering Research Elective	3
CHEM ENG 4043 Special Studies in Chemical Engineering.....	3
CHEM ENG 4044 Minerals Processing	3
CHEM ENG 4045 Introduction to Nanotechnology.....	3
CHEM ENG 4046 Combustion Processes	3
CHEM ENG 4048 Bio-Fuels, Biomass & Wastes.....	3
CHEM ENG 4049 Bio-Molecular Engineering.....	3
CHEM ENG 4053 Pinch Analysis & Process Synthesis	3
CHEM ENG 4052 Food Process Engineering	3
CHEM ENG 4051 Water & Wastewater Engineering	3

6.5.2.10 B.E.(Chemical)/B.Sc.(Biotech.)

To qualify for a Bachelor of Science award, students must complete a major pursuant to Bachelor of Science Program Rules.

To qualify for both the award of the degree of B.E.(Chemical) and the degree of B.Sc(Biotech.):

Level I	
BIOLOGY 1101 Biology I: Molecules, Genes & Cells	3
BIOLOGY 1201 Biology I: Human Perspectives.....	3
CHEM ENG1011 Introduction to Process Modelling	3
CHEM 1100 Chemistry IA ⁺	3
<i>and</i>	
CHEM 1200 Chemistry IB ⁺	3
<i>or</i>	
CHEM 1101 Foundations of Chemistry IA ⁺	3
<i>and</i>	
CHEM 1201 Foundations of Chemistry IB ⁺	3
CHEM ENG 1007 Process Engineering I	3
MATHS 1011 Mathematics IA*	3
MATHS 1012 Mathematics IB*.....	3

MATHS 1013 Mathematics IM* 3

+ Students with a Subject Achievement score of at least 13 in SACE Stage 2 Chemistry or equivalent must enrol in CHEM 1100 /1200. All other students must enrol in CHEM 1101/1201.

*See Clause 6.2 regarding Level I Mathematics requirements.

Level II

BIOCHEM 2502 Biochemistry II (Biotech) Molecular & Cell Biology..... 3
CHEM ENG 2010 Introduction to Process Simulation 3
CHEM ENG 2011 Chemical Engineering Thermodynamics 3
CHEM ENG 2014 Process Heat Transfer 3
CHEM ENG 2015 Principles of Biotechnology II 3
CHEM ENG 2016 Professional Practice II 3
CHEM ENG 2018 Process Fluid Mechanics..... 3
MATHS 2201 Engineering Mathematics I 3

Level III

BIOCHEM 2503 Biochemistry II (Biotechnology): Metabolism..... 3
MICRO 2504 Microbiology II (Biotechnology)..... 3
CHEM ENG 3024 Professional Practice III 3
CHEM ENG 3030 Simulation & Concept Design 3
CHEM ENG 3031 Process Control & Utilities..... 3
CHEM ENG 3034 Chemical Engineering Applications B 3
CHEM ENG 3035 Chemical Engineering Applications A 3
CHEM ENG 3036 Unit Operations Laboratory 3

Level IV

BIOCHEM 3000 Molecular & Structural Biology III..... 6
BIOCHEM 3001 Cell & Development Biology III..... 6
or
PHARM 3011 Pharmacology B III 6
BIOTECH 3000 Biotechnology Practice III 6
PHARM 3010 Pharmacology A III 6

Level V

CHEM ENG 3033 Chemical Engineering Applications C 3
CHEM ENG 3029 Materials III 3
CHEM ENG 4014 Plant Design Project 6
CHEM ENG 4034 Professional Practice IV..... 3
CHEM ENG 4055 Advanced Unit Operations Laboratory, *or*
CHEM ENG 4054 Research Project (H)[#] 3
CHEM ENG 4050 Chemical Engineering Applications D 3
CHEM ENG 4056 Research Practice..... 3

[#]Students accepted into the Honours Stream will take Research Project (H) and other students will take Advanced Unit Operations Laboratory.

6.5.3 Civil and Environmental Engineering

6.5.3.1 B.E.(Civil and Environmental)

Students are required to complete satisfactorily courses to the value of 24 units at each of Levels I, II, III and IV.

Level I

C&ENVENG 1008 Engineering Planning & Design IA..... 3
C&ENVENG 1009 Civil & Environmental Engineering IA 3
C&ENVENG 1010 Engineering Mechanics - Statics 3
C&ENVENG 1012 Engineering Modelling & Analysis IA 3
ENV BIOL 1002 Ecological Issues..... 3
GEOLOGY 1104 Geology for Engineers..... 3
MATHS 1011 Mathematics IA 3
MATHS 1012 Mathematics IB..... 3

Level II	
CHEM ENG 2017 Transport Processes in the Environment	3
C&ENVENG 2067 Construction Management & Surveying	3
C&ENVENG 2068 Environmental Engineering & Sustainability II	3
C&ENVENG 2069 Geotechnical Engineering IIA	3
C&ENVENG 2070 Engineering Modelling & Analysis IIA	3
C&ENVENG 2071 Water Engineering IIA.....	3
ENV BIOL 2005 Ecology for Engineers II.....	3
MATHS 2201 Engineering Mathematics I	3
Level III	
ENV BIOL 3012WT Integrated Catchment Management III <i>or</i>	
C&ENVENG 3012 Geotechnical Engineering Design III	3
CHEM ENG 4051 Water & Wastewater Treatment.....	3
ECON 3500 Resource & Environmental Economics III.....	3
C&ENVENG 3077 Engineering Hydrology.....	3
C&ENVENG 3078 Engineering Management & Planning IIIA.....	3
C&ENVENG 3079 Water Engineering & Design III (S2)	3
C&ENVENG 4037 Introduction to Environmental Law	3
C&ENVENG 4087 Environmental Modelling & Management.....	3
Level IV	
C&ENVENG 4005A/B Civil & Environmental Research Project Part 1 & 2 ^	6
C&ENVENG 4108 Environmental Engineering Design IVA	3
C&ENVENG 4109 Environmental Engineering Design IVB	3
C&ENVENG 4110 Environmental Engineering Design IVC	3
C&ENVENG 4034 Engineering Management IV	3
Electives	6
^ Students who are not selected for Honours will be required to complete 2 additional final year elective courses instead of the Civil & Environmental Research Project.	
Electives	
Students may take up to 3 units of Level II or III courses offered by the School of Mathematical Sciences. Students may also, with the approval of the Head of School, replace one or more elective courses with appropriate courses offered by other schools in the University.	
Students should undertake at least two electives from the Environmental Engineering group, and may only undertake one 'Mining' elective in any one year.	
The elective courses offered by the School in any one year will depend on staff availability, and will be chosen from the following:	
<i>Geotechnical/Mining Engineering</i>	
C&ENVENG 3012 Geotechnical Engineering Design III	3
C&ENVENG 4106 Introduction to Geostatistics	3
<i>Water Engineering</i>	
C&ENVENG 4073 Water Distribution Systems & Design	3
<i>Management Engineering</i>	
MINING 4110 Mine Asset Management & Services.....	3
<i>Environmental Engineering</i>	
SOIL&WAT 3007WT GIS for Environmental Management.....	3
ENV BIOL 3012WT Integrated Catchment Management	3
MINING 4104 Socio-Environmental Aspects of Mining.....	3

6.5.3.2 B.E.(Civil and Environmental)/B.A.

To satisfy the Arts component of this program, students must undertake 30 units of Arts courses, which includes an approved major sequence (24 units). The remaining 6 units can be undertaken at any level. Students should consult the Bachelor of Arts academic program rules for the list of approved major sequences and the specific requirements of each.

To satisfy the BE (Civil and Environmental) component of this program students are required to satisfactorily complete the courses listed below:

Level I	
C&ENVENG 1008 Engineering Planning & Design IA.....	3
C&ENVENG 1009 Civil & Environmental Engineering IA	3
C&ENVENG 1010 Engineering Mechanics - Statics	3
C&ENVENG 1012 Engineering Modelling & Analysis IA	3
ENV BIOL 1002 Ecological Issues I.....	3
MATHS 1011 Mathematics IA*	3
MATHS 1012 Mathematics IB *	3
MATHS 1013 Mathematics IM*	3
Arts Course	3

*See Clause 6.2 regarding Level I Mathematics requirements.

Level II	
C&ENVENG 2067 Construction Management & Surveying	3
C&ENVENG 2068 Environmental Engineering & Sustainability II	3
C&ENVENG 2069 Geotechnical Engineering IIA	3
C&ENVENG 2070 Engineering Modelling & Analysis IIA	3
C&ENVENG 2071 Water Engineering IIA.....	3
CHEM ENG 2017 Transport Processes in the Environment.....	3
MATHS 2201 Engineering Mathematics I	3
Arts course.....	3

Level III	
ENV BIOL 3012WT Integrated Catchment Management III	3
<i>or</i>	
C&ENVENG 3012 Geotechnical Engineering Design III	3
CHEM ENG 4051 Water & Wastewater Treatment.....	3
ECON 3500 Resource & Environmental Economics III.....	3
C&ENVENG 3077 Engineering Hydrology.....	3
C&ENVENG 3078 Engineering Management & Planning IIIA.....	3
C&ENVENG 3079 Water Engineering & Design III (S2)	3
C&ENVENG 4037 Introduction to Environmental Law	3
C&ENVENG 4087 Environmental Modelling & Management.....	3

Level IV	
C&ENVENG 4005A/B Civil & Environmental Research Project Part 1 & 2 ^	6
C&ENVENG 4034 Engineering Management IV	3
C&ENVENG 4108 Environmental Engineering Design IVA	3
C&ENVENG 4109 Environmental Engineering Design IVB	3
C&ENVENG 4110 Environmental Engineering Design IVC	3
Electives	6

^ Students who are not selected for Honours will be required to complete two additional final year elective courses instead of the Civil & Environmental Research Project

Electives

Students may take up to 3 units of Level II or III courses offered by the School of Mathematical Sciences.

Students may also, with the approval of the Head of School, replace one or more elective courses with appropriate courses offered by other schools in the University.

Students should undertake at least two electives from the Environmental Engineering group, and may only undertake one 'Mining' elective in any one year.

The elective courses offered by the School in any one year will depend on staff availability, and will be chosen from the following:

Geotechnical/Mining Engineering

C&ENVENG 3012 Geotechnical Engineering Design III	3
C&ENVENG 4106 Introduction to Geostatistics	3

Water Engineering

C&ENVENG 4073 Water Distribution Systems & Design	3
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Management Engineering

MINING 4110 Mine Asset Management & Services..... 3

Environmental Engineering

SOIL&WAT 3007WT GIS for Environmental Management..... 3

ENV BIOL 3012WT Integrated Catchment Management..... 3

C&ENVENG 4087 Environmental Modelling & Management..... 3

MINING 4104 Socio-Environmental Aspects of Mining..... 3

Level V

Arts courses 24

6.5.3.3 B.E.(Civil and Environmental)/B.Ec.

To qualify for both the award of the degree of B.E.(Civil and Environmental) and the degree of B.Ec, students are required to complete satisfactorily courses listed below:

Level I

C&ENVENG 1008 Engineering Planning & Design IA..... 3

C&ENVENG 1009 Civil & Environmental Engineering I..... 3

C&ENVENG 1010 Engineering Mechanics - Statics..... 3

C&ENVENG 1012 Engineering Modelling & Analysis IA..... 3

ECON 1004 Principles of Microeconomics I..... 3

ENV BIOL 1002 Ecological Issues..... 3

MATHS 1011 Mathematics IA*..... 3

MATHS 1012 Mathematics IB*..... 3

MATHS 1013 Mathematics IM*..... 3

*See Clause 6.2 regarding Level I Mathematics requirements

Level II

C&ENVENG 2067 Construction Management & Surveying..... 3

C&ENVENG 2068 Environmental Engineering & Sustainability II..... 3

C&ENVENG 2069 Geotechnical Engineering IIA..... 3

C&ENVENG 2070 Engineering Modelling & Analysis IIA..... 3

C&ENVENG 2071 Water Engineering IIA..... 3

CHEM ENG 2017 Transport Processes in the Environment..... 3

ECON 1000 Principles of Macroeconomics I..... 3

MATHS 2201 Engineering Mathematics I..... 3

Level III

ENV BIOL 2005 Ecology for Engineers II..... 3

ECON 2506 Intermediate Microeconomics All..... 3

ECON 2507 Intermediate Macroeconomics II..... 3

C&ENVENG 3077 Engineering Hydrology..... 3

C&ENVENG 3078 Engineering Management & Planning IIIA..... 3

C&ENVENG 3079 Water Engineering & Design III (S2)..... 3

C&ENVENG 4037 Introduction to Environmental Law..... 3

C&ENVENG 4087 Environmental Modelling & Management..... 3

Level IV

ECON 2504 Intermediate Econometrics..... 3

or

ECON 2503 Intermediate Mathematical Economics II..... 3

COMMGMT 2500 Organisational Behaviour II..... 3

Level III Economics courses*..... 18

*Level III Economics courses chosen from those listed in the specific Academic Program Rules for the Bachelor of Economics.

Level V

C&ENVENG 4005A/B Civil & Environmental Research Project Part 1 & 2 ^..... 6

C&ENVENG 4108 Environmental Engineering Design IVA..... 3

C&ENVENG 4109 Environmental Engineering Design IVB..... 3

C&ENVENG 4100 Environmental Engineering Design IVC	3
C&ENVENG 4034 Engineering Management IV	3
Electives	6

^ Students who are not selected for Honours will be required to complete two additional final year elective courses instead of the Civil & Environmental Research Project

Electives

Students may take up to 3 units of Level II or III courses offered by the School of Mathematical Sciences. Students may also, with the approval of the Head of School, replace one or more elective courses with appropriate courses offered by other schools in the University.

Students should undertake at least two electives from the Environmental Engineering group, and may only undertake one 'Mining' elective in any one year.

The elective courses offered by the School in any one year will depend on staff availability, and will be chosen from the following:

Geotechnical/Mining Engineering

C&ENVENG 3012 Geotechnical Engineering Design III	3
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C&ENVENG 4106 Introduction to Geostatistics	3
---	---

Water Engineering

C&ENVENG 4073 Water Distribution Systems & Design	3
---	---

Management Engineering

MINING 4110 Mine Asset Management & Services.....	3
---	---

Environmental Engineering

SOIL&WAT 3007WT GIS for Environmental Management.....	3
---	---

ENV BIOL 3012WT Integrated Catchment Management	3
---	---

MINING 4104 Socio-Environmental Aspects of Mining.....	3
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6.5.3.4 B.E.(Civil and Environmental)/B.Fin.

To qualify for both the award of the degree of B.E.(Civil and Environmental) and the degree of B.Fin, students are required to complete satisfactorily courses listed below:

Level I

C&ENVENG 1008 Engineering Planning & Design IA.....	3
---	---

C&ENVENG 1009 Civil & Environmental Engineering I	3
---	---

C&ENVENG 1010 Engineering Mechanics - Statics	3
---	---

C&ENVENG 1012 Engineering Modelling Analysis IA	3
---	---

ECON 1004 Principles of Microeconomics I	3
--	---

ENV BIOL 1002 Ecological Issues.....	3
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MATHS 1011 Mathematics IA*	3
----------------------------------	---

MATHS 1012 Mathematics IB*	3
----------------------------------	---

MATHS 1013 Mathematics IM*	3
----------------------------------	---

*See Clause 6.2 regarding Level I Mathematics requirements.

Level II

ACCTING 1002 Accounting for Decision Makers I.....	3
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C&ENVENG 2068 Environmental Engineering & Sustainability II	3
---	---

C&ENVENG 2069 Geotechnical Engineering IIA	3
--	---

C&ENVENG 2070 Engineering Modelling & Analysis IIA	3
--	---

C&ENVENG 2071 Water Engineering IIA.....	3
--	---

ECON 1000 Principles of Macroeconomics I	3
--	---

ECON 1009 International Finance Institutions & Markets I	3
--	---

MATHS 2201 Engineering Mathematics I	3
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Level III

CORPFIN 2500 Business Finance II.....	3
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ECON 2504 Intermediate Econometrics II.....	3
---	---

ECON 2508 Financial Economics II	3
--	---

C&ENVENG 2067 Construction Management & Surveying	3
---	---

C&ENVENG 3077 Engineering Hydrology.....	3
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C&ENVENG 3079 Water Engineering & Design III (S2)	3
C&ENVENG 4037 Introduction to Environmental Law	3
C&ENVENG 4087 Environmental Modelling & Management.....	3
Level IV	
CORPFIN 2501 Financial Institutions Management II.....	3
CHEM ENG 4051 Water & Wastewater Treatment.....	3
C&ENVENG 3078 Engineering Management & Planning IIIA.....	3
ENV BIOL 3012WT Integrated Catchment Management III	3
<i>or</i>	
C&ENVENG 3012 Geotechnical Engineering Design III	3
CORPFIN 3501 Portfolio Theory & Management III.....	3
<i>and either</i>	
APP MTH 3012 Financial Modelling: Tools & Techniques.....	3
<i>or</i>	
CORPFIN 3502 Options, Futures & Risk Management III	3
Level III Finance course	6
Level V	
C&ENVENG 4005A/B Civil & Environmental Research Project Part 1 & 2 ^	6
C&ENVENG 4108 Environmental Engineering Design IVA	3
C&ENVENG 4109 Environmental Engineering Design IVB	3
C&ENVENG 4100 Environmental Engineering Design IVC	3
C&ENVENG 4034 Engineering Management IV	3
Electives	6

^ Students who are not selected for Honours will be required to complete 2 additional final year elective courses instead of the Civil & Environmental Research Project.

Electives

Students may take up to 3 units of Level II or III courses offered by the School of Mathematical Sciences. Students may also, with the approval of the Head of School, replace one or more elective courses with appropriate courses offered by other schools in the University.

Students should undertake at least two electives from the Environmental Engineering group, and may only undertake one 'Mining' elective in any one year.

The elective courses offered by the School in any one year will depend on staff availability, and will be chosen from the following:

Geotechnical/Mining Engineering

C&ENVENG 3012 Geotechnical Engineering Design III	3
C&ENVENG 4106 Introduction to Geostatistics	3

Water Engineering

C&ENVENG 4073 Water Distribution Systems & Design	3
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Management Engineering

MINING 4110 Mine Asset Management & Services.....	3
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Environmental Engineering

SOIL&WAT 3007WT GIS for Environmental Management.....	3
ENV BIOL 3012WT Integrated Catchment Management	3
C&ENVENG 4087 Environmental Modelling & Management	3
MINING 4104 Socio-Environmental Aspects of Mining.....	3

6.5.3.5 B.E.(Civil and Environmental)/B.Ma.& Comp.Sc. (Computer Science focus)

To qualify for both the award of the degree of B.E.(Civil and Environmental) and the degree of B.Ma.Comp.Sc. with a Computer Science Major, students are required to complete satisfactorily:

Level I

C&ENVENG 1008 Engineering Planning & Design IA.....	3
C&ENVENG 1009 Civil & Environmental Engineering IA	3
C&ENVENG 1010 Engineering Mechanics - Statics	3

COMP SCI 1201 Introduction to Programming for Engineers	3
COMP SCI 1202 Object Oriented Programming E UG.....	3
ENV BIOL 1002 Ecological Issues.....	3
MATHS 1011 Mathematics IA*	3
MATHS 1012 Mathematics IB*	3
MATHS 1013 Mathematics IM*	3

*See Clause 6.2 regarding Level I Mathematics requirements

Level II

C&ENVENG 2067 Construction Management & Surveying	3
C&ENVENG 2068 Environmental Engineering & Sustainability II	3
C&ENVENG 2069 Geotechnical Engineering IIA	3
C&ENVENG 2071 Water Engineering IIA.....	3
CHEM ENG 2017 Transport Process in the Environment.....	3
ENV BIOL 2005 Ecology for Engineers II.....	3
MATHS 2201 Engineering Mathematics I	3
Level II Computer Science course.....	3

Level III

CHEM ENG 4051 Water & Wastewater Treatment.....	3
ECON 3500 Resource & Environmental Economics III.....	3
C&ENVENG 3077 Engineering Hydrology	3
C&ENVENG 3078 Engineering Management & Planning IIIA.....	3
C&ENVENG 3079 Water Engineering & Design III (S2)	3
C&ENVENG 4037 Introduction to Environmental Law	3
C&ENVENG 4087 Environmental Modelling & Management.....	3
Level II Computer Science course.....	3

Level IV

Level III Computer Science Courses	18
ENV BIOL 3012WT Integrated Catchment Management.....	3
C&ENVENG 3012 Geotechnical Engineering Design III	3

Level V

C&ENVENG 4005A/B Civil & Environmental Research Project ^	6
C&ENVENG 4034 Engineering Management IV	3
C&ENVENG 4108 Environmental Engineering Design IVA	3
C&ENVENG 4109 Environmental Engineering Design IVB	3
C&ENVENG 4110 Environmental Engineering Design IVC	3
C&ENVENG 4037 Introduction to Environmental Law	3
Electives	12

^ Students who are not selected for Honours will be required to complete two additional final year elective courses instead of the Civil & Environmental Research Project.

Electives

Students may take up to 3 units of Level II or III courses offered by the School of Mathematical Sciences.

Students may also, with the approval of the Head of School, replace one or more elective courses with appropriate courses offered by other schools in the University.

Students should undertake at least two electives from the Environmental Engineering group, and may only undertake one 'Mining' elective in any one year.

The elective courses offered by the School in any one year will depend on staff availability, and will be chosen from the following:

Geotechnical/Mining Engineering

C&ENVENG 3012 Geotechnical Engineering Design III	3
C&ENVENG 4106 Introduction to Geostatistics	3

Water Engineering

C&ENVENG 4073 Water Distribution Systems & Design	3
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<i>Management Engineering</i>	
MINING 4110 Mine Asset Management & Services.....	3
<i>Environmental Engineering</i>	
SOIL&WAT 3007WT GIS for Environmental Management.....	3
ENV BIOL 3012WT Integrated Catchment Management.....	3
C&ENVENG 4087 Environmental Modelling & Management.....	3
MINING 4104 Socio-Environmental Aspects of Mining.....	3

6.5.3.6 B.E (Civil and Environmental)/B.Ma.&Comp.Sc. (Mathematics focus)

To qualify for both the award of the degree of B.E.(Civil and Environmental) and the degree of B.Ma.Comp.Sc. with a Mathematics Major, students are required to complete satisfactorily:

Level I

C&ENVENG 1008 Engineering Planning & Design IA.....	3
C&ENVENG 1009 Civil & Environmental Engineering I.....	3
C&ENVENG 1010 Engineering Mechanics - Statics.....	3
C&ENVENG 1012 Engineering Modelling & Analysis IA.....	3
ENV BIOL 1002 Ecological Issues.....	3
GEOLOGY 1104 Geology for Engineers.....	3
MATHS 1011 Mathematics IA.....	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*.....	3

*See Clause 6.2 regarding Level I Mathematics requirements

Level II

C&ENVENG 2067 Construction Management & Surveying.....	3
C&ENVENG 2068 Environmental Engineering & Sustainability II.....	3
C&ENVENG 2069 Geotechnical Engineering IIA.....	3
C&ENVENG 2070 Engineering Modelling & Analysis IIA.....	3
C&ENVENG 2071 Water Engineering IIA.....	3
CHEM ENG 2017 Transport Processes in the Environment.....	3
ENV BIOL 2005 Ecology for Engineers II.....	3
MATHS 2201 Engineering Mathematics I.....	3

Level III

ENV BIOL 3012WT Integrated Catchment Management III <i>or</i>	
C&ENVENG 3012 Geotechnical Engineering Design III.....	3
CHEM ENG 4051 Water & Wastewater Treatment.....	3
ECON 3500 Resource & Environmental Economics III.....	3
C&ENVENG 3077 Engineering Hydrology.....	3
C&ENVENG 3078 Engineering Management & Planning IIIA.....	3
C&ENVENG 3079 Water Engineering & Design III (S2).....	3
C&ENVENG 4037 Introduction to Environmental Law.....	3
C&ENVENG 4087 Environmental Modelling & Management.....	3

Level IV

Mathematics courses*.....	24
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*24 units of additional Mathematics courses of which 18 units must be at Level III

Level V

C&ENVENG 4005A/B Civil & Environmental Research Project ^.....	6
C&ENVENG 4108 Environmental Engineering Design IVA.....	3
C&ENVENG 4109 Environmental Engineering Design IVB.....	3
C&ENVENG 4100 Environmental Engineering Design IVC.....	3
C&ENVENG 4034 Engineering Management IV.....	3
Electives.....	6

^ Students who are not selected for Honours will be required to complete two additional final year elective courses instead of the Civil & Environmental Research Project.

Electives

Students may take up to 3 units of Level II or III courses offered by the School of Mathematical Sciences. Students may also, with the approval of the Head of School, replace one or more elective courses with appropriate courses offered by other schools in the University.

Students should undertake at least two electives from the Environmental Engineering group, and may only undertake one 'Mining' elective in any one year.

The elective courses offered by the School in any one year will depend on staff availability, and will be chosen from the following:

Geotechnical/Mining Engineering

C&ENVENG 3012 Geotechnical Engineering Design III	3
C&ENVENG 4106 Introduction to Geostatistics	3

Water Engineering

C&ENVENG 4073 Water Distribution Systems & Design	3
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Management Engineering

MINING 4110 Mine Asset Management & Services.....	3
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Environmental Engineering

SOIL&WAT 3007WT GIS for Environmental Management.....	3
ENV BIOL 3012WT Integrated Catchment Management	3
MINING 4104 Socio-Environmental Aspects of Mining.....	3

6.5.3.7 B.E.(Civil and Environmental)/B.Sc.

To qualify for a Bachelor of Science award, students must complete a major pursuant to Bachelor of Science Program Rules.

To qualify for the award of the degree of B.E.(Civil and Environmental) and the degree of B.Sc., students are required to complete satisfactorily:

Level I

C&ENVENG 1008 Engineering Planning & Design IA.....	3
C&ENVENG 1010 Engineering Mechanics - Statics	3
C&ENVENG 1009 Civil & Environmental Engineering I	3
C&ENVENG 1012 Engineering Modelling & Analysis IA	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
Level I Science Courses.....	6

*See Clause 6.2 regarding Level I Mathematics requirements.

Level II

MATHS 2201 Engineering Mathematics I	3
C&ENVENG 2068 Environmental Engineering & Sustainability II	3
C&ENVENG 2069 Geotechnical Engineering IIA	3
C&ENVENG 2067 Construction Management & Surveying	3
C&ENVENG 2070 Engineering Modelling & Analysis IIA	3
C&ENVENG 2071 Water Engineering IIA.....	3
MATHS 2202 Engineering Mathematics II	3
<i>or</i>	
Level II Science course	3
Level II Science course	3

Level III

ECON 3500 Resource & Environmental Economics III.....	3
C&ENVENG 3077 Engineering Hydrology.....	3
C&ENVENG 3078 Engineering Management & Planning IIIA.....	3
C&ENVENG 3079 Water Engineering & Design III (S2)	3
C&ENVENG 4037 Introduction to Environmental Law	3
C&ENVENG 4087 Environmental Modelling & Management.....	3
Level II Science courses	6

Level IV

Level III Science Courses	24
Level V	
C&ENVENG 4005A/B Civil & Environmental Research Project ^	6
C&ENVENG 4108 Environmental Engineering Design IVA	3
C&ENVENG 4109 Environmental Engineering Design IVB	3
C&ENVENG 4100 Environmental Engineering Design IVC	3
C&ENVENG 4034 Engineering Management IV	3
Electives	6

^ Students who are not selected for Honours will be required to complete 2 additional final year elective courses instead of the Civil & Environmental Research Project.

Electives

Students may take up to 3 units of Level II or III courses offered by the School of Mathematical Sciences. Students may also, with the approval of the Head of School, replace one or more elective courses with appropriate courses offered by other schools in the University.

Students should undertake at least two electives from the Environmental Engineering group, and may only undertake one 'Mining' elective in any one year.

The elective courses offered by the School in any one year will depend on staff availability, and will be chosen from the following:

Geotechnical/Mining Engineering

C&ENVENG 3012 Geotechnical Engineering Design III	3
C&ENVENG 4106 Introduction to Geostatistics	3

Water Engineering

C&ENVENG 4073 Water Distribution Systems & Design	3
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Management Engineering

MINING 4110 Mine Asset Management & Services.....	3
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Environmental Engineering

SOIL&WAT 3007WT GIS for Environmental Management.....	3
ENV BIOL 3012WT Integrated Catchment Management	3
C&ENVENG 4087 Environmental Modelling & Management.....	3
MINING 4104 Socio-Environmental Aspects of Mining.....	3
CHEM ENG 4051 Water & Wastewater Treatment.....	3

6.5.4 Civil and Structural Engineering

6.5.4.1 B.E.(Civil and Structural)

Students are required to complete satisfactorily courses to the value of 24 units at each of Levels I, II, III and IV:

Level I

C&ENVENG 1008 Engineering Planning & Design IA.....	3
C&ENVENG 1009 Civil & Environmental Engineering IA	3
C&ENVENG 1010 Engineering Mechanics - Statics	3
C&ENVENG 1012 Engineering Modelling & Analysis IA	3
GEOLOGY 1104 Geology for Engineers.....	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MECH ENG 1007 Engineering Mechanics - Dynamics	3

Level II

C&ENVENG 2025 Strength of Materials IIA	3
C&ENVENG 2067 Construction Management & Surveying	3
C&ENVENG 2068 Environmental Engineering & Sustainability II	3
C&ENVENG 2069 Geotechnical Engineering IIA	3
C&ENVENG 2070 Engineering Modelling & Analysis IIA	3
C&ENVENG 2071 Water Engineering IIA.....	3
C&ENVENG 2072 Structural Engineering Design.....	3
MATHS 2201 Engineering Mathematics I	3

Level III	
C&ENVENG 3001 Structural Mechanics IIIA.....	3
C&ENVENG 3005 Structural Design III (Concrete)	3
C&ENVENG 3007 Structural Design III (Steel)	3
C&ENVENG 3012 Geotechnical Engineering Design III	3
C&ENVENG 3077 Engineering Hydrology.....	3
C&ENVENG 3078 Engineering Management & Planning IIIA.....	3
C&ENVENG 3079 Water Engineering & Design II (S2)	3
CHEM ENG 4051 Water & Wastewater Treatment <i>or</i>	
C&ENVENG 4087 Environmental Modelling & Management.....	3

Level IV	
C&ENVENG 4003A/B Civil & Structural Engineering Research Project ^	6
C&ENVENG 4034 Engineering Management IV	3
C&ENVENG 4068 Computer Methods of Structural Analysis & Design	3
Elective courses to the value of at least 12 units	12

^ Students who are not selected for Honours will be required to complete two additional final year elective courses instead of the Civil & Structural Research Project.

Electives

Students should take at least two courses from the one group. The remaining may be chosen from any group. Alternatively, students may take up to 3 units of Level II or III courses offered by the School of Mathematical Sciences.

In special circumstances other combinations of elective courses may be acceptable but must be approved by the Head of School. Students may also, with the approval of the Head of School, replace one or more elective courses with appropriate courses offered by other schools in the University.

Students should undertake at least two electives from the Structural Engineering group, and may only undertake one 'Mining' elective in any one year.

The elective courses offered by the School in any one year will depend on staff availability, and will be chosen from the following:

Structural Engineering

C&ENVENG 4069 Advanced Reinforced Concrete	3
C&ENVENG 4070 Seismic Design of Masonry Buildings.....	3
C&ENVENG 4099 Structural Response to Blast Loading	3
C&ENVENG 4107 Prestressed Concrete Structures.....	3
C&ENVENG 4111 Structural Dynamics and Applications	3

Geotechnical/Mining Engineering

MINING 3072 Mining Geomechanics	3
MINING 4102 Mine Geotechnical Engineering	3
C&ENVENG 4106 Introduction to Geostatistics	3

Water Engineering

C&ENVENG 4073 Water Distribution Systems & Design	3
C&ENVENG 4087 Environmental Modelling, Management & Design	3
C&ENVENG 4108 Environmental Engineering Design IVA	3
C&ENVENG 4109 Environmental Engineering Design IVB	3
CHEM ENG 4051 Water & Wastewater Treatment.....	3

Management Engineering

MINING 4110 Mine Asset Management & Services.....	3
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6.5.4.2 B.E.(Civil and Structural)/B.A.

To satisfy the Arts component of this program, students must undertake 30 units of Arts courses, which includes an approved major sequence (24 units). The remaining 6 units can be undertaken at any level. Students should consult the Bachelor of Arts academic program rules for the list of approved major sequences and the specific requirements of each.

To satisfy the BE (Civil and Structural) component of this program students are required to satisfactorily complete the courses listed below:

Level I

C&ENVENG 1008 Engineering Planning & Design IA.....	3
C&ENVENG 1009 Civil & Environmental Engineering I.....	3
C&ENVENG 1010 Engineering Mechanics - Statics	3
C&ENVENG 1012 Engineering Modelling & Analysis IA	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
Arts course.....	3
MECH ENG 1007 Engineering Mechanics - Dynamics	3
*See Clause 6.2 regarding Level I Mathematics requirements.	
Level II	
C&ENVENG 2025 Strength of Materials IIA.....	3
C&ENVENG 2067 Construction Management & Surveying	3
C&ENVENG 2068 Environmental Engineering & Sustainability II	3
C&ENVENG 2069 Geotechnical Engineering IIA	3
C&ENVENG 2070 Engineering Modelling & Analysis IIA	3
C&ENVENG 2071 Water Engineering IIA.....	3
C&ENVENG 2072 Structural Engineering Design.....	3
MATHS 2201 Engineering Mathematics I	3
Level III	
Arts course.....	3
C&ENVENG 3001 Structural Mechanics IIIA.....	3
C&ENVENG 3005 Structural Design III (Concrete)	3
C&ENVENG 3007 Structural Design III (Steel).....	3
C&ENVENG 3012 Geotechnical Engineering Design III	3
C&ENVENG 3077 Engineering Hydrology.....	3
C&ENVENG 3078 Engineering Management & Planning IIIA.....	3
C&ENVENG 3079 Water Engineering & Design III (S2)	3
Level IV	
C&ENVENG 4003A/B Civil & Structural Engineering Research Project ^	6
C&ENVENG 4034 Engineering Management IV	3
C&ENVENG 4068 Computer Methods of Structural Analysis & Design	3
Electives	12
^ Students who are not selected for Honours will be required to complete two additional final year elective courses instead of the Civil & Structural Research Project.	
Level V	
Arts courses	24
Electives	
Students should take at least two courses from the one group. The remaining may be chosen from any group. Alternatively, students may take up to 3 units of Level II or III courses offered by the School of Mathematical Sciences. In special circumstances other combinations of elective courses may be acceptable but must be approved by the Head of School.	
Students may also, with approval of Head of School, replace one or more elective courses with appropriate courses offered by other schools in the University.	
Students should undertake at least two electives from the Structural Engineering group, and may only undertake one 'Mining' elective in any one year.	
The elective courses offered by the School in any one year will depend on staff availability, and will be chosen from the following:	
<i>Structural Engineering</i>	
C&ENVENG 4069 Advanced Reinforced Concrete	3
C&ENVENG 4070 Seismic Design of Masonry Buildings.....	3
C&ENVENG 4099 Structural Response to Blast Loading	3
C&ENVENG 4107 Prestressed Concrete Structures.....	3
C&ENVENG 4111 Structural Dynamics and Applications	3

Geotechnical/Mining Engineering

MINING 3072 Mining Geomechanics	3
MINING 4102 Mine Geotechnical Engineering	3
C&ENVENG 4106 Introduction to Geostatistics	3

Water Engineering

C&ENVENG 4073 Water Distribution Systems & Design	3
C&ENVENG 4087 Environmental Modelling, Management & Design	3
C&ENVENG 4108 Environmental Engineering Design IVA	3
C&ENVENG 4109 Environmental Engineering Design IVB	3
CHEM ENG 4051 Water & Wastewater Treatment.....	3

Management Engineering

MINING 4110 Mine Asset Management & Services.....	3
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6.5.4.3 B.E.(Civil and Structural)/B.Ec.

To qualify for both the award of the degree of B.E.(Civil and Structural) and the degree of B.Ec., students are required to complete satisfactorily courses listed below:

Level I

C&ENVENG 1008 Engineering Planning & Design IA	3
C&ENVENG 1009 Civil & Environmental Engineering I	3
C&ENVENG 1010 Engineering Mechanics - Statics	3
C&ENVENG 1012 Engineering Modelling & Analysis IA	3
ECON 1004 Principles of Microeconomics I	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
ECON 1000 Principles of Macroeconomics	3

* See Clause 6.2 regarding Level I Mathematics requirements.

Level II

C&ENVENG 2025 Strength of Materials IIA.....	3
C&ENVENG 2067 Construction Management & Surveying	3
C&ENVENG 2068 Environmental Engineering & Sustainability II	3
C&ENVENG 2069 Geotechnical Engineering IIA	3
C&ENVENG 2070 Engineering Modelling & Analysis IIA	3
C&ENVENG 2071 Water Engineering IIA.....	3
C&ENVENG 2072 Structural Engineering Design.....	3
MATHS 2201 Engineering Mathematics I	3

Level III

ECON 2506 Intermediate Microeconomics A II	3
ECON 2507 Intermediate Macroeconomics II	3
C&ENVENG 3001 Structural Mechanics IIIA.....	3
C&ENVENG 3005 Structural Design III (Concrete)	3
C&ENVENG 3007 Structural Design III (Steel)	3
C&ENVENG 3012 Geotechnical Engineering Design III	3
C&ENVENG 3077 Engineering Hydrology.....	3
C&ENVENG 3079 Water Engineering & Design III (S2)	3

Level IV

ECON 2504 Intermediate Econometrics.....	3
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or

ECON 2503 Intermediate Mathematical Economics II	3
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COMMGMT 2500 Organisational Behaviour II.....	3
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Level III Economics courses*	18
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*Level III Economics courses chosen from those listed in the specific Academic Program Rules of the degree of Bachelor of Economics.

Level V

Civil & Structural Engineering courses:

C&ENVENG 4003A/B Civil & Structural Engineering Research Project ^	6
C&ENVENG 4034 Engineering Management IV	3
C&ENVENG 4068 Computer Methods of Structural Analysis & Design	3
Electives	12

^ Students who are not selected for Honours will be required to complete two additional final year elective courses instead of the Civil & Structural Research Project.

Electives

Students should take at least two courses from the one group. The remaining may be chosen from any group. Alternatively, students may take up to 3 units of Level II or III courses offered by the School of Mathematical Sciences. In special circumstances other combinations of elective courses may be acceptable but must be approved by the Head of School. Students may also, with the approval of the Head of School, replace one or more elective courses with appropriate courses offered by other schools in the University.

Students should undertake at least two electives from the Structural Engineering group, and may only undertake one 'Mining' elective in any one year.

The elective courses offered by the School in any one year will depend on staff availability, and will be chosen from the following:

Structural Engineering

C&ENVENG 4069 Advanced Reinforced Concrete	3
C&ENVENG 4070 Seismic Design of Masonry Buildings.....	3
C&ENVENG 4099 Structural Response to Blast Loading	3
C&ENVENG 4107 Prestressed Concrete Structures.....	3
C&ENVENG 4111 Structural Dynamics and Applications.....	3

Geotechnical/Mining Engineering

MINING 3069 Rock Breakage.....	3
MINING 3072 Mining Geomechanics	3
MINING 4102 Mine Geotechnical Engineering	3
C&ENVENG 4106 Introduction to Geostatistics	3

Water Engineering

C&ENVENG 4073 Water Distribution Systems & Design	3
C&ENVENG 4087 Environmental Modelling, Management & Design	3
C&ENVENG 4108 Environmental Engineering Design IVA	3
C&ENVENG 4109 Environmental Engineering Design IVB	3
CHEM ENG 4051 Water & Wastewater Treatment.....	3

Management Engineering

MINING 4110 Mine Asset Management & Services.....	3
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6.5.4.4 B.E.(Civil and Structural)/B.Fin.

To qualify for both the award of the degree of B.E.(Civil and Structural) and the degree of B.Fin., students are required to complete satisfactorily courses listed below:

Level I

C&ENVENG 1008 Engineering Planning & Design IA.....	3
C&ENVENG 1009 Civil & Environmental Engineering IA	3
C&ENVENG 1012 Engineering Modelling & Analysis IA	3
C&ENVENG 1010 Engineering Mechanics - Statics	3
ECON 1004 Principles of Microeconomics I	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
ECON 1000 Principles of Macroeconomics I	3

*See Clause 6.2 regarding Level I Mathematics requirements.

Level II

ACCTING 1002 Accounting for Decision Makers I	3
C&ENVENG 2025 Strength of Materials IIA.....	3

C&ENVENG 2069 Geotechnical Engineering IIA	3
C&ENVENG 2070 Engineering Modelling & Analysis II.....	3
C&ENVENG 2071 Water Engineering IIA.....	3
C&ENVENG 2072 Structural Engineering Design.....	3
ECON 1009 International Finance Institutions & Markets I	3
MATHS 2201 Engineering Mathematics 1	3
Level III	
CORPFIN 2500 Business Finance II.....	3
ECON 2504 Intermediate Econometrics II.....	3
ECON 2508 Financial Economics II	3
C&ENVENG 3001 Structural Mechanics IIIA.....	3
C&ENVENG 3005 Structural Design III (Concrete)	3
C&ENVENG 3007 Structural Design III (Steel).....	3
C&ENVENG 3012 Geotechnical Engineering Design III	3
C&ENVENG 3077 Engineering Hydrology.....	3
Level IV	
CORPFIN 2501 Financial Institutions Management II.....	3
C&ENVENG 3078 Engineering Management & Planning IIIA.....	3
C&ENVENG 3079 Water Engineering & Design III (S2)	3
CHEM ENG 4051 Water & Wastewater Treatment <i>or</i>	
C&ENVENG 4087 Environmental Modelling & Management.....	3
CORPFIN 3501 Portfolio Theory & Management III.....	3
<i>and either</i>	
APP MTH 3012 Financial Modelling: Tools & Techniques.....	3
<i>or</i>	
CORPFIN 3502 Options, Futures & Risk Management III	3
Level III Finance courses.....	6
Level V	
C&ENVENG 4003A/B Civil & Structural Engineering Research Project ^	6
C&ENVENG 4034 Engineering Management IV	3
C&ENVENG 4068 Computer Methods of Structural Analysis & Design	3
Electives chosen from electives below	12
^ Students who are not selected for Honours will be required to complete 2 additional final year elective courses instead of the Civil & Structural Research Project.	
Electives	
Students should take at least two courses from the one group. The remaining may be chosen from any group. Alternatively, students may take up to 3 units of Level II or III courses offered by the School of Mathematical Sciences. In special circumstances other combinations of elective courses may be acceptable but must be approved by the Head of School. Students may also, with the approval of the Head of School, replace one or more elective courses with appropriate courses offered by other schools in the University.	
Students should undertake at least two electives from the Structural Engineering group, and may only undertake one 'Mining' elective in any one year.	
The elective courses offered by the School in any one year will depend on staff availability, and will be chosen from the following:	
<i>Structural Engineering</i>	
C&ENVENG 4069 Advanced Reinforced Concrete	3
C&ENVENG 4070 Seismic Design of Masonry Buildings.....	3
C&ENVENG 4099 Structural Response to Blast Loading	3
C&ENVENG 4107 Prestressed Concrete Structures.....	3
C&ENVENG 4111 Structural Dynamics and Applications	3
<i>Geotechnical/Mining Engineering</i>	
MINING	
MINING 3072 Mining Geomechanics	3

MINING 4102 Mine Geotechnical Engineering	3
C&ENVENG 4106 Introduction to Geostatistics	3
<i>Water Engineering</i>	
C&ENVENG 4073 Water Distribution Systems & Design	3
C&ENVENG 4087 Environmental Modelling, Management & Design	3
C&ENVENG 4108 Environmental Engineering Design IVA	3
C&ENVENG 4109 Environmental Engineering Design IVB	3
CHEM ENG 4051 Water & Wastewater Treatment.....	3
<i>Management Engineering</i>	
MINING 4110 Mine Asset Management & Services.....	3

6.5.4.5 B.E.(Civil and Structural)/B.Ma.&Comp.Sc. (Computer Science focus)

To qualify for both the award of the degree of B.E.(Civil and Structural) and the degree of B.Ma.Comp.Sc. with a Computer Science Major, students are required to complete satisfactorily:

Level I

C&ENVENG 1008 Engineering Planning & Design IA.....	3
C&ENVENG 1009 Civil & Environmental Engineering IA	3
C&ENVENG 1010 Engineering Mechanics - Statics	3
COMP SCI 1201 Introduction to Programming for Engineers	3
COMP SCI 1202 Object Oriented Programming E UG.....	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
MECH ENG 1007 Engineering Mechanics - Dynamics	3

*See Clause 6.2 regarding Level I Mathematics requirements.

Level II

MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Mathematics II	3
C&ENVENG 2068 Environmental Engineering & Sustainability II	3
C&ENVENG 2025 Strength of Materials IIA.....	3
C&ENVENG 2067 Construction Management & Surveying	3
C&ENVENG 2069 Geotechnical Engineering IIA	3
C&ENVENG 2071 Water Engineering IIA.....	3
C&ENVENG 2072 Structural Engineering Design.....	3

Level III

C&ENVENG 3001 Structural Mechanics IIIA.....	3
C&ENVENG 3005 Structural Design III (Concrete)	3
C&ENVENG 3007 Structural Design III (Steel)	3
C&ENVENG 3012 Geotechnical Engineering Design III	3
C&ENVENG 3077 Engineering Hydrology	3
C&ENVENG 3078 Engineering Management & Planning IIIA.....	3
Level II Computer Science Course	6

Level IV

Level III Computer Science courses*	18
C&ENVENG 3079 Water Engineering & Design III (S2)	3
CHEM ENG 4051 Water & Wastewater Treatment.....	3

or

C&ENVENG 4087 Environmental Modelling & Management.....	3
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Level V

C&ENVENG 4003A/B Civil & Structural Engineering Research Project ^	6
C&ENVENG 4034 Engineering Management IV	3
C&ENVENG 4068 Computer Methods of Structural Analysis & Design	3
Elective courses to the value of at least 12 units	12

*Level III Computer Science courses chosen from those listed in the specific Academic Program Rules of the degree of Bachelor of Computer Science.

^ Students who are not selected for Honours will be required to complete two additional final year elective courses instead of the Civil & Structural Research Project.

Electives

Students should take at least two courses from the one group. The remaining may be chosen from any group. Alternatively, students may take up to 3 units of Level II or III courses offered by the School of Mathematical Sciences. In special circumstances other combinations of elective courses may be acceptable but must be approved by the Head of School. Students may also, with the approval of the Head of School, replace one or more elective courses with appropriate courses offered by other schools in the University.

Students should undertake at least two electives from the Structural Engineering group, and may only undertake one 'Mining' elective in any one year.

The elective courses offered by the School in any one year will depend on staff availability, and will be chosen from the following:

Structural Engineering

C&ENVENG 4069 Advanced Reinforced Concrete	3
C&ENVENG 4070 Seismic Design of Masonry Buildings.....	3
C&ENVENG 4099 Structural Response to Blast Loading	3
C&ENVENG 4107 Prestressed Concrete Structures.....	3
C&ENVENG 4111 Structural Dynamics and Applications	3

Geotechnical/Mining Engineering

MINING

MINING 3072 Mining Geomechanics	3
MINING 4102 Mine Geotechnical Engineering	3
C&ENVENG 4106 Introduction to Geostatistics	3

Water Engineering

C&ENVENG 4073 Water Distribution Systems & Design	3
C&ENVENG 4087 Environmental Modelling, Management & Design	3
C&ENVENG 4108 Environmental Engineering Design IVA	3
C&ENVENG 4109 Environmental Engineering Design IVB	3
CHEM ENG 4051 Water & Wastewater Treatment.....	3

Management Engineering

MINING 4110 Mine Asset Management & Services.....	3
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6.5.4.6 B.E (Civil and Structural)/B.Ma.&Comp.Sc. (Mathematics focus)

To qualify for both the award of the degree of B.E.(Civil and Structural) and the degree of B.Ma.Comp.Sc. with a Mathematics focus, students are required to complete satisfactorily:

Level I

C&ENVENG 1008 Engineering Planning & Design IA.....	3
C&ENVENG 1009 Civil & Environmental Engineering IA	3
C&ENVENG 1010 Engineering Mechanics - Statics	3
C&ENVENG 1012 Engineering Modelling & Analysis IA	3
GEOLOGY 1104 Geology for Engineers.....	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
MECH ENG 1007 Engineering Mechanics - Dynamics	3

*See Clause 6.2 regarding Level I Mathematics requirements.

Level II

C&ENVENG 2025 Strength of Materials IIA.....	3
C&ENVENG 2068 Environmental Engineering & Sustainability II	3
C&ENVENG 2069 Geotechnical Engineering IIA	3
C&ENVENG 2070 Engineering Modelling & Analysis IIA	3
C&ENVENG 2071 Water Engineering IIA.....	3

C&ENVENG 2072 Structural Engineering Design.....	3
MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Maths II	3
Level III	
C&ENVENG 3001 Structural Mechanics IIIA.....	3
C&ENVENG 3005 Structural Design III (Concrete)	3
C&ENVENG 3007 Structural Design III (Steel).....	3
C&ENVENG 3012 Geotechnical Engineering Design III	3
C&ENVENG 3077 Engineering Hydrology.....	3
C&ENVENG 3078 Engineering Management & Planning IIIA.....	3
C&ENVENG 3079 Water Engineering & Design II (S2)	3
CHEM ENG 4051 Water & Wastewater Treatment.....	3
or	
C&ENVENG 4087 Environmental Modelling & Management.....	3
Level IV	
Mathematics courses*	24
*24 units of additional Mathematics courses of which 18 units must be at Level III.	
Level V	
C&ENVENG 4003A/B Civil & Structural Engineering Research Project ^	6
C&ENVENG 4034 Engineering Management IV	3
C&ENVENG 4068 Computer Methods of Structural Analysis & Design	3
Elective courses to the value of at least 12 units	12
^ Students who are not selected for Honours will be required to complete two additional final year elective courses instead of the Civil & Structural Research Project.	
Electives	
Students should take at least two courses from the one group. The remaining may be chosen from any group. Alternatively, students may take up to 3 units of Level II or III courses offered by the School of Mathematical Sciences. In special circumstances other combinations of elective courses may be acceptable but must be approved by the Head of School. Students may also, with the approval of the Head of School, replace one or more elective courses with appropriate courses offered by other schools in the University.	
Students should undertake at least two electives from the Structural Engineering group, and may only undertake one 'Mining' elective in any one year.	
The elective courses offered by the School in any one year will depend on staff availability, and will be chosen from the following:	
<i>Structural Engineering</i>	
C&ENVENG 4069 Advanced Reinforced Concrete	3
C&ENVENG 4070 Seismic Design of Masonry Buildings.....	3
C&ENVENG 4099 Structural Response to Blast Loading	3
C&ENVENG 4107 Prestressed Concrete Structures.....	3
C&ENVENG 4111 Structural Dynamics and Applications	3
<i>Geotechnical/Mining Engineering</i>	
MINING 3072 Mining Geomechanics	3
MINING 4102 Mine Geotechnical Engineering	3
C&ENVENG 4106 Introduction to Geostatistics	3
<i>Water Engineering</i>	
C&ENVENG 4073 Water Distribution Systems & Design	3
C&ENVENG 4087 Environmental Modelling, Management & Design	3
C&ENVENG 4108 Environmental Engineering Design IVA.....	3
C&ENVENG 4109 Environmental Engineering Design IVB	3
CHEM ENG 4051 Water & Wastewater Treatment.....	3
<i>Management Engineering</i>	
MINING 4110 Mine Asset Management & Services.....	3

6.5.4.7 B.E.(Civil and Structural)/B.Sc.

To qualify for a Bachelor of Science award, students must complete a major pursuant to Bachelor of Science Program Rules.

To qualify for both the award of the degree of B.E.(Civil and Structural) and the degree of B.Sc., students are required to complete satisfactorily courses as indicated below:

Level I

C&ENVENG 1008 Engineering Planning & Design IA.....	3
C&ENVENG 1009 Civil & Environmental Engineering I.....	3
C&ENVENG 1010 Engineering Mechanics - Statics.....	3
C&ENVENG 1012 Engineering Modelling & Analysis IA.....	3
MATHS 1011 Mathematics IA.....	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*.....	3
Level I Science courses.....	6

*See Clause 6.2 regarding Level I Mathematics requirements.

Level II

C&ENVENG 2025 Strength of Materials IIA.....	3
C&ENVENG 2069 Geotechnical Engineering IIA.....	3
C&ENVENG 2070 Engineering Modelling & Analysis IIA.....	3
C&ENVENG 2071 Water Engineering IIA.....	3
C&ENVENG 2072 Structural Engineering Design IIA.....	3
MATHS 2201 Engineering Mathematics I.....	3
MATHS 2202 Engineering Mathematics II.....	3

or

Level II Science course.....	3
Level II Science course.....	3

Level III

C&ENVENG 3001 Structural Mechanics IIIA.....	3
C&ENVENG 3005 Structural Design III (Concrete).....	3
C&ENVENG 3007 Structural Design III (Steel).....	3
C&ENVENG 3012 Geotechnical Engineering Design III.....	3
C&ENVENG 3077 Engineering Hydrology.....	3
C&ENVENG 3079 Water Engineering & Design III (S2).....	3
Level II Science courses.....	6

Level IV

Level III Science courses.....	24
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Level V

C&ENVENG 4003A/B Civil & Structural Engineering Research Project ^.....	6
C&ENVENG 4034 Engineering Management IV.....	3
C&ENVENG 4068 Computer Methods of Structural Analysis & Design.....	3
Electives.....	12

^ Students who are not selected for Honours will be required to complete two additional final year elective courses instead of the Civil & Structural Research Project.

Electives

Students should take at least two courses from the one group. The remaining may be chosen from any group. Alternatively, students may take up to 3 units of Level II or III courses offered by the School of Mathematical Sciences. In special circumstances other combinations of elective courses may be acceptable but must be approved by the Head of School. Students may also, with the approval of the Head of School, replace one or more elective courses with appropriate courses offered by other schools in the University.

Students should undertake at least two electives from the Structural Engineering group, and may only undertake one 'Mining' elective in any one year.

The elective courses offered by the School in any one year will depend on staff availability, and will be chosen from the following:

<i>Structural Engineering</i>	
C&ENVENG 4069 Advanced Reinforced Concrete	3
C&ENVENG 4070 Seismic Design of Masonry Buildings.....	3
C&ENVENG 4099 Structural Response to Blast Loading	3
C&ENVENG 4107 Prestressed Concrete Structures.....	3
C&ENVENG 4111 Structural Dynamics and Applications	3
<i>Geotechnical/Mining Engineering</i>	
MINING 3072 Mining Geomechanics	3
MINING 4102 Mine Geotechnical Engineering	3
C&ENVENG 4106 Introduction to Geostatistics	3
<i>Water Engineering</i>	
C&ENVENG 4073 Water Distribution Systems & Design	3
C&ENVENG 4087 Environmental Modelling, Management & Design	3
C&ENVENG 4108 Environmental Engineering Design IVA	3
C&ENVENG 4109 Environmental Engineering Design IVB	3
CHEM ENG 4051 Water & Wastewater Treatment.....	3
<i>Management Engineering</i>	
MINING 4110 Mine Asset Management & Services.....	3

6.5.4.8 B.E.(Civil and Structural)/ B.E.(Civil and Environmental)

To qualify for the combined award of B.E.(Civil and Structural) and B.E.(Civil and Environmental), students are required to complete satisfactorily courses listed below:

Level I

C&ENVENG 1008 Engineering Planning and Design IA.....	3
C&ENVENG 1009 Civil and Environmental Engineering IA.....	3
C&ENVENG 1010 Engineering Mechanics - Statics	3
C&ENVENG 1012 Engineering Modelling & Analysis IA	3
GEOLOGY 1104 Geology for Engineers I.....	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	
ENV BIOL 1002 Ecological Issues I.....	3

*See Clause 6.2 regarding Level I Mathematics requirements.

Level II

C&ENVENG 2025 Strength of Materials IIA.....	3
C&ENVENG 2067 Construction Management & Surveying	3
C&ENVENG 2068 Environmental Engineering & Sustainability II	3
C&ENVENG 2069 Geotechnical Engineering IIA	3
C&ENVENG 2070 Engineering Modelling & Analysis IIA	3
C&ENVENG 2071 Water Engineering IIA.....	3
C&ENVENG 2072 Structural Engineering Design	3
MATHS 2201 Engineering Mathematics I	3

Level III

CHEM ENG 2071 Transport Processes in the Environment	3
C&ENVENG 3001 Structural Mechanics IIIA.....	3
C&ENVENG 3005 Structural Design III (Concrete)	3
C&ENVENG 3007 Structural Design III (Steel)	3
C&ENVENG 3012 Geotechnical Engineering Design III	3
C&ENVENG 3077 Engineering Hydrology	3
C&ENVENG 3078 Engineering Management & Planning IIA.....	3
C&ENVENG 3079 Water Engineering & Design III (S2)	3

Level IV

CHEM ENG 4051 Water & Wastewater Treatment.....	3
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ENV BIOL 2005 Ecology for Engineers II.....	3
ENV BIOL 3012WT Integrated Catchment Management III	3
ECON 3500 Resource & Environmental Economics III.....	3
C&ENVENG 4037 Introduction to Environmental Law	3
C&ENVENG 4087 Environmental Modelling & Management.....	3
C&ENVENG 4108 Environmental Engineering Design IVA	3
C&ENVENG 4109 Environmental Engineering Design IVB	3

Level V

C&ENVENG 4003A Civil & Structural Engineering Research Project ^	6
<i>or</i>	
C&ENVENG 4005A Civil & Environmental Research Project ^	6
C&ENVENG 4034 Engineering Management IV	3
C&ENVENG 4068 Computer Methods of Structural Analysis & Design	3
C&ENVENG 4110 Environmental Engineering Design IVC	3
Electives	9

^ The Civil Engineering Research Project must be in the area of Structural or Geotechnical Engineering while the Environmental Engineering Research Project must be in the area of Water or Environmental Engineering. Students not selected for Honours Civil Engineering Research Project or the Honours Environmental Engineering Research Project will be required to complete two additional final year elective courses instead of the Research Project.

Electives

Students should take at least two courses from the one group. The remaining may be chosen from any group. Alternatively, students may take up to 3 units of Level II or III courses offered by the School of Mathematical Sciences. In special circumstances other combinations of elective courses may be acceptable but must be approved by the Head of School. At least 2 of the elective courses must be in the areas of Structural and/or Geotechnical Engineering and at least 2 must be in the areas of Water and/or Environmental Engineering.

Students may also, with the approval of the Head of School, replace one or more elective courses with appropriate courses offered by other schools in the University.

Students should undertake at least two electives from the Structural Engineering group, and may only undertake one 'Mining' elective in any one year.

The elective courses offered by the School in any one year will depend on staff availability, and will be chosen from the following:

Structural Engineering

C&ENVENG 4069 Advanced Reinforced Concrete	3
C&ENVENG 4070 Seismic Design of Masonry Buildings.....	3
C&ENVENG 4099 Structural Response to Blast Loading	3
C&ENVENG 4107 Prestressed Concrete Structures.....	3
C&ENVENG 4111 Structural Dynamics and Applications	3

Environmental Engineering

MINING 4104 Socio-Environmental Aspects of Mining.....	3
SOIL&WAT 3007WT GIS for Environmental Management.....	3

Geotechnical/Mining Engineering

MINING 3072 Mining Geomechanics	3
MINING 4102 Mine Geotechnical Engineering	3
C&ENVENG 4106 Introduction to Geostatistics	3

Water Engineering

C&ENVENG 4073 Water Distribution Systems & Design	3
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Management Engineering

MINING 4110 Mine Asset Management & Services.....	3
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6.5.5 Computational Engineering

6.5.5.1 B.E.(Computational)

Students are required to complete satisfactorily courses to the value of 24 units at each of Levels I, II, III and IV:

Level I

COMP SCI 1012 Scientific Computing	3
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C&ENVENG 1010 Engineering Mechanics - Statics	3
CHEM ENG 1009 Materials I	3
ELEC ENG 1008 Electrical & Electronic Engineering IA	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
MECH ENG 1006 Design Graphics & Communication M.....	3
MECH ENG 1007 Engineering Mechanics - Dynamics	3

*See Clause 6.2 regarding Level I Mathematics requirements.

Level II

C&ENVENG 2025 Strength of Materials IIA.....	3
MECH ENG 2002 Stress Analysis & Design.....	3
MECH ENG 2019 Dynamics & Control I.....	3
MECH ENG 2020 Materials & Manufacturing	3
MECH ENG 2021 Thermo Fluids I	3
MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Mathematics II	3
MATHS 2104 Numerical Methods.....	3

Level III

APP MTH 3002 Fluid Mechanics III.....	3
APP MTH 3010 Variational Methods & Optimal Control.....	3
APP MTH 3013 Differential Equations III	3
APP MTH 3014 Optimisation III	3
MECH ENG 3102 Heat Transfer & Thermodynamics	3
MECH ENG 3027 Engineering Systems Design & Communication.....	3

MECH ENG 3030 Structural Design & Solid Mechanics	3
MECH ENG 3101 Applied Aerodynamics.....	3

Level IV

APP MTH 3000 Computational Mathematics III	3
APP MTH 4053 Computational Project Part 1 & 2 ^	6
C&ENVENG 4034 Engineering Management IV	3
Elective courses to the value of 12 units.....	12

^ Students who are not selected for Honours will be required to complete two additional final year elective courses instead of the Computational Engineering Honours Project, in consultation with the Head of Mathematical Sciences.

Electives

Applied Mathematics course:

APP MTH 3017 Waves	3
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Computer Science course:

COMP SCI 4045 Distributed High Performance Computing.....	3
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Mechanical Engineering course:

MECH ENG 4111 CFD for Engineering Applications.....	3
MECH ENG 4118 Finite Element Analysis of Structures.....	3
MECH ENG 3028 Dynamics and Control II.....	3

Physics course:

PHYSICS 3534 Computational Physics III	3
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6.5.6 Computer Systems Engineering

6.5.6.1 B.E.(Computer Systems)

Students are required to complete satisfactorily courses to the value of 24 units at each of Levels I, II, III and IV:

Level I

COMP SCI 1201 Introduction to Programming for Engineers	3
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COMP SCI 1202 Object-Oriented Programming E	3
ELEC ENG 1009 Electrical & Electronic Engineering IA	3
ELEC ENG 1010 Electrical & Electronic Engineering IB.....	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
PHYSICS 1100 Physics IA.....	3
PHYSICS 1200 Physics IB	3
Level II	
COMP SCI 2000 Computer Systems	3
COMP SCI 1203 Algorithm Design and Data Structures	3
ELEC ENG 2007 Signals & Systems	3
ELEC ENG 2008 Electronics	3
ELEC ENG 2009 Engineering Electromagnetics.....	3
ELEC ENG 2011 Circuit Analysis.....	3
MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Mathematics II	3
Level III	
COMP SCI 3001 Computer Networks & Applications	3
COMP SCI 3006 Software Engineering & Project.....	3
ELEC ENG 3026 Engineering Systems: Avionics.....	3
ELEC ENG 3027 Control.....	3
ELEC ENG 3018 RF Engineering.....	3
ELEC ENG 3024 Project Management for Electrical Engineering.....	3
ELEC ENG 3028 Digital Systems	3
ELEC ENG 3033 Signal Processing.....	3
Level IV	
C&ENVENG 4034 Engineering Management IV	3
ELEC ENG 4055 Systems Engineering	3
ELEC ENG 4056 Real Time Systems	3
ELEC ENG 4064 Business Management Systems	3
ELEC ENG 4036A/B Design Project*	6
<i>or</i>	
ELEC ENG 4039A/B Honours Project*	6
Electives	6
*Students accepted into the Honours Stream will take Honours Project and other students will take Design Project	
Electives	
COMP SCI 3004 Operating Systems	3
COMP SCI 3005 Computer Architecture.....	3
ELEC ENG 3034 Telecommunications Principles.....	3
ELEC ENG 4053 Digital Microelectronics	3
ELEC ENG 4057 RF Systems	3
ELEC ENG 4058 Power Quality & Condition Monitoring	3
ELEC ENG 4059 Power Electronics & Drive Systems	3
ELEC ENG 4061 Image Processing	3
ELEC ENG 4063 Communications.....	3
PURE MTH 3018 Coding & Cryptology III.....	3

6.5.6.2 B.E.(Computer Systems)/B.A

To satisfy the Arts component of this program, students must undertake 30 units of Arts courses, which includes an approved major sequence (24 units). The remaining 6 units can be undertaken at any level. Students should consult the Bachelor of Arts academic program rules for the list of approved major sequences and the specific requirements of each.

To satisfy the BE (Computer Systems) component of this program students are required to satisfactorily complete the courses listed below:

Level I	
COMP SCI 1201 Introduction to Programming for Engineers	3
COMP SCI 1202 Object-Oriented Programming E UG	3
ELEC ENG 1009 Electrical & Electronic Engineering IA	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
PHYSICS 1100 Physics IA.....	3
PHYSICS 1200 Physics IB	3
Level I Arts course	3
*See Clause 6.2 regarding Level I Mathematics requirements.	
Level II	
ELEC ENG 1010 Electrical & Electronic Engineering IB.....	3
ELEC ENG 2007 Signals & Systems.....	3
ELEC ENG 2011 Circuit Analysis.....	3
ELEC ENG 2009 Engineering Electromagnetics.....	3
MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Mathematics II	3
Level I Arts course	6
Level III	
COMP SCI 2000 Computer Systems	3
COMP SCI 1203 Algorithm Design and Data Structures	3
ELEC ENG 2008 Electronics II.....	3
ELEC ENG 3028 Digital Systems	3
ELEC ENG 3026 Engineering Systems: Avionics.....	3
ELEC ENG 3033 Signal Processing.....	3
Advanced Level Arts courses	6
Level IV	
COMP SCI 3001 Computer Networks & Applications	3
COMP SCI 3006 Software Engineering & Project.....	3
ELEC ENG 3018 RF Engineering	3
ELEC ENG 3024 Project Management for Electrical Engineering.....	3
ELEC ENG 3027 Control.....	3
Advanced Level Arts courses	9
Level V	
ELEC ENG 4055 Systems Engineering	3
ELEC ENG 4056 Real Time Systems	3
ELEC ENG 4036A/B Design Project Part I*	3
<i>or</i>	
ELEC ENG 4039A/B Honours Project*	6
ELEC ENG 4056 Real Time Systems	3
Elective	3
Advanced Level Arts courses	6
*Students accepted into the Honours Stream will take Honours Project and other students will take Design Project	
Electives	
COMP SCI 3004 Operating Systems	3
COMP SCI 3005 Computer Architecture	3
ELEC ENG 3034 Telecommunications Principles.....	3
ELEC ENG 4053 Digital Microelectronics	3
ELEC ENG 4057 RF Systems	3
ELEC ENG 4058 Power Quality & Condition Monitoring	3
ELEC ENG 4059 Power Electronics & Drive Systems	3
ELEC ENG 4061 Image Processing	3

ELEC ENG 4063 Communications	3
PURE MTH 3018 Coding & Cryptology III.....	3

6.5.6.3 B.E.(Computer Systems)/B.Ec. program

To qualify for both the award of the degree of B.E.(Computer Systems) and the degree of B.Ec., students are required to complete satisfactorily courses listed below:

Level I

COMP SCI 1201 Introduction to Programming for Engineers	3
COMP SCI 1202 Object-Oriented Programming	3
ECON 1004 Principles of Microeconomics I	3
ELEC ENG 1009 Electrical & Electronic Engineering IA	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
PHYSICS 1100 Physics IA.....	3
PHYSICS 1200 Physics IB	3

*See Clause 6.2 regarding Level I Mathematics requirements.

Level II

ECON 1000 Principles of Macroeconomics I	3
ECON 2504 Intermediate Econometrics.....	3
<i>or</i>	
ECON 2503 Mathematical Economics II.....	3
ELEC ENG 1010 Electrical & Electronic Engineering IB.....	3
ELEC ENG 2007 Signals & Systems	3
ELEC ENG 2009 Engineering Electromagnetics.....	3
ELEC ENG 2011 Circuit Analysis.....	3
MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Mathematics II	3

Level III

COMP SCI 2000 Computer Systems UG.....	3
COMP SCI 1203 Algorithm Design & Data Structures	3
ELEC ENG 3026 Engineering Systems: Avionics	3
ELEC ENG 2008 Electronics	3
ECON 2506 Intermediate Microeconomics A II	3
ECON 2507 Intermediate Macroeconomics.....	3
ELEC ENG 3028 Digital Systems	3
ELEC ENG 3033 Signal Processing	3

Level IV

COMMGMT 2500 Organisational Behaviour II.....	3
COMP SCI 3006 Software Engineering & Project.....	3
ELEC ENG 3018 RF Engineering	3
ELEC ENG 3024 Project Management for Electrical Engineers	3
ELEC ENG 3027 Control	3
COMPSCI 3001 Computer Networks & Applications	3
Level III Economics Courses*	6

*Level III Economics courses chosen from those listed in the specific Academic Program Rules for the degree of Bachelor of Economics.

Level V

ELEC ENG 4056 Real Time Systems	3
ELEC ENG 4036A/B Design Project [#]	6
<i>or</i>	
ELEC ENG 4039A/B Honours Project [#]	6
ELEC ENG 4055 Systems Engineering	3
Level III Economics Courses*	12

#Students accepted into the Honours Stream will take Honours Project and other students will take Design Project

6.5.6.4 B.E.(Computer Systems)/B.Fin.

To qualify for both the award of the degree of B.E.(Computer Systems) and the degree of B.Fin., students are required to complete satisfactorily courses listed below:

Level I

COMP SCI 1201 Introduction to Programming for Engineers	3
COMP SCI 1202 Object-Oriented Programming E UG	3
ECON 1004 Principles of Microeconomics	3
ELEC ENG 1009 Electrical & Electronic Engineering IA	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
PHYSICS 1100 Physics IA.....	3
PHYSICS 1200 Physics IB.....	3

*See Clause 6.2 regarding Level I Mathematics requirements.

Level II

ECON 1000 Principles of Macroeconomics I	3
ECON 1009 International Financial Institutions & Markets I.....	3
ELEC ENG 1010 Electrical & Electronic IB	3
ELEC ENG 2007 Signals & Systems.....	3
ELEC ENG 2009 Engineering Electromagnetics.....	3
ELEC ENG 2011 Circuit Analysis.....	3
MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Mathematics II	3

Level III

ACCTING 1002 Accounting for Decision Makers I.....	3
COMP SCI 2000 Computer Systems	3
COMP SCI 1203 Algorithm Design & Data Structures	3
CORPFIN 2500 Business Finance II.....	3
ECON 2504 Intermediate Econometrics II.....	3
ELEC ENG 2008 Electronics	3
ELEC ENG 3028 Digital Systems	3
ELEC ENG 3033 Signal Processing	3

Level IV

APP MTH 3012 Financial Modelling: Tools & Techniques.....	3
<i>or</i>	
CORPFIN 35022 Options, Futures & Risk Management III	3
COMP SCI Computer Networks & Applications	3
CORPFIN 2501 Financial Institutions Management II.....	3
ECON 2508 Financial Economics II	3
ELEC ENG 3018 RF Engineering	3
ELEC ENG 3024 Project Management for Electrical Engineers	3
ELEC ENG 3026 Engineering Systems: Avionics.....	3
ELEC ENG 3027 Control	3

Level V

COMP SCI 3006 Software Engineering & Project.....	3
CORPFIN 3501 Portfolio Theory & Management III.....	3
ELEC ENG 4055 Systems Engineering	3
ELEC ENG 4056 Real Time Systems	3
ELEC ENG 4036A/B Design Project [#]	6
<i>or</i>	
ELEC ENG 4039A/B Honours Project [#]	6
Level III Finance Courses+	6

#Students accepted into the Honours Stream will take Honours Project and other students will take Design Project
 +Level III Finance courses chosen from those listed in the specific Academic Program Rules for the degree of Bachelor of Finance.

6.5.6.5 B.E.(Computer Systems)/LLB.

To qualify for the award of the degree of BE (Computer Systems) and the degree of LLB, students are required to complete satisfactorily courses below:

Level I	
ELEC ENG 1009 Electrical & Electronic Engineering IA	3
ELEC ENG 1010 Electrical & Electronic Engineering 1B.....	3
LAW 1501 Foundations of Law.....	3
LAW 1502 Law of Torts 1	3
LAW 1504 Principles of Public Law	3
LAW 1505 Law of Torts 2	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
*See Clause 6.2 regarding Level I Mathematics requirements.	
Level II	
COMP SCI 1201 Introduction to Programming for Engineers	3
COMP SCI 1202 Object-Oriented Programming	3
PHYSICS 1100 Physics 1A.....	3
PHYSICS 1200 Physics 1B	3
Law courses to be advised by the Law School.....	12
Level III	
ELEC ENG 2007 Signals & Systems.....	3
ELEC ENG 2008 Electronics	3
ELEC ENG 2009 Engineering Electromagnetics.....	3
ELEC ENG 2011 Circuit Analysis.....	3
MATHS 2201 Engineering Mathematics 1	3
MATHS 2202 Engineering Mathematics II	3
Law courses to be advised by Law School.....	6
Level IV	
COMP SCI 1203 Algorithm Design and Data Structures for Engineers	3
COMP SCI 2000 Computer Systems	3
ELEC ENG 3027 Control	3
ELEC ENG 3028 Digital Systems	3
Law courses to be advised by Law School.....	12
Level V	
COMP SCI 3001 Computer Networks & Applications	3
COMP SCI 3006 Software Engineering & Project.....	3
ELEC ENG 3018 RF Engineering	3
ELEC ENG 3024 Project Management for Electrical Engineers	3
ELEC ENG 3026 Engineering Systems: Avionics	3
ELEC ENG 3033 Signal Processing	3
Law courses to be advised by Law School.....	6
Level VI	
ELEC ENG 4036A/B Design Project*	6
<i>or</i>	
ELEC ENG 4039A/B Honours Project*	6
ELEC ENG 4055 Systems Engineering	3
ELEC ENG Real Time Systems IV	3
Law courses to be advised by Law School.....	12
<i>plus</i>	

12 additional Units as required by Law School

*Students accepted into the Honours Stream will take the Honours Project and other students will take the Design Project

6.5.6.6 B.E.(Computer Systems)/B.Ma.&Comp.Sc.

To qualify for both the award of the degree of B.E.(Computer Systems) and the degree of B.Ma.&Comp.Sc., students are required to complete satisfactorily:

Level I

COMP SCI 1201 Introduction to Programming for Engineers	3
COMP SCI 1202 Object-Oriented Programming E	3
ELEC ENG 1009 Electrical & Electronic Engineering IA	3
ELEC ENG 1010 Electrical & Electronic Engineering IB.....	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
PHYSICS 1100 Physics IA.....	3
PHYSICS 1200 Physics IB	3

*See Clause 6.2 regarding Level I Mathematics requirements.

Level II

COMP SCI 2000 Computer Systems	3
COMP SCI 1203 Algorithm Design and Data Structures	3
ELEC ENG 2007 Signals & Systems	3
ELEC ENG 2008 Electronics	3
ELEC ENG 2009 Engineering Electromagnetics.....	3
ELEC ENG 2011 Circuit Analysis.....	3
MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Mathematics II	3

Level III

COMP SCI 3001 Computer Networks & Applications	3
ELEC ENG 3026 Engineering Systems: Avionics	3
ELEC ENG 3018 RF Engineering	3
ELEC ENG 3024 Project Management for Electrical Engineering.....	3
ELEC ENG 3028 Digital Systems	3
ELEC ENG 3033 Signal Processing	3
Level II or III Maths or Computer Science courses	6

Level IV

ELEC ENG 3027 Control	3
COMP SCI 3006 Software Engineering & Project.....	3
Level III Mathematics or Computer Science courses	18

Level V

C&ENVENG 4034 Engineering Management IV	3
ELEC ENG 4055 Systems Engineering	3
ELEC ENG 4056 Real Time Systems	3
ELEC ENG 4064 Business Management Systems	3
ELEC ENG 4036A/B Design Project*	6
<i>or</i>	
ELEC ENG 4039A/B Honours Project*	6
Engineering electives.....	6

*Students accepted into the Honours Stream will take Honours Project and other students will take Design Project

Electives

COMP SCI 3004 Operating Systems	3
COMP SCI 3005 Computer Architecture	3
ELEC ENG 3034 Telecommunications Principles.....	3
ELEC ENG 4053 Digital Microelectronics	3

ELEC ENG 4057 RF Systems	3
ELEC ENG 4058 Power Quality & Condition Monitoring.....	3
ELEC ENG 4059 Power Electronics & Drive Systems	3
ELEC ENG 4061 Image Processing.....	3
ELEC ENG 4063 Communications	3
PURE MTH 3018 Coding & Cryptology III.....	3
6.5.7 Electrical and Electronic Engineering	
6.5.7.1 B.E.(Electrical and Electronic)	
Students are required to complete satisfactorily courses to the value of 24 units at each of Levels I, II, III and IV:	
Level I	
COMP SCI 1201 Introduction to Programming for Engineers	3
COMP SCI 1202 Object-Oriented Programming E	3
ELEC ENG 1009 Electrical & Electronic Engineering IA	3
ELEC ENG 1010 Electrical & Electronic Engineering IB.....	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
PHYSICS 1100 Physics IA.....	3
PHYSICS 1200 Physics IB	3
Level II	
COMP SCI 2000 Computer Systems	3
COMP SCI 1203 Algorithm Design & Data Structures	3
ELEC ENG 2007 Signals and Systems.....	3
ELEC ENG 2008 Electronics	3
ELEC ENG 2009 Engineering Electromagnetics.....	3
ELEC ENG 2011 Circuit Analysis.....	3
MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Mathematics II	3
Level III	
ELEC ENG 3027 Control	3
ELEC ENG 3018 RF Engineering	3
ELEC ENG 3021 Electric Energy Systems	3
ELEC ENG 3024 Project Management for Electrical Engineering.....	3
ELEC ENG 3028 Digital Systems	3
ELEC ENG 3031 Power Systems	3
ELEC ENG 3033 Signal Processing	3
ELEC ENG 3034 Telecommunications Principles.....	3
Level IV	
C&ENVENG 4034 Engineering Management IV	3
ELEC ENG 4064 Business Management Systems	3
ELEC ENG 4036A/B Design Project*	6
<i>or</i>	
ELEC ENG 4039A/B Honours Project*	6
Electives	12
*Students accepted into the Honours Stream will take Honours Project and other students will take Design Project	
Electives	
COMP SCI 3001 Computer Networks & Applications	3
COMP SCI 3004 Operating Systems	3
COMP SCI 3005 Computer Architecture	3
ELEC ENG 4053 Digital Microelectronics	3
ELEC ENG 4054 Telecommunications Systems	3
ELEC ENG 4055 Systems Engineering	3
ELEC ENG 4056 Real Time Systems	3

ELEC ENG 4057 RF Systems	3
ELEC ENG 4058 Power Quality & Condition Monitoring.....	3
ELEC ENG 4059 Power Electronics & Drive Systems	3
ELEC ENG 4061 Image Processing.....	3
ELEC ENG 4062 Distributed Generation Technologies	3
ELEC ENG 4063 Communications	3
PURE MTH 3018 Coding & Cryptology III.....	3

6.5.7.2 B.E.(Electrical and Electronic - Avionics)

Students are required to complete satisfactorily courses to the value of 24 units at each of Levels I, II, III and IV:

Level I

COMP SCI 1201 Introduction to Programming for Engineers	3
COMP SCI 1202 Object-Oriented Programming E	3
ELEC ENG 1009 Electrical & Electronic Engineering IA	3
ELEC ENG 1010 Electrical & Electronic Engineering IB.....	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM *	3
MECH ENG 1007 Engineering Mechanics - Dynamics	3
PHYSICS 1100 Physics IA.....	3

*See Clause 6.2 regarding Level I Mathematics requirements.

Level II

COMP SCI 2000 Computer Systems	3
COMP SCI 1203 Algorithm Design and Data Structures	3
ELEC ENG 2007 Signals & Systems.....	3
ELEC ENG 2008 Electronics	3
ELEC ENG 2009 Engineering Electromagnetics.....	3
ELEC ENG 2011 Circuit Analysis.....	3
MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Mathematics II	3

Level III

ELEC ENG 4056 Real Time Systems	3
ELEC ENG 3018 RF Engineering	3
ELEC ENG 3027 Control	3
ELEC ENG 3024 Project Management for Electrical Engineering.....	3
ELEC ENG 3026 Engineering Systems: Avionics	3
ELEC ENG 3028 Digital Systems	3
ELEC ENG 3033 Signal Processing	3
MECH ENG 3100 Aeronautical Engineering.....	3

Level IV

C&ENVENG 4034 Engineering Management IV	3
ELEC ENG 4055 System Engineering.....	3
ELEC ENG 4064 Business Management Systems	3
ELEC ENG 4065 Avionic Sensors & Systems.....	3
ELEC ENG 4036A/B Design Project#	6
<i>or</i>	
ELEC ENG 4039A/B Honours Project #	6
Electives	6

#Students accepted into the Honours stream will take Honours Project and other students will take Design Project

Electives

COMP SCI 3001 Computer Networks & Applications	3
ELEC ENG 3034 Telecommunications Principles.....	3
ELEC ENG 4054 Telecommunications Systems	3

ELEC ENG 4057 RF Systems	3
COMP SCI 3006 Software Engineering & Project.....	3
ELEC ENG 4063 Communications	3

6.5.7.3 B.E.(Electrical and Electronic)/B.A.

To satisfy the Arts component of this program, students must undertake 30 units of Arts courses, which includes an approved major sequence (24 units). The remaining 6 units can be undertaken at any level. Students should consult the Bachelor of Arts academic program rules for the list of approved major sequences and the specific requirements of each.

To satisfy the BE (Electrical and Electronic) component of this program students are required to satisfactorily complete the courses listed below:

Level I

COMP SCI 1201 Introduction to Programming for Engineers	3
COMP SCI 1202 Object-Oriented Programming E	3
ELEC ENG 1009 Electrical & Electronic Engineering IA	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
PHYSICS 1100 Physics IA.....	3
PHYSICS 1200 Physics IB	3
Level I Arts course	3

*See Clause 6.2 regarding Level I Mathematics requirements.

Level II

ELEC ENG 1010 Electrical & Electronic Engineering IB.....	3
ELEC ENG 2007 Signals & Systems	3
ELEC ENG 2009 Engineering Electromagnetics.....	3
ELEC ENG 2011 Circuit Analysis.....	3
MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Mathematics II	3
Level I Arts courses	6

Level III

COMP SCI 2000 Computer Systems	3
COMP SCI 1203 Algorithm Design & Data Structures	3
ELEC ENG 2008 Electronics	3
ELEC ENG 3028 Digital Systems	3
ELEC ENG 3033 Signal Processing	3
ELEC ENG 3034 Telecommunications Principles.....	3
Advanced Level Arts courses.....	6

Level IV

ELEC ENG 3018 RF Engineering	3
ELEC ENG 3021 Electric Energy Systems	3
ELEC ENG 3024 Project Management for Electrical Engineers	3
ELEC ENG 3027 Control	3
ELEC ENG 3031 Power Systems	3
Advanced Level Arts courses.....	9

Level V

ELEC ENG 4036A/B Design Project*	6
<i>or</i>	
ELEC ENG 4039A/B Honours Project*	6
Electives	6
Advanced Level Arts Courses	6
ELEC ENG 4064 Business Management Systems	3
ELEC ENG 4034 Engineering Management IV	3

*Students accepted into the Honours Stream will take Honours Project and other students will take Design Project

Electives	
COMP SCI 3001 Computer Networks & Applications	3
COMP SCI 3004 Operating Systems	3
COMP SCI 3005 Computer Architecture	3
ELEC ENG 4053 Digital Microelectronics	3
ELEC ENG 4054 Telecommunications Systems	3
ELEC ENG 4055 Systems Engineering	3
ELEC ENG 4056 Real Time Systems	3
ELEC ENG 4057 RF Systems	3
ELEC ENG 4058 Power Quality & Condition Monitoring.....	3
ELEC ENG 4059 Power Electronics & Drive Systems	3
ELEC ENG 4061 Image Processing.....	3
ELEC ENG 4062 Distributed Generation Technologies	3
ELEC ENG 4063 Communications	3
PURE MTH 3018 Coding & Cryptology III.....	3

6.5.7.4 B.E. (Electrical and Electronic)/B.Ec.

To qualify for both the award of the degree of B.E.(Electrical and Electronic) and the degree of B.Ec. students are required to complete satisfactorily courses listed below:

Level I

COMP SCI 1201 Introduction to Programming for Engineers.....	3
COMP SCI 1202 Object-Oriented Programming E	3
ECON 1004 Principles of Microeconomics I	3
ELEC ENG 1009 Electrical & Electronic Engineering IA	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
PHYSICS 1100 Physics IA.....	3
PHYSICS 1200 Physics IB	3

*See Clause 6.2 regarding Level I Mathematics requirements.

Level II

ECON 1000 Principles of Macroeconomics I	3
ECON 2504 Intermediate Econometrics II.....	3
<i>or</i>	
ECON 2503 Intermediate Mathematical Economics II	3
ELEC ENG 1010 Electrical & Electronic Engineering IB.....	3
ELEC ENG 2007 Signals & Systems.....	3
ELEC ENG 2009 Engineering Electromagnetics.....	3
ELEC ENG 2011 Circuit Analysis.....	3
MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Mathematics II	3

Level III

COMP SCI 2000 Computer Systems	3
COMP SCI 1203 Algorithm Design & Data Structures	3
ELEC ENG 2008 Electronics II	3
ECON 2507 Intermediate Macroeconomics II	3
ECON 2506 Intermediate Microeconomics A II	3
ELEC ENG 3028 Digital Systems	3
ELEC ENG 3033 Signal Processing III.....	3
ELEC ENG 3034 Telecommunications Principles.....	3

Level IV

COMMGMGT 2500 Organisational Behaviour II.....	3
ELEC ENG 3018 RF Engineering.....	3
ELEC ENG 3021 Electric Energy Systems	3

ELEC ENG 3024 Project Management for Electrical Engineers	3
ELEC ENG 3027 Control.....	3
ELEC ENG 3031 Power Systems	3
Level III Economics courses*	6
*Level III Economics courses chosen from those listed in the specific Academic Program Rules of the degree of Bachelor of Economics.	
Level V	
ELEC ENG 4036A/B Design Project#	6
<i>or</i>	
ELEC ENG 4039A/B Honours Project#	6
ELEC ENG 4064 Business Management Systems	3
ELEC ENG 4034 Engineering Management IV	3
Level III Economics courses	12
#Students accepted into the Honours Stream will take Honours Project and other students will take Design Project	

6.5.7.5 B.E.(Electrical and Electronic)/B.Fin

To qualify for both the award of the degree of B.E.(Electrical and Electronic) and the degree of B.Fin., students are required to complete satisfactorily courses listed below:

Level I	
COMP SCI 1201 Introduction to Programming for Engineers	3
COMP SCI 1202 Object-Oriented Programming E	3
ECON 1004 Principles of Microeconomics I	3
ELEC ENG 1009 Electrical & Electronic Engineering IA	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
PHYSICS 1100 Physics IA.....	3
PHYSICS 1200 Physics IB	3
*See Clause 6.2 regarding Level I Mathematics requirements.	
Level II	
ECON 1009 International Finance Institutions & Markets I	3
ELEC ENG 1010 Electrical & Electronic Engineering IB.....	3
ELEC ENG 2007 Signals & Systems.....	3
ELEC ENG 2009 Engineering Electromagnetics.....	3
ELEC ENG 2011 Circuit Analysis.....	3
ECON 1000 Principles of Macroeconomics I	3
MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Mathematics II	3
Level III	
ACCTING 1002 Accounting for Decision Makers I.....	3
COMP SCI 2000 Computer Systems	3
COMP SCI 1203 Algorithm Design & Data Structures	3
ELEC ENG 2008 Electronics	3
CORPFIN 2500 Business Finance II.....	3
ECON 2504 Intermediate Econometrics II.....	3
ELEC ENG 3028 Digital Systems	3
ELEC ENG 3033 Signal Processing	3
Level IV	
APP MTH 3012 Financial Modelling: Tools & Techniques <i>or</i>	
CORPFIN 3502 Options, Futures & Risk Management III	3
CORPFIN 2501 Financial Institutions Management II.....	3
ECON 2508 Financial Economics II	3
ELEC ENG 3027 Control.....	3
ELEC ENG 3018 RF Engineering.....	3

ELEC ENG 3021 Electric Energy Systems	3
ELEC ENG 3024 Project Management for Electrical Engineering.....	3
ELEC ENG 3034 Telecommunications Principles.....	3
Level V	
CORPFIN 3501 Portfolio Theory & Management III.....	3
ELEC ENG 3031 Power Systems	3
ELEC ENG 4036A/B Design Project [#]	6
<i>or</i>	
ELEC ENG 4039A/B Honours Project [#]	6
ELEC ENG 4064 Business Management Systems	3
ELEC ENG 4034 Engineering Management IV	3
Level III Finance courses.....	6

[#]Students accepted into the Honours Stream will take Honours Project and other students will take Design Project.

6.5.7.6 B.E.(Electrical and Electronic)/LLB.

To qualify for the award of the degree of BE (Electrical and Electronic) and the degree of LLB, students are required to complete satisfactorily courses below:

Level I	
ELEC ENG 1009 Electrical & Electronic Engineering IA	3
ELEC ENG 1010 Electrical & Electronic Engineering IB.....	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
LAW 1501 Foundations of Law.....	3
LAW 1502 Law of Torts I.....	3
LAW 1504 Principles of Public Law.....	3
LAW 1505 Law of Torts 2	3

*See Clause 6.2 regarding Level I Mathematics requirements.

Level II	
COMP SCI 1201 Introduction to Programming for Engineers	3
COMP SCI 1202 Object-Oriented Programming E	3
PHYSICS 1100 Physics IA.....	3
PHYSICS 1200 Physics IB	3
Law courses to be advised by Law School.....	12

Level III	
ELEC ENG 2007 Signals & Systems.....	3
ELEC ENG 2008 Electronics	3
ELEC ENG 2009 Engineering Electromagnetics.....	3
ELEC ENG 2011 Circuit Analysis.....	3
MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Mathematics II	3
Law courses to be advised by Law School.....	6

Level IV	
COMP SCI 1203 Algorithm Design and Data Structures for Engineers	3
COMP SCI 2000 Computer Systems	3
ELEC ENG 3028 Digital Systems	3
ELEC ENG 3027 Control	3
Law courses to be advised by Law School.....	12

Level V

Electrical & Electronic Engineering courses:

ELEC ENG 3018 RF Engineering	3
ELEC ENG 3024 Project Management for Electrical Engineering.....	3
ELEC ENG 3031 Power Systems	3

ELEC ENG 3033 Signal Processing	3
ELEC ENG 3034 Telecommunications Principles.....	3
ELEC ENG 3021 Electric Energy Systems	3
Law courses to be advised by Law School.....	6
Level VI	
<i>Electrical & Electronic Engineering courses:</i>	
ELEC ENG 4036A/B Design Project ^	6
<i>or</i>	
ELEC ENG 4039A Honours Project ^	6
ELEC ENG 4064 Business Management Systems	3
ELEC ENG 4034 Engineering Management IV	3
Law courses to be advised by Law School.....	12
<i>plus</i>	
12 additional units of Law courses to be specified by the Law School	
^ Students accepted into the Honours Stream will take the Honours Project and other students will take the Design Project.	

6.5.7.7 B.E.(Electrical and Electronic)/B.Ma.&Comp.Sc.

To qualify for both the award of the degree of B.E.(Electrical and Electronic) and the degree of B.Ma.Comp.Sc., students are required to complete satisfactorily:

Level I	
COMP SCI 1201 Introduction to Programming for Engineers	3
COMP SCI 1202 Object-Oriented Programming E	3
ELEC ENG 1009 Electrical & Electronic Engineering IA	3
ELEC ENG 1010 Electrical & Electronic Engineering IB.....	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
PHYSICS 1100 Physics IA.....	3
PHYSICS 1200 Physics IB	3
*See Clause 6.2 regarding Level I Mathematics requirements.	
Level II	
COMP SCI 2000 Computer Systems	3
COMP SCI 1203 Algorithm Design & Data Structures	3
ELEC ENG 2011 Circuit Analysis.....	3
ELEC ENG 2007 Signals & Systems.....	3
ELEC ENG 2008 Electronics.....	3
ELEC ENG 2009 Engineering Electromagnetics.....	3
MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Mathematics II	3
Level III	
ELEC ENG 3018 RF Engineering	3
ELEC ENG 3021 Electric Energy Systems	3
ELEC ENG 3024 Project Management for Electrical Engineering.....	3
ELEC ENG 3028 Digital Systems	3
ELEC ENG 3033 Signal Processing	3
ELEC ENG 3034 Telecommunications Principles.....	3
Level II or III Mathematics or Computer Science courses	6
Level IV	
ELEC ENG 3027 Control	3
ELEC ENG 3031 Power Systems	3
Level III Mathematics or Computer Science courses	18
Level V	
C&ENVENG 4034 Engineering Management IV	3

ELEC ENG 4064 Business Management Systems	3
ELEC ENG 4036A/B Design Project [#]	6
<i>or</i>	
ELEC ENG 4039A/B Honours Project [#]	6
Electives	12
[#] Students accepted into the Honours Stream will take Honours Project and other students will take Design Project.	
Electives	
COMP SCI 3001 Computer Networks & Applications	3
COMP SCI 3004 Operating Systems	3
COMP SCI 3005 Computer Architecture	3
ELEC ENG 4053 Digital Microelectronics	3
ELEC ENG 4054 Telecommunications Systems	3
ELEC ENG 4055 Systems Engineering	3
ELEC ENG 4056 Real Time Systems	3
ELEC ENG 4057 RF Systems	3
ELEC ENG 4058 Power Quality & Condition Monitoring.....	3
ELEC ENG 4059 Power Electronics & Drive Systems	3
ELEC ENG 4061 Image Processing.....	3
ELEC ENG 4062 Distributed Generation Technologies	3
ELEC ENG 4063 Communications	3
PURE MTH 3018 Coding & Cryptology III.....	3

6.5.7.8 B.E.(Electrical and Electronic)/B.Sc.

To qualify for the combined award of B.E.(Electrical and Electronic) and B.Sc. students are required to complete satisfactorily courses as indicated below.

Level I

COMP SCI 1201 Introduction to Programming for Engineers	3
COMP SCI 1202 Object-Oriented Programming E	3
ELEC ENG 1009 Electrical & Electronic Engineering IA	3
ELEC ENG 1010 Electrical & Electronic Engineering IB.....	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
PHYSICS 1100 Physics IA.....	3
PHYSICS 1200 Physics IB	3

*See Clause 6.2 regarding Level I Mathematics requirements.

Level II

COMP SCI 2000 Computer Systems	3
COMP SCI 1203 Algorithm Design & Data Structures	3
ELEC ENG 2007 Signals and Systems ³	
ELEC ENG 2008 Electronics	3
ELEC ENG 2009 Engineering Electromagnetics.....	3
ELEC ENG 2011 Circuit Analysis.....	3
MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Mathematics II	3

Level III

PHYSICS 2510 Physics IIA.....	3
PHYSICS 2520 Physics IIB	3
PHYSICS 2532 Classical Physics II	3
PHYSICS 2534 Electromagnetism II	3
ELEC ENG 3018 RF Engineering	3
ELEC ENG 3024 Project Management for Electrical Engineers	3
ELEC ENG 3027 Control	3
ELEC ENG 3033 Signal Processing	3

Level IV	
ELEC ENG 3021 Electrical Energy Systems	3
ELEC ENG 3028 Digital Systems	3
ELEC ENG 3031 Power Systems	3
ELEC ENG 3034 Telecommunications Principles.....	3
PHYSICS 3542 Physics III.....	6
PHYSICS 3002 Experimental Physics III.....	3
Level III Physics Elective	3
Level V	
C&ENVENG Engineering Management IV	3
ELEC ENG 4064 Business Management Systems	3
ELEC ENG 4036A/B Design Project#	6
<i>or</i>	
ELEC ENG 4039A Honours Project#	6
Electives	9
Level III Physics Elective	3
#Students accepted into the Honours Stream will take Honours Project and other students will take Design Project.	
Electives	
COMP SCI 3001 Computer Networks &Applications	3
COMP SCI 3004 Operating Systems	3
COMP SCI 3005 Computer Architecture	3
ELEC ENG 4053 Digital Microelectronics	3
ELEC ENG 4054 Telecommunications Systems	3
ELEC ENG 4055 Systems Engineering.....	3
ELEC ENG 4056 Real Time Systems	3
ELEC ENG 4057 RF Systems	3
ELEC ENG 4058 Power Quality & Condition Monitoring.....	3
ELEC ENG 4059 Power Electronics & Drive Systems	3
ELEC ENG 4061 Image Processing.....	3
ELEC ENG 4062 Distributed Generation Technologies	3
ELEC ENG 4063 Communications	3
PURE MTH 3018 Coding & Cryptology III.....	3

6.5.8 Electrical and Sustainable Energy Engineering

6.5.8.1 B.E. (Electrical and Sustainable Energy)

Students are required to complete satisfactorily courses to the value of 24 units at each of Levels I, II, III and IV:

Level I	
C&ENVENG 1010 Engineering Mechanics - Statics	3
CHEM ENG 1009 Materials I	3
COMP SCI 1201 Introduction to Programming for Engineers.....	3
ELEC ENG 1009 Electrical & Electronic Engineering IA	3
ELEC ENG 1010 Electrical & Electronic Engineering IB.....	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
MECH ENG 1009 Engineering Mechanics - Dynamics	3
*See Clause 6.2 regarding Level I Mathematics requirements.	
Level II	
ELEC ENG 2007 Signals & Systems	3
ELEC ENG 2008 Electronics	3
ELEC ENG 2009 Engineering Electromagnetics.....	3
ELEC ENG 2011 Circuit Analysis	3

ELEC ENG 3028 Digital Systems	3
MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Mathematics II	3
MECH ENG 2021 Thermo-Fluids	3
Level III	
ELEC ENG 3021 Electric Energy Systems	3
ELEC ENG 3027 Control	3
ELEC ENG 3029 Project Management for Sustainable Energy	3
ELEC ENG 3031 Power Systems	3
ELEC ENG 3033 Signal Processing	3
ELEC ENG 4059 Power Electronics & Drive Systems	3
MECH ENG 3101 Applied Aerodynamics.....	3
MECH ENG 3105 Sustainability & the Environment.....	3
Level IV	
C&ENVENG 4034 Engineering Management IV	3
MECH ENG 4144 Renewable Fluid Power Technologies	3
ELEC ENG 4062 Distributed Generation Technologies	3
ELEC ENG 4064 Business Management Systems	3
ELEC ENG 4036A/B Design Project [#]	6
<i>or</i>	
ELEC ENG 4039A Honours Project [#]	6
TECHCOMM 3006 Energy Management, Economics & Policy.....	3
Elective	3

[#]Students accepted into the Honours Stream will take Honours Project and other students will take Design Project.

Electives

ELEC ENG 3034 Telecommunication Principles	3
ELEC ENG 4055 Systems Engineering	3
ELEC ENG 4056 Real Time Systems	3
ELEC ENG 4058 Power Quality & Condition Monitoring.....	3
MECH ENG 4145 Sustainable Thermal Technologies	3

6.5.9 Mechanical Engineering

6.5.9.1 B.E.(Mechanical)

Students are required to complete satisfactorily courses to the value of 24 units at each of Levels I, II, III and IV:

Level I

C&ENVENG 1010 Engineering Mechanics - Statics	3
CHEM ENG 1009 Materials I	3
ELEC ENG 1009 Electrical & Electronic Engineering IA	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MECH ENG 1006 Design Graphics & Communication.....	3
MECH ENG 1007 Engineering Mechanics - Dynamics	3
MECH ENG 1100 Introduction to Mechanical Engineering	3

Level II

MECH ENG 2002 Stress Analysis & Design.....	3
MECH ENG 2019 Dynamics & Control I.....	3
MECH ENG 2020 Materials & Manufacturing	3
MECH ENG 2021 Thermo-Fluids I	3
MECH ENG 2100 Design Practice.....	3
MECH ENG 2101 Mechatronics IM ⁺	3
MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Mathematics II	3

+includes workshop practical

Level III

MATHS 2104 Numerical Methods.....	3
MECH ENG 3027 Engineering Systems Design & Communication.....	3
MECH ENG 3028 Dynamics & Control II.....	3
MECH ENG 3030 Structural Design & Solid Mechanics	3
MECH ENG 3101 Applied Aerodynamics.....	3
MECH ENG 3102 Heat Transfer & Thermodynamics	3
MECH ENG 3103 Manufacturing Engineering & Quality Systems.....	3
MECH ENG 3105 Sustainability & the Environment.....	3

Level IV

MECH ENG 4142A/B Design Project Level IV ^	9
<i>or</i>	
MECH ENG 4143A/B Honours Project Level IV ^	9

Elective courses to the value of at least 15 units	15
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^ Students accepted into the Honours Stream will take Honours Project and other students will take Design Project

Electives

MECH ENG 4102 Advanced PID Control.....	3
MECH ENG 4103 Advanced Computer Aided Engineering.....	3
MECH ENG 4104 Advanced Topics in Fluid Mechanics	3
MECH ENG 4105 Advanced Vibrations.....	3
MECH ENG 4107 Airconditioning.....	3
MECH ENG 4109 Automotive Combustion, Power Train & NVH.....	3
MECH ENG 4110 Automotive Vehicle Dynamics & Safety	3
MECH ENG 4111 CFD for Engineering Applications.....	3
MECH ENG 4112 Combustion Technology & Emission Control	3
MECH ENG 4113 Computational Acoustics	3
MECH ENG 4114 Corrosion: Principles & Prevention.....	3
MECH ENG 4115 Engineering Acoustics	3
MECH ENG 4117 Finance for Engineers	3
MECH ENG 4118 Finite Element Analysis of Structures.....	3
MECH ENG 4120 Fracture Mechanics.....	3
MECH ENG 4121 Materials Selection & Failure Analysis.....	3
MECH ENG 4124 Robotics M	3
MECH ENG 4125 Stresses in Plates & Shells	3
MECH ENG 4127 Wind Engineering.....	3

6.5.9.2 B.E.(Mechanical)/B.A.

To satisfy the Arts component of this program, students must undertake 30 units of Arts courses, which includes an approved major sequence (24 units). The remaining 6 units can be undertaken at any level. Students should consult the Bachelor of Arts academic program rules for the list of approved major sequences and the specific requirements of each.

To satisfy the BE (Mechanical) component of this program students are required to satisfactorily complete the courses listed below:

Level I

Arts course.....	6
C&ENVENG 1010 Engineering Mechanics - Statics	3
MATHS 1013 Mathematics IM*	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MECH ENG 1006 Design Graphics & Communication M.....	3
MECH ENG 1007 Engineering Mechanics - Dynamics	3
MECH ENG 1100 Introduction to Mechanical Engineering	3

*See Clause 6.2 regarding Level I Mathematics requirements.

Level II	
CHEM ENG 1009 Materials I	3
ELEC ENG 1009 Electrical & Electronic Engineering IA	3
MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Mathematics II	3
MECH ENG 2002 Stress Analysis & Design.....	3
MECH ENG 2100 Design Practice.....	3
Arts course.....	6
Level III	
Arts courses	12
MECH ENG 2019 Dynamics & Control I.....	3
MECH ENG 2020 Materials & Manufacturing	3
MECH ENG 2021 Thermo-Fluids I	3
MECH ENG 2101 Mechatronics IM+	3
+includes workshop practical	
Level IV	
MATHS 2104 Numerical Methods.....	3
ELEC ENG 3027 Engineering Systems Design & Communication	3
MECH ENG 3028 Dynamics & Control II.....	3
MECH ENG 3030 Structural Design & Solid Mechanics	3
MECH ENG 3101 Applied Aerodynamics.....	3
MECH ENG 3102 Heat Transfer & Thermodynamics	3
MECH ENG 3103 Manufacturing Engineering & Quality Systems.....	3
MECH ENG 3105 Sustainability & the Environment.....	3
Level V	
Arts courses	9
MECH ENG 4142A/B Design Project Level IV ^	9
<i>or</i>	
MECH ENG 4143A/B Honours Project Level IV ^	9
Mechanical Engineering Electives.....	6
^ Students accepted into the Honours Stream will take Honours Project and other students will take Design Project	
Electives	
MECH ENG 4102 Advanced PID Control.....	3
MECH ENG 4103 Advanced Computer Aided Engineering.....	3
MECH ENG 4104 Advanced Topics in Fluid Mechanics.....	3
MECH ENG 4105 Advanced Vibrations.....	3
MECH ENG 4107 Airconditioning.....	3
MECH ENG 4109 Automotive Combustion, Power Train & NVH.....	3
MECH ENG 4110 Automotive Vehicle Dynamics & Safety	3
MECH ENG 4111 CFD for Engineering Applications.....	3
MECH ENG 4112 Combustion Technology & Emission Control	3
MECH ENG 4113 Computational Acoustics	3
MECH ENG 4114 Corrosion: Principles & Prevention.....	3
MECH ENG 4115 Engineering Acoustics	3
MECH ENG 4117 Finance for Engineers	3
MECH ENG 4118 Finite Element Analysis of Structures.....	3
MECH ENG 4120 Fracture Mechanics.....	3
MECH ENG 4121 Materials Selection & Failure Analysis.....	3
MECH ENG 4124 Robotics M	3
MECH ENG 4125 Stresses in Plates & Shells	3
MECH ENG 4127 Wind Engineering.....	3

6.5.9.3 B.E.(Mechanical)/B.Ec.

To qualify for both the award of the degree of B.E.(Mechanical) and the degree of B.Ec., students are required to complete satisfactorily courses as indicated below:

Level I

C&ENVENG 1010 Engineering Mechanics - Statics	3
CHEM ENG 1009 Materials I	3
ECON 1004 Principles of Microeconomics I	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
MECH ENG 1006 Design Graphics & Communication	3
MECH ENG 1007 Engineering Mechanics - Dynamics	3
MECH ENG 1100 Introduction to Mechanical Engineering	3

* See Clause 6.2 regarding Level I Mathematics requirements.

Level II

ECON 1000 Principles of Macroeconomics I	3
ELEC ENG 1009 Electrical & Electronic Engineering 1A	3
MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Mathematics II	3
MECH ENG 2002 Stress Analysis & Design.....	3
MECH ENG 2019 Dynamics & Control I.....	3
MECH ENG 2100 Design Practice.....	3
MECH ENG 2101 Mechatronics IM+	3

+includes workshop practical

Level III

ECON 2507 Intermediate Macroeconomics II	3
ECON 2506 Intermediate Microeconomics A II	3
MECH ENG 2020 Materials & Manufacturing	3
MECH ENG 2021 Thermo-Fluids I	3
MECH ENG 3027 Engineering Systems Design & Communication.....	3
MECH ENG 3030 Structural Design & Solid Mechanics	3
MECH ENG 3103 Manufacturing Engineering & Quality Systems.....	3
MATHS 2104 Numerical Methods.....	3

Level IV

COMMMGT 2500 Organisational Behaviour II.....	3
ECON 2504 Intermediate Econometrics II.....	3
<i>or</i>	
ECON 2503 Intermediate Mathematical Economics	3

Level III Economics courses* 18

*Level III Economics courses chosen from those listed in the Specific Academic Program Rules of the Degree of Bachelor of Economics.

Level V

MECH ENG 3102 Heat Transfer & Thermodynamics	3
MECH ENG 3105 Sustainability & the Environment.....	3
MECH ENG 3028 Dynamics & Control II.....	3
MECH ENG 3101 Applied Aerodynamics.....	3
MECH ENG 4142A/B Design Project Level IV ^	9
<i>or</i>	
MECH ENG 4143A/B Honours Project Level IV ^	9
Mechanical Level IV Elective from below	3

^ Students accepted into the Honours Stream will take Honours Project and other students will take Design Project

Level IV Electives

MECH ENG 4102 Advanced PID Control.....	3
MECH ENG 4103 Advanced Computer Aided Engineering.....	3
MECH ENG 4104 Advanced Topics in Fluid Mechanics.....	3
MECH ENG 4105 Advanced Vibrations.....	3
MECH ENG 4107 Airconditioning.....	3
MECH ENG 4109 Automotive Combustion, Power Train & NVH.....	3
MECH ENG 4110 Automotive Vehicle Dynamics & Safety.....	3
MECH ENG 4111 CFD for Engineering Applications.....	3
MECH ENG 4112 Combustion Technology & Emission Control.....	3
MECH ENG 4113 Computational Acoustics.....	3
MECH ENG 4114 Corrosion: Principles & Prevention.....	3
MECH ENG 4115 Engineering Acoustics.....	3
MECH ENG 4117 Finance for Engineers.....	3
MECH ENG 4118 Finite Element Analysis of Structures.....	3
MECH ENG 4120 Fracture Mechanics.....	3
MECH ENG 4121 Materials Selection & Failure Analysis.....	3
MECH ENG 4124 Robotics M.....	3
MECH ENG 4125 Stresses in Plates & Shells.....	3
MECH ENG 4127 Wind Engineering.....	3

6.5.9.4 B.E.(Mechanical)/B.Fin

To qualify for both the award of the degree of B.E.(Mechanical) and the degree of B.Fin., students are required to complete satisfactorily courses listed below:

Level I

C&ENVENG 1010 Engineering Mechanics - Statics.....	3
CHEM ENG 1009 Materials I.....	3
ECON 1004 Principles of Microeconomics I.....	3
MATHS 1011 Mathematics IA.....	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM *.....	3
MECH ENG 1006 Design Graphics & Communication M.....	3
MECH ENG 1007 Engineering Mechanics - Dynamics.....	3
MECH ENG 1100 Introduction to Mechanical Engineering.....	3

*See Clause 6.2 regarding Level I Mathematics requirements.

Level II

ECON 1000 Principles of Macroeconomics I.....	3
ECON 1009 International Financial Institutions & Markets I.....	3
ELEC ENG 1009 Electrical & Electronic Engineering IA.....	3
MATHS 2201 Engineering Mathematics I.....	3
MATHS 2202 Engineering Mathematics II.....	3
MECH ENG 2002 Stress Analysis & Design.....	3
MECH ENG 2100 Design Practice.....	3
MECH ENG 2101 Mechatronics IM ⁺	3

⁺includes workshop practical

Level III

ACCTING 1002 Accounting for Decision Makers I.....	3
CORPFIN 2500 Business Finance II.....	3
ECON 2504 Intermediate Econometrics II.....	3
ECON 2508 Financial Economics II.....	3
MECH ENG 2020 Materials & Manufacturing.....	3
MECH ENG 2021 Thermo-Fluids I.....	3
MECH ENG 3027 Engineering Systems Design & Communication.....	3
MECH ENG 3030 Structural Design & Solid Mechanics.....	3

Level IV

CORPFIN 2501 Financial Institutions Management II.....	3
MECH ENG 2019 Dynamics & Control I.....	3
MECH ENG 3101 Applied Aerodynamics.....	3
MECH ENG 3103 Manufacturing Engineering & Quality Systems.....	3
MECH ENG 3105 Sustainability & the Environment.....	3
CORPFIN 3501 Portfolio Theory & Management III.....	3
<i>and either</i>	
APP MATH 3012 Financial Modelling III: Tools & Techniques	3
<i>or</i>	
CORPFIN 3502 Options, Futures & Risk Management III	3
Level III Finance course	3
Level V	
MATHS 2104 Numerical Methods.....	3
MECH ENG 3028 Dynamics & Control II.....	3
MECH ENG 3102 Heat Transfer & Thermodynamics	3
MECH ENG 4142A/B Design Project Level IV ^	9
<i>or</i>	
MECH ENG 4143A/B Honours Project Level IV ^	9
Level III Finance Course.....	3
Elective course.....	3
^ Students accepted into the Honours Stream will take Honours Project and other students will take Design Project	
Level IV Electives	
MECH ENG 4102 Advanced PID Control.....	3
MECH ENG 4103 Advanced Computer Aided Engineering.....	3
MECH ENG 4104 Advanced Topics in Fluid Mechanics.....	3
MECH ENG 4105 Advanced Vibrations.....	3
MECH ENG 4107 Airconditioning.....	3
MECH ENG 4109 Automotive Combustion, Power Train & NVH.....	3
MECH ENG 4110 Automotive Vehicle Dynamics & Safety	3
MECH ENG 4111 CFD for Engineering Applications.....	3
MECH ENG 4112 Combustion Technology & Emission Control	3
MECH ENG 4113 Computational Acoustics.....	3
MECH ENG 4114 Corrosion: Principles & Prevention.....	3
MECH ENG 4115 Engineering Acoustics	3
MECH ENG 4117 Finance for Engineers	3
MECH ENG 4118 Finite Element Analysis of Structures.....	3
MECH ENG 4120 Fracture Mechanics.....	3
MECH ENG 4121 Materials Selection & Failure Analysis.....	3
MECH ENG 4124 Robotics M	3
MECH ENG 4125 Stresses in Plates & Shells	3
MECH ENG 4127 Wind Engineering.....	3

6.5.9.5 B.E.(Mechanical)/LLB.

To qualify for the award of the degree of B.E.(Mech.) and the degree of LL.B., students are required to complete satisfactorily courses below:

Level I	
LAW 1501 Foundation of Law	3
LAW 1502 Law of Torts 1	3
LAW 1504 Principles of Public Law	3
LAW 1505 Law of Torts 2	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
MECH ENG 1006 Design Graphics & Communication	3

MECH ENG 1100 Introduction to Mechanical Engineering	3
*See Clause 6.2 regarding Level I Mathematics requirements.	
Level II	
C&ENVENG 1010 Engineering Mechanics - Statics	3
CHEM ENG 1009 Materials I	3
ELEC ENG 1009 Electrical & Electronic Engineering IA	3
MECH ENG 1007 Engineering Mechanics - Dynamics	3
Law courses to be advised by Law School.....	12
Level III	
MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Mathematics II	3
MECH ENG 2018 Design Practice.....	3
MECH ENG 2101 Mechatronics IM+	3
MECH ENG 2002 Stress Analysis & Design.....	3
Law courses to be advised by Law School.....	9
+ includes workshop practical	
Level IV	
MECH ENG 2019 Dynamics & Control I.....	3
MECH ENG 2020 Materials & Manufacturing	3
MECH ENG 2021 Thermo-Fluids I	3
MECH ENG 3027 Engineering Systems Design & Communication.....	3
MECH ENG 3030 Structural Design & Solid Mechanics	3
MECH ENG 3103 Manufacturing Engineering & Quality Systems.....	3
Law courses to be advised by Law School.....	6
Level V	
APP MTH 2104 Numerical Methods (replaces APP MTH 3017 Waves II)	3
MECH ENG 3028 Dynamics & Control II.....	3
MECH ENG 3101 Applied Aerodynamics.....	3
MECH ENG 3102 Heat Transfer & Thermodynamics	3
MECH ENG 3105 Sustainability & the Environment.....	3
Mechanical Engineering elective.....	3
Law courses	6
Level VI	
MECH ENG 4142A/B Design Project Level IV ^	9
<i>or</i>	
MECH ENG 4143A/B Honours Project Level IV ^	9
Law courses	15
<i>plus</i>	
another 12 units of Law courses to be specified by Law School.	
^ Students accepted into the Honours Stream will take Honours Project and other students will take Design Project	

6.5.9.6 B.E.(Mechanical)/B.Ma.&Comp.Sc. (Computer Science focus)

To qualify for both the award of the degree of B.E.(Mechanical) and the degree of B.Ma.Comp.Sc. with a Computer Science Focus, students are required to complete satisfactorily:

Level I	
C&ENVENG 1010 Engineering Mechanics - Statics	3
ELEC ENG 1009 Electrical & Electronic Engineering IA	3
COMP SCI 1202 Object Oriented Programming E UG.....	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
MECH ENG 1006 Design Graphics & Communication M.....	3
MECH ENG 1007 Engineering Mechanics - Dynamics	3

MECH ENG 1100 Introduction to Mechanical Engineering	3
*See Clause 6.2 regarding Level I Mathematics requirements.	
Level II	
CHEM ENG 1009 Materials I	3
MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Mathematics II	3
MECH ENG 2002 Stress Analysis and Design.....	3
MECH ENG 2021 Thermo-Fluids I	3
MECH ENG 2019 Dynamics & Control I.....	3
MECH ENG 2020 Materials & Manufacturing	3
MECH ENG 2100 Design Practice.....	3
Level III	
MATHS 2104 Numerical Methods.....	3
COMP SCI 2000 Computer Systems	3
COMP SCI 1203 Algorithm and Data Structure Design	3
MECH ENG 2101 Mechatronics IM (includes Workshop Practice).....	3
MECH ENG 3103 Manufacturing Engineering & Quality Systems.....	3
MECH ENG 3027 Engineering Systems Design & Communication.....	3
MECH ENG 3028 Dynamics & Control II.....	3
MECH ENG 3030 Structural Design & Solid Mechanics	3
Level IV	
Level III Computer Science courses*	18
MECH ENG 3101 Applied Aerodynamics.....	3
MECH ENG 3102 Heat Transfer & Thermodynamics	3
*This is a focus on Computer Science only - a major in Computer Science requires in addition, the presentation of 3 units at Level II, and 12 units of the 18 units at Level III should be Computer Science courses of which one must be Software Engineering & Project. For further advice contact a Faculty Program Adviser.	
Level V	
MECH ENG 3105 Sustainability & the Environment.....	3
MECH ENG 4142A/B Design Project Level IV ^	9
<i>or</i>	
MECH ENG 4143A/B Honours Project Level IV ^	9
Mechanical Engineering Electives.....	12
^ Students accepted into the Honours Stream will take Honours Project and other students will take Design Project	
Electives	
MECH ENG 4102 Advanced PID Control.....	3
MECH ENG 4103 Advanced Computer Aided Engineering.....	3
MECH ENG 4104 Advanced Topics in Fluid Mechanics	3
MECH ENG 4105 Advanced Vibrations.....	3
MECH ENG 4107 Airconditioning.....	3
MECH ENG 4109 Automotive Combustion, Power Train & NVH.....	3
MECH ENG 4110 Automotive Vehicle Dynamics & Safety	3
MECH ENG 4111 CFD for Engineering Applications.....	3
MECH ENG 4112 Combustion Technology & Emission Control	3
MECH ENG 4113 Computational Acoustics	3
MECH ENG 4114 Corrosion: Principles & Prevention.....	3
MECH ENG 4115 Engineering Acoustics	3
MECH ENG 4117 Finance for Engineers	3
MECH ENG 4118 Finite Element Analysis of Structures.....	3
MECH ENG 4120 Fracture Mechanics.....	3
MECH ENG 4121 Materials Selection & Failure Analysis	3
MECH ENG 4124 Robotics M	3

MECH ENG 4125 Stresses in Plates & Shells	3
MECH ENG 4127 Wind Engineering.....	3

6.5.9.7 B.E (Mechanical)/B.Ma.&Comp.Sc. (Mathematics focus)

To qualify for both the award of the degree of B.E.(Mechanical) and the degree of B.Ma.Comp.Sc. with a Mathematics focus, students are required to complete satisfactorily:

Level I

C&ENVENG 1010 Engineering Mechanics - Statics	3
CHEM ENG 1009 Materials I	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
MECH ENG 1006 Design Graphics & Communication	3
MECH ENG 1007 Engineering Mechanics - Dynamics	3
ELEC ENG 1009 Electrical & Electronic Engineering IA	3
MECH ENG 1100 Introduction to Mechanical Engineering	3

*See Clause 6.2 regarding Level I Mathematics requirements.

Level II

MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Mathematics II	3
MECH ENG 2002 Stress Analysis & Design.....	3
MECH ENG 2101 Mechatronics IM*	3
MECH ENG 2019 Dynamics & Control I.....	3
MECH ENG 2020 Materials & Manufacturing	3
MECH ENG 2021 Thermo-Fluids I	3
MECH ENG 2100 Design Practice.....	3

*Includes Workshop Practical

Level III

MATHS 2104 Numerical Methods.....	3
MECH ENG 3102 Heat Transfer & Thermodynamics	3
MECH ENG 3027 Engineering Systems Design & Communication.....	3
MECH ENG 3028 Dynamics & Control II.....	3
MECH ENG 3030 Structural Design & Solid Mechanics	3
MECH ENG 3101 Applied Aerodynamics.....	3
MECH ENG 3103 Manufacturing Engineering & Quality Systems.....	3
MECH ENG 3105 Sustainability & the Environment.....	3

Level IV

Mathematics courses*	24
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*24 units of additional Mathematics courses of which 18 units must be at Level III

Level V

MECH ENG 4142A/B Design Project Level IV ^	9
<i>or</i>	
MECH ENG 4143A/B Honours Project Level IV ^	9

Elective courses to the value of at least 15 units	15
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^ Students accepted into the Honours Stream will take Honours Project and other students will take Design Project

Electives

MECH ENG 4102 Advanced PID Control.....	3
MECH ENG 4103 Advanced Computer Aided Engineering.....	3
MECH ENG 4104 Advanced Topics in Fluid Mechanics.....	3
MECH ENG 4105 Advanced Vibrations.....	3
MECH ENG 4107 Airconditioning.....	3
MECH ENG 4109 Automotive Combustion, Power Train & NVH.....	3
MECH ENG 4110 Automotive Vehicle Dynamics & Safety	3
MECH ENG 4111 CFD for Engineering Applications.....	3

MECH ENG 4112 Combustion Technology & Emission Control	3
MECH ENG 4113 Computational Acoustics	3
MECH ENG 4114 Corrosion: Principles & Prevention.....	3
MECH ENG 4115 Engineering Acoustics	3
MECH ENG 4117 Finance for Engineers	3
MECH ENG 4118 Finite Element Analysis of Structures.....	3
MECH ENG 4120 Fracture Mechanics.....	3
MECH ENG 4121 Materials Selection & Failure Analysis.....	3
MECH ENG 4124 Robotics M	3
MECH ENG 4125 Stresses in Plates & Shells	3
MECH ENG 4127 Wind Engineering.....	3

6.5.9.8 B.E.(Mechanical)/B.Sc.

To qualify for a Bachelor of Science award, students must complete a major pursuant to Bachelor of Science Program Rules.

To qualify for the award of the degrees of B.E.(Mechanical) and B.Sc. students are required to complete satisfactorily courses as indicated below:

Level I

C&ENVENG 1010 Engineering Mechanics - Statics	3
CHEM ENG 1009 Materials I	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
MECH ENG 1006 Design Graphics & Communication	3
MECH ENG 1007 Engineering Mechanics - Dynamics	3
MECH ENG 1100 Introduction to Mechanical Engineering	3
Level I Science course	3

*See Clause 6.2 regarding Level I Mathematics requirements.

Level II

MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Mathematics II	3
MECH ENG 2002 Stress Analysis & Design.....	3
MECH ENG 2020 Materials & Manufacturing	3
MECH ENG 2021 Thermo-Fluids I	3
MECH ENG 2100 Design Practice.....	3
MECH ENG 2101 Mechatronics IM ⁺	3
Level I Science course	3

⁺includes workshop practical

Level III

MECH ENG 2019 Dynamics & Control I.....	3
MECH ENG 3027 Engineering Systems Design & Communication.....	3
MECH ENG 3030 Structural Design & Solid Mechanics	3
MECH ENG 3102 Heat Transfer & Thermodynamics	3
Level II Science courses*	12

*Check with the Faculty of Science on requirements for majors

Level IV

Level III Science courses	24
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Level V

MECH ENG 3101 Applied Aerodynamics.....	3
MECH ENG 3028 Dynamics & Control II.....	3
MECH ENG 3103 Manufacturing Engineering & Quality Systems.....	3
MECH 3105 Sustainability & the Environment	3
MECH ENG 4142A/B Mechanical Design Project Level IV [^]	9

or

MECH ENG 4143A/B Mechanical Honours Project Level IV ^	9
Elective course.....	3
^ Students accepted into the Honours Stream will take Honours Project and other students will take Design Project	
Level IV Electives	
MECH ENG 4102 Advanced PID Control.....	3
MECH ENG 4103 Advanced Computer Aided Engineering.....	3
MECH ENG 4104 Advanced Topics in Fluid Mechanics.....	3
MECH ENG 4105 Advanced Vibrations.....	3
MECH ENG 4107 Airconditioning.....	3
MECH ENG 4109 Automotive Combustion, Power Train & NVH.....	3
MECH ENG 4110 Automotive Vehicle Dynamics & Safety.....	3
MECH ENG 4111 CFD for Engineering Applications.....	3
MECH ENG 4112 Combustion Technology & Emission Control	3
MECH ENG 4113 Computational Acoustics.....	3
MECH ENG 4114 Corrosion: Principles & Prevention.....	3
MECH ENG 4115 Engineering Acoustics	3
MECH ENG 4117 Finance for Engineers	3
MECH ENG 4118 Finite Element Analysis of Structures.....	3
MECH ENG 4120 Fracture Mechanics.....	3
MECH ENG 4121 Materials Selection & Failure Analysis.....	3
MECH ENG 4124 Robotics M	3
MECH ENG 4125 Stresses in Plates & Shells	3
MECH ENG 4127 Wind Engineering.....	3

6.5.10 Mechanical and Aerospace Engineering

6.5.10.1 B.E.(Mechanical and Aerospace)

Students are required to complete satisfactorily courses to the value of 24 units at each of Levels I, II, III and IV:

Level I

C&ENVENG 1010 Engineering Mechanics - Statics	3
CHEM ENG 1009 Materials I	3
ELEC ENG 1009 Electrical & Electronic Engineering IA	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MECH ENG 1006 Design Graphics & Communication	3
MECH ENG 1007 Engineering Mechanics - Dynamics	3
MECH ENG 1102 Introduction to Aerospace Engineering.....	3

Level II

MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Mathematics II	3
MECH ENG 2002 Stress Analysis & Design.....	3
MECH ENG 2019 Dynamics & Control I.....	3
MECH ENG 2020 Materials & Manufacturing	3
MECH ENG 2021 Thermo-Fluids I	3
MECH ENG 2100 Design Practice.....	3
MECH ENG 2101 Mechatronics IM ⁺	3

+ includes Workshop Practical

Level III

MECH ENG 3026 Aerospace Materials & Structures	3
MECH ENG 3027 Engineering Systems Design & Communication.....	3
MECH ENG 3028 Dynamics & Control II.....	3
MECH ENG 3100 Aeronautical Engineering I.....	3

MECH ENG 3101 Applied Aerodynamics.....	3
MECH ENG 3102 Heat Transfer & Thermodynamics	3
MECH ENG 3104 Space Vehicle Design	3
MECH ENG 3105 Sustainability & the Environment.....	3
Level IV	
MECH ENG 4100 Advanced Topics in Aerospace Engineering	3
MECH ENG 4106 Aerospace Propulsion.....	3
MECH ENG 4108 Aircraft Design.....	3
MECH ENG 4111 CFD for Engineering Applications.....	3
<i>or</i>	
MECH ENG 4118 Finite Element Analysis of Structures.....	3
MECH ENG 4142A/B Design Project Level IV Part 1 & 2+	9
<i>or</i>	
MECH ENG 4143A/B Honours Project Level IV Part 1 & 2+	9
One elective to be chosen from the following:	
MECH ENG 4104 Advanced Topics in Fluid Mechanics.....	3
MECH ENG 4107 Airconditioning.....	3
MECH ENG 4114 Corrosion: Principles & Prevention.....	3
MECH ENG 4120 Fracture Mechanics.....	3
MECH ENG 4121 Materials Selection & Failure Analysis	3

+ Students accepted into the Honours stream will take Honours Project and other students will take Design Project.

6.5.10.2 B.E.(Mechanical and Aerospace)/B.Ma.&Comp.Sc. (Computer Science focus)

To qualify for both the award of the degree of B.E.(Mechanical and Aerospace) and the degree of B.Ma.&Comp.Sc. with a Computer Science focus, students are required to complete satisfactorily:

Level I	
C&ENVENG 1010 Engineering Mechanics - Statics	3
MECH ENG 1102 Introduction to Aerospace Engineering.....	3
ELEC ENG 1009 Electrical & Electronic Engineering IA	3
COMP SCI 1202 Object Oriented Programming E	3
MATHS 1011 Mathematics IA*	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
MECH ENG 1006 Design Graphics & Communication.....	3
MECH ENG 1007 Engineering Mechanics - Dynamics	3
*See Clause 6.2 regarding Level I Mathematics requirements.	
Level II	
CHEM ENG 1009 Materials I	3
MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Mathematics II	3
MECH ENG 2002 Stress Analysis & Design.....	3
MECH ENG 2019 Dynamics & Control I.....	3
MECH ENG 2021 Thermo-Fluids I	3
MECH ENG 2100 Design Practice.....	3
MECH ENG 2020 Materials & Manufacturing	3
Level III	
COMP SCI 2000 Computer Systems	3
COMP SCI 1203 Algorithm and Data Structure Design	3
MECH ENG 3100 Aeronautical Engineering.....	3
MECH ENG 3026 Aerospace Materials & Structures	3
MECH ENG 3027 Engineering Systems Design & Communication.....	3
MECH ENG 2101 Mechatronics IM+	3

MECH ENG 3104 Space Vehicle Design	3
MECH ENG 3028 Dynamics & Control II.....	3
+ includes Workshop Practical	
Level IV	
Level III Computer Science Courses	18
MECH ENG 3101 Applied Aerodynamics.....	3
MECH ENG 3102 Heat Transfer & Thermodynamics	3
Level V	
MECH ENG 3105 Sustainability & the Environment.....	3
MECH ENG 4100 Advanced Topics in Aerospace Engineering	3
MECH ENG 4106 Aerospace Propulsion.....	3
MECH ENG 4108 Aircraft Design.....	3
MECH ENG 4142A/B Design Project Part A & B [#]	9
<i>or</i>	
MECH ENG 4143A/B Honours Project Part A & B [#]	9
MECH ENG 4111 CFD for Engineering Applications.....	3
<i>or</i>	
MECH ENG 4118 Finite Element Analysis of Structures.....	3

[#]Students accepted into the Honours stream will take Honours Project and other students will take Design Project.

6.5.10.3 B.E.(Mechanical and Aerospace)/ B.Ma.Comp.Sc. (Mathematics focus)

To qualify for both the award of the degree of B.E.(Mechanical and Aerospace) and the degree of B.Ma.Comp.Sc. with a Mathematics focus, students are required to complete satisfactorily:

Level I	
C&ENVENG 1010 Engineering Mechanics - Statics	3
CHEM ENG 1009 Materials I	3
ELEC ENG 1009 Electrical & Electronic Engineering IA	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
MECH ENG 1006 Design Graphics & Communication	3
MECH ENG 1007 Engineering Mechanics - Dynamics	3
MECH ENG 1102 Introduction to Aerospace Engineering.....	3

*See Clause 6.2 regarding Level I Mathematics requirements.

Level II	
MATHS 2202 Engineering Mathematics II	3
MECH ENG 2002 Stress Analysis & Design.....	3
MECH ENG 2019 Dynamics & Control I.....	3
MECH ENG 2020 Materials & Manufacturing	3
MECH ENG 2021 Thermo-Fluids I	3
MECH ENG 2100 Design Practice.....	3
MECH ENG 2101 Mechatronics IM ⁺	3
MECH ENG 2201 Engineering Mathematics I	3

+ includes Workshop Practical

Level III	
MECH ENG 3026 Aerospace Materials & Structures	3
MECH ENG 3027 Engineering Systems Design & Communication.....	3
MECH ENG 3028 Dynamics & Control II.....	3
MECH ENG 3100 Aeronautical Engineering.....	3
MECH ENG 3101 Applied Aerodynamics.....	3
MECH ENG 3102 Heat Transfer & Thermodynamics	3
MECH ENG 3104 Space Vehicle Design	3
MECH ENG 3105 Sustainability & the Environment.....	3

Level IV

Mathematics courses.....	24
24 units of additional Mathematics courses of which 18 units must be at Level III	
Level V	
MECH ENG 4100 Advanced Topics in Aerospace Engineering	3
MECH ENG 4106 Aerospace Propulsion.....	3
MECH ENG 4108 Aircraft Design.....	3
MECH ENG 4111 CFD for Engineering Applications.....	3
<i>or</i>	
MECH ENG 4118 Finite Element Analysis of Structures.....	3
MECH ENG 4142A/B Design Project Level IV Part 1 & 2+	9
<i>or</i>	
MECH ENG 4143A/B Honours Project Level IV Part 1 & 2+	9
One elective to be chosen from the following:	
MECH ENG 4104 Advanced Topics in Fluid Mechanics.....	3
MECH ENG 4107 Airconditioning.....	3
MECH ENG 4114 Corrosion: Principles & Prevention.....	3
MECH ENG 4115 Engineering Acoustics	3
MECH ENG 4120 Fracture Mechanics.....	3
MECH ENG 4121 Materials Selection & Failure Analysis.....	3
# Students accepted into the Honours stream will take Honours Project and other students will take Design Project.	

6.5.10.4 B.E (Mechanical and Aerospace)/B.Sc.

To qualify for a Bachelor of Science award, students must complete a major pursuant to Bachelor of Science Program Rules.

To qualify for both the award of the degree of B.E.(Mechanical and Aerospace) and the degree of B.Sc, students are required to complete satisfactorily:

Level I	
C&ENVENG 1010 Engineering Mechanics - Statics	3
CHEM ENG 1009 Materials I	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
MECH ENG 1006 Design Graphics & Communication.....	3
MECH ENG 1007 Engineering Mechanics - Dynamics	3
MECH ENG 1102 Introduction to Aerospace Engineering.....	3
Level I Science Course.....	3
*See Clause 6.2 regarding Level I Mathematics requirements.	
Level II	
MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Mathematics II	3
MECH ENG 2002 Stress Analysis & Design.....	3
MECH ENG 2020 Materials & Manufacturing	3
MECH ENG 2021 Thermo-Fluids I	3
MECH ENG 2100 Design Practice.....	3
MECH ENG 2101 Mechatronics IM+	3
Level I Science course	3
+includes Workshop Practical	
Level III	
MATHS 2104 Numerical Methods.....	3
MECH ENG 2019 Dynamics & Control I.....	3
MECH ENG 3026 Aerospace Materials and Structures	3
MECH ENG 3027 Engineering Systems Design & Communication.....	3
MECH ENG 3100 Aeronautical Engineering.....	3

MECH ENG 3102 Heat Transfer & Thermodynamics	3
MECH ENG 3104 Space Vehicle Design	3
MECH ENG 3105 Sustainability & the Environment.....	3
Level IV	
MECH ENG 3028 Dynamics & Control II.....	3
MECH ENG 3101 Applied Aerodynamics.....	3
MECH ENG 4106 Aerospace Propulsion.....	3
MECH ENG 4108 Aircraft Design.....	3
Level II Science courses*	12
*Check with the Faculty of Sciences on requirements for majors.	
Level V	
Level III Science courses.....	24
Level VI	
MECH ENG 4100 Advanced Topics in Aerospace Engineering	3
MECH ENG 4111 CFD for Engineering Applications.....	3
MECH ENG 4118 Finite Element Analysis of Structures.....	3
MECH ENG 4142A/B Design Project Part A & B [#]	9
or	
MECH ENG 4143A/B Honours Project Part A & B [#]	9
Electives from list following.....	6
[#] Students accepted into the Honours stream will take Honours Project and other students will take Design Project.	
Electives from the following if available:	
MECH ENG 4102 Advanced PID Control.....	3
MECH ENG 4107 Airconditioning.....	3
MECH ENG 4115 Engineering Acoustics	3
MECH ENG 4120 Fracture Mechanics.....	3
MECH ENG 4104 Advanced Topics in Fluid Mechanics.....	3
MECH ENG 4105 Advanced Vibrations.....	3
MECH ENG 4114 Corrosion: Principles & Prevention.....	3
MECH ENG 4121 Materials Selection & Failure Analysis.....	3

6.5.11 Mechanical and Automotive Engineering

6.5.11.1 B.E.(Mechanical and Automotive)

NOTE: There will be no intake in 2012

Students are required to complete satisfactorily courses to the value of 24 units at each of Levels I, II, III and IV.

Level I

C&ENVENG 1010 Engineering Mechanics - Statics	3
CHEM ENG 1009 Materials I	3
ELEC ENG 1009 Electrical & Electronic Engineering IA	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MECH ENG 1006 Design Graphics & Communication.....	3
MECH ENG 1007 Engineering Mechanics - Dynamics	3
MECH ENG 1101 Introduction to Automotive Engineering.....	3

Level II

MATHS 2202 Engineering Mathematics II	3
MATHS 2201 Engineering Mathematics I	3
MECH ENG 2002 Stress Analysis & Design.....	3
MECH ENG 2019 Dynamics & Control I.....	3
MECH ENG 2020 Materials & Manufacturing	3
MECH ENG 2021 Thermo-Fluids I	3
MECH ENG 2100 Design Practice.....	3

MECH ENG 2101 Mechatronics IM ⁺	3
+includes Workshop Practical	
Level III	
MECH ENG 3027 Engineering Systems Design & Communication.....	3
MECH ENG 3032 Microcontroller Programming	3
MECH ENG 3033 Automotive Materials & Structures.....	3
MECH ENG 3101 Applied Aerodynamics.....	3
MECH ENG 3102 Heat Transfer & Thermodynamics	3
MECH ENG 3103 Manufacturing Engineering & Quality Systems.....	3
MECH ENG 3105 Sustainability & the Environment.....	3
MECH ENG 3028 Dynamics & Control II.....	3
Level IV	
MECH ENG 4103 Advanced Computer Aided Engineering.....	3
MECH ENG 4110 Automotive Vehicle Dynamics & Safety	3
MECH ENG 4111 CFD for Engineering Applications.....	3
MECH ENG 4118 Finite Element Analysis of Structures.....	3
MECH ENG 4109 Automotive Combustion, Power Train & NVH	3
MECH ENG 4142A/B Design Project Level IV Part 1 & 2 [#]	9
<i>or</i>	
MECH ENG 4143A/B Honours Project Level IV Part 1 & 2 [#]	9

[#]Students accepted into the Honours Stream will take Honours Project and other students will take Design Project

6.5.11.2 B.E.(Mechanical and Automotive)/B.Ma.&Comp.Sc. (Computer Science focus)

NOTE: There will be no new intake in 2012

To qualify for both the award of the degree of B.E.(Mechanical and Automotive) and the degree of B.Ma.Comp.Sc. with a Computer Science Focus, students are required to complete satisfactorily:

Level I	
C&ENVENG 1010 Engineering Mechanics - Statics	3
ELEC ENG 1009 Electrical & Electronic Engineering IA	3
COMP SCI 1202 Object Oriented Programming E UG	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
MECH ENG 1006 Design Graphics & Communication	3
MECH ENG 1007 Engineering Mechanics - Dynamics	3
MECH ENG 1101 Introduction to Automotive Engineering.....	3
*See Clause 6.2 regarding Level I Mathematics requirements.	
Level II	
CHEM ENG 1009 Materials I	3
MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Mathematics II	3
MECH ENG 2002 Stress Analysis & Design.....	3
MECH ENG 2019 Dynamics & Control I.....	3
MECH ENG 2020 Materials & Manufacturing	3
MECH ENG 2021 Thermo-Fluids I	3
MECH ENG 2100 Design Practice.....	3
Level III	
COMP SCI 2000 Computer Systems	3
COMP SCI1203 Algorithm and Data Structure Design	3
MECH ENG 2101 Mechatronics IM (includes Workshop Practical)	3
MECH ENG 3027 Engineering Systems Design & Communication.....	3
MECH ENG 3028 Dynamics & Control II.....	3

MECH ENG 3032 Microcontroller Programming	3
MECH ENG 3033 Automotive Materials & Structures.....	3
MECH ENG 3103 Manufacturing Engineering & Quality Systems.....	3
Level IV	
Level III Computer Science courses	18
MECH ENG 3101 Applied Aerodynamics.....	3
MECH ENG 3102 Heat Transfer & Thermodynamics	3
Level V	
MECH ENG 3105 Sustainability & the Environment.....	3
MECH ENG 4103 Advanced Computer Aided Engineering.....	3
MECH ENG 4110 Automotive Vehicle Dynamics & Safety	3
MECH ENG 4109 Automotive Combustion, Power Train & NVH	3
MECH ENG 4118 Finite Element Analysis of Structures.....	3
<i>or</i>	
MECH ENG 4111 CFD for Engineering Applications.....	3
MECH ENG 4142A/B Design Project Level IV Part A & B [#]	9
<i>or</i>	
MECH ENG 4143A/B Honours Project Part 1 & 2 [#]	9

[#]Students accepted into the Honours Stream will take Honours Project and other students will take Design Project

6.5.11.3 B.E.(Mechanical and Automotive)/B.Ma.&Comp.Sc. (Mathematics focus)

NOTE: There will be no new intake in 2012

To qualify for both the award of the degree of B.E.(Mechanical and Automotive) and the degree of B.Ma.Comp.Sc. with a Mathematics Focus, students are required to complete satisfactorily:

Level I	
C&ENVENG 1010 Engineering Mechanics - Statics	3
CHEM ENG 1009 Materials I	3
ELEC ENG 1009 Electrical & Electronic Engineering IA	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB	3
MATHS 1013 Mathematics IM*	3
MECH ENG 1006 Design Graphics & Communication	3
MECH ENG 1007 Engineering Mechanics - Dynamics	3
MECH ENG 1101 Introduction to Automotive Engineering	3
*See Clause 6.2 regarding Level I Mathematics requirements	
Level II	
MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Mathematics II	3
MECH ENG 2002 Stress Analysis & Design.....	3
MECH ENG 2019 Dynamics & Control I.....	3
MECH ENG 2020 Materials & Manufacturing	3
MECH ENG 2021 Thermo-Fluids I	3
MECH ENG 2100 Design Practice.....	3
MECH ENG 2101 Mechatronics IM ⁺	3
⁺ includes Workshop Practical	
Level III	
MECH ENG 3027 Engineering Systems Design & Communication.....	3
MECH ENG 3028 Dynamics & Control II.....	3
MECH ENG 3032 Microcontroller Programming	3
MECH ENG 3033 Automotive Materials & Structures.....	3
MECH ENG 3101 Applied Aerodynamics.....	3
MECH ENG 3102 Heat Transfer & Thermodynamics	3
MECH ENG 3103 Manufacturing Engineering & Quality Systems.....	3

MECH ENG 3105 Sustainability & the Environment.....	3
Level IV	
Mathematics Courses*	24
*24 units of additional Mathematics courses of which 18 units must be at Level III	
Level V	
MECH ENG 4103 Advanced Computer Aided Engineering.....	3
MECH ENG 4142A/B Design Project Level IV Part 1 & 2#	9
or	
MECH ENG 4143A/B Honours Project Level IV Part 1 & 2#	9
MECH ENG 4110 Automotive Vehicle Dynamics & Safety	3
MECH ENG 4111 CFD for Engineering Applications.....	3
MECH ENG 4118 Finite Element Analysis of Structures.....	3
MECH ENG 4109 Automotive Combustion, Power Train & NVH	3
# Students accepted into the Honours Stream will take Honours Project and other students will take Design Project	

6.5.12 Mechanical and Sports Engineering

6.5.12.1 B.E.(Mechanical and Sports)

Students are required to complete satisfactorily courses to the value of 24 units at each of Levels I, II, III and IV:

Level I

C&ENVENG 1010 Engineering Mechanics - Statics	3
CHEM ENG 1009 Materials I	3
ELEC ENG 1009 Electrical & Electronic Engineering IA	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
MECH ENG 1006 Design Graphics & Communication.....	3
MECH ENG 1007 Engineering Mechanics - Dynamics	3
MECH ENG 1104 Introduction to Sports Engineering	3

*See Clause 6.2 regarding Level I Mathematics requirements.

Level II

MECH ENG 2002 Stress Analysis & Design.....	3
MECH ENG 2019 Dynamics & Control I.....	3
MECH ENG 2021 Thermo-Fluids I	3
MECH ENG 2100 Design Practice.....	3
MECH ENG 2102 Sports Engineering I*.....	3
MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Maths II	3
ANAT SC 2200 Functional Human Anatomy II	3

*includes Workshop Practice

Level III

MECH ENG 3027 Engineering Systems Design & Communication.....	3
MECH ENG 3028 Dynamics & Control II.....	3
MECH ENG 3101 Applied Aerodynamics.....	3
MECH ENG 3103 Manufacturing Engineering & Quality Systems.....	3
MECH ENG 3105 Sustainability & the Environment.....	3
MECH ENG 3107 Sports Engineering II.....	3
MECH ENG 3108 Sports Materials	3
PHYSIOL 2511 Human Physiology.....	3

Level IV

MECH ENG 4142A/B Design Project Level IV ^	9
or	
MECH ENG 4143A/B Honours Project Level IV ^	9
ANATSC 2200 Functional Human Anatomy II	3

MECH ENG 4103 Advanced Computer Aided Engineering.....	3
MECH ENG 4111 CFD for Engineering Applications.....	3
MECH ENG 4118 Finite Element Analysis of Structures.....	3
MECH ENG 4140 Sports Engineering III.....	3
^ Students accepted into the Honours Stream will take Honours Project and other students will take Design Project	

6.5.13 Mechanical and Sustainable Energy Engineering

6.5.13.1 B.E.(Mechanical and Sustainable Energy)

Students are required to complete satisfactorily courses to the value of 24 units at each of Levels I, II, III and IV:

Level I

C&ENVENG 1010 Engineering Mechanics - Statics	3
CHEM ENG 1009 Materials I	3
ELEC ENG 1009 Electrical & Electronic Engineering IA	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MECH ENG 1006 Design Graphics & Communication.....	3
MECH ENG 1007 Engineering Mechanics - Dynamics	3
MECH ENG 1105 Introduction to Sustainable Energy Engineering	3

Level II

MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Mathematics II	3
MECH ENG 2002 Stress Analysis & Design.....	3
ELEC ENG 2013 Electric Energy Systems E.....	3
MECH ENG 2019 Dynamics & Control I.....	3
MECH ENG 2021 Thermo-Fluids I	3
MECH ENG 2100 Design Practice.....	3
MECH ENG 2101 Mechatronics IM+	3

+includes workshop practical

Level III

MECH ENG 3027 Engineering Systems Design & Communication.....	3
MECH ENG 3028 Dynamics & Control II.....	3
MECH ENG 3032 Microcontroller Programming	3
MECH ENG 3102 Heat Transfer & Thermodynamics	3
MECH ENG 3101 Applied Aerodynamics.....	3
MECH ENG 3105 Sustainability & the Environment.....	3
TECHCOMM 3006 Energy Management, Economics & Policy.....	3
CHEM ENG 4048 Biofuels, Biomass & Wastes	3

Level IV

MECH ENG 4142A/B Design Project Level IV ^	9
<i>or</i>	
MECH ENG 4143A/B Honours Project ^	9
DESST 3511 Sustainable Commercial Building Design.....	3
MECH ENG 4112 Combustion Technology & Emission Control	3
MECH ENG 4144 Renewable Fluid Power Technologies	3
MECH ENG 4145 Sustainable Thermal Technologies	3
Elective course.....	3

Electives

MECH ENG 4104 Advanced Topics in Fluid Mechanics	3
MECH ENG 4105 Advanced Vibrations.....	3
MECH ENG 4107 Airconditioning.....	3
MECH ENG 4111 CFD for Engineering Applications.....	3
MECH ENG 4113 Computational Acoustics	3

MECH ENG 4114 Corrosion: Principles and Prevention.....	3
MECH ENG 4115 Engineering Acoustics	3
MECH ENG 4118 Finite Element Analysis of Structures.....	3
MECH ENG 4120 Fracture Mechanics.....	3
MECH ENG 4121 Materials Selection and Failure Analysis.....	3
MECH ENG 4127 Wind Engineering.....	3

^ Students accepted into the Honours Stream will take Honours Project and other students will take Design Project

6.5.14 Mechatronic Engineering

6.5.14.1 B.E.(Mechatronic)

Students are required to complete satisfactorily courses to the value of 24 units at each of Levels I, II, III and IV:

Level I

C&ENVENG 1010 Engineering Mechanics – Statics.....	3
CHEM ENG 1009 Materials I	3
ELEC ENG 1009 Electrical & Electronic Engineering IA	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MECH ENG 1006 Design Graphics & Communication.....	3
MECH ENG 1007 Engineering Mechanics – Dynamics.....	3
MECH ENG 1103 Introduction to Mechatronic Engineering.....	.3

Level II

MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Mathematics II	3
MECH ENG 2002 Stress Analysis & Design.....	3
MECH ENG 2015 Electronics IIM	3
MECH ENG 2019 Dynamics & Control I.....	3
MECH ENG 2021 Thermo-Fluids I	3
MECH ENG 2100 Design Practice.....	3
MECH ENG 2101 Mechatronics IM+	3

+includes workshop practical

Level III

ELEC ENG 3025 Power Electronics & Drive Systems M	3
MECH ENG 3027 Engineering Systems Design & Communication.....	3
MECH ENG 3028 Dynamics & Control II.....	3
MECH ENG 3032 Microcontroller Programming	3
MECH ENG 3102 Heat Transfer & Thermodynamics	3
MECH ENG 3103 Manufacturing Engineering & Quality Systems.....	3
MECH ENG 3105 Sustainability & the Environment.....	3
MECH ENG 3106 Mechatronics II	3

Level IV

MECH ENG 4102 Advanced PID Control.....	3
MECH ENG 4123 Advanced Digital Control	3
MECH ENG 4124 Robotics M	3
MECH ENG 4142A/B Design Project Level IV ^	9
<i>or</i>	
MECH ENG 4143A/B Honours Project ^	9
Elective courses	6

^ Students accepted into the Honours Stream will take Honours Project and other students will take Design Project

Electives

MECH ENG 4101 Biomechanical Engineering	3
MECH ENG 4105 Advanced Vibrations.....	3
MECH ENG 4110 Automotive Vehicle Dynamics & Safety	3

MECH ENG 4111 CFD for Engineering Applications.....	3
MECH ENG 4113 Computational Acoustics	3
MECH ENG 4114 Corrosion: Principles & Prevention.....	3
MECH ENG 4115 Engineering Acoustics	3
MECH ENG 4117 Finance for Engineers	3
MECH ENG 4118 Finite Element Analysis of Structures.....	3
MECH ENG 4121 Materials Selection & Failure Analysis.....	3

6.5.14.2 B.E.(Mechatronic)/B.A.

To satisfy the Arts component of this program, students must undertake 30 units of Arts courses, which includes an approved major sequence (24 units). The remaining 6 units can be undertaken at any level. Students should consult the Bachelor of Arts academic program rules for the list of approved major sequences and the specific requirements of each.

To satisfy the BE (Mechatronic) component of this program students are required to satisfactorily complete the courses listed below:

Level I

C&ENVENG 1010 Engineering Mechanics - Statics	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
MECH ENG 1006 Design Graphics & Communication	3
MECH ENG 1007 Engineering Mechanics - Dynamics	3
MECH ENG 1103 Introduction to Mechatronic Engineering	3
Level I Arts courses	6

*See Clause 6.2 regarding Level I Mathematics requirements.

Level II

Arts courses	6
CHEM ENG 1009 Materials I	3
ELEC ENG 1009 Electrical & Electronic Engineering IA	3
MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Mathematics II	3
MECH ENG 2002 Stress Analysis & Design.....	3
MECH ENG 2100 Design Practice.....	3

Level III

Arts courses	12
MECH ENG 2101 Mechatronics IM*	3
MECH ENG 2015 Electronics IIM	3
MECH ENG 2019 Dynamics & Control I.....	3
MECH ENG 2021 Thermo-Fluids I	3

*includes workshop practical

Level IV

ELEC ENG 4059 power Electronics and Drive Systems	
MECH ENG 3027 Engineering Systems Design & Communication.....	3
MECH ENG 3028 Dynamics & Control II.....	3
MECH ENG 3032 Micro-Controller Programming	3
MECH ENG 3102 Heat Transfer & Thermodynamics	3
MECH ENG 3103 Manufacturing Engineering & Quality Systems.....	3
MECH ENG 3105 Sustainability & the Environment.....	3
MECH ENG 3106 Mechatronics II	3

Level V

Arts courses	6
MECH ENG 4102 Advanced PID Control.....	3
MECH ENG 4123 Advanced Digital Control	3
MECH ENG 4124 Robotics M	3

MECH ENG 4142A/B Design Project Level IV ^	9
<i>or</i>	
MECH ENG 4143A/B Honours Project ^	9

^ Students accepted into the Honours Stream will take Honours Project and other students will take Design Project

6.5.14.3 B.E.(Mechatronic)/B.Ma. & Comp. Sc. (Computer Science focus)

To qualify for both the award of the degree of B.E.(Mechatronic) and the degree of B.Ma.Comp.Sc. with a Computer Science Focus, students are required to complete satisfactorily:

Level I

C&ENVENG 1010 Engineering Mechanics - Statics	3
ELEC ENG 1009 Electrical & Electronic Engineering IA	3
COMP SCI 1202 Object Oriented Programming E	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
MECH ENG 1006 Design Graphics & Communication	3
MECH ENG 1007 Engineering Mechanics - Dynamics	3
MECH ENG 1103 Introduction to Mechatronic Engineering.....	3

*See Clause 6.2 regarding Level I Mathematics requirements.

Level II

CHEM ENG 1009 Materials I	3
MECH ENG 2015 Electronics IIM	3
MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Mathematics II	3
MECH ENG 2002 Stress Analysis & Design.....	3
MECH ENG 2019 Dynamics & Control I.....	3
MECH ENG 2021 Thermo-Fluids I	3
MECH ENG 2100 Design Practice.....	3

Level III

COMP SCI 2000 Computer Systems	3
COMP SCI 1203 Algorithm and Data Structure Design	3
ELEC ENG 3025 Power Electronics & Drive Systems M	3
MECH ENG 2101 Mechatronics IM*	3
MECH ENG 3027 Engineering Systems Design & Communication.....	3
MECH ENG 3032 Micro-Controller Programming.....	3
MECH ENG 3103 Manufacturing Engineering & Quality Systems.....	3
MECH ENG 3106 Mechatronics II	3

*includes workshop practical

Level IV

Level III Computer Science courses*	18
MECH ENG 3102 Heat Transfer & Thermodynamics	3
MECH ENG 3028 Dynamics & Control II.....	3

Level V

MECH ENG 4102 Advanced PID Control.....	3
MECH ENG 4123 Advanced Digital Control	3
MECH ENG 4124 Robotics M	3
MECH ENG 4142A Design Project Level IV ^	9
<i>or</i>	
MECH ENG 4143A/B Honours Project ^	9
MECH ENG 3015 Sustainability & the Environment.....	3
Elective (chosen from list)	3

^ Students accepted into the Honours Stream will take Honours Project and other students will take Design Project

Electives

MECH ENG 4101 Biomechanical Engineering	3
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MECH ENG 4105 Advanced Vibrations.....	3
MECH ENG 4110 Automotive Vehicle Dynamics & Safety	3
MECH ENG 4111 CFD for Engineering Applications.....	3
MECH ENG 4113 Computational Acoustics.....	3
MECH ENG 4114 Corrosion: Principles & Prevention.....	3
MECH ENG 4115 Engineering Acoustics	3
MECH ENG 4117 Finance for Engineers	3
MECH ENG 4118 Finite Element Analysis of Structures.....	3
MECH ENG 4121 Materials Selection & Failure Analysis.....	3
MECH ENG 4119 Fire Engineering	3
MECH ENG 4126 Topics in Welded Structures.....	3

6.5.14.4 B.E (Mechatronic)/ B.Ma.& Comp.Sc. (Mathematics focus)

To qualify for both the award of the degree of B.E.(Mechatronic) and the degree of B.Ma.&Comp.Sc. with a Mathematics Focus, students are required to complete satisfactorily:

Level I

C&ENVENG 1010 Engineering Mechanics - Statics	3
CHEM ENG 1009 Materials I	3
ELEC ENG 1009 Electrical & Electronic Engineering IA	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
MECH ENG 1006 Design Graphics & Communication	3
MECH ENG 1007 Engineering Mechanics - Dynamics	3
MECH ENG 1103 Introduction to Mechatronic Engineering	3

*See Clause 6.2 regarding Level I Mathematics requirements

Level II

MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Mathematics II	3
MECH ENG 2002 Stress Analysis & Design.....	3
MECH ENG 2015 Electronics IIM	3
MECH ENG 2021 Thermo-Fluids I	3
MECH ENG 2100 Design Practice.....	3
MECH ENG 2101 Mechatronics IM*	3
MECH ENG 2019 Dynamics & Control I.....	3

*includes workshop practical

Level III

ELEC ENG 3025 Power Electronics & Drive Systems	3
MECH ENG 3027 Engineering Systems Design & Communication.....	3
MECH ENG 3028 Dynamics & Control II.....	3
MECH ENG 3032 Micro-Controller Programming	3
MECH ENG 3102 Heat Transfer & Thermodynamics	3
MECH ENG 3105 Sustainability & the Environment.....	3
MECH ENG 3106 Mechatronics II	3
MECH ENG 3103 Manufacturing Engineering & Quality Systems.....	3

Level IV

Mathematics courses*	24
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*24 units of additional Mathematics courses of which 18 units must be at Level III

Level V

MECH ENG 4102 Advanced PID Control.....	3
MECH ENG 4123 Advanced Digital Control	3
MECH ENG 4124 Robotics M	3
MECH ENG 4142A Design Project Level IV ^	9

or

MECH ENG 4143A/B Honours Project ^	9
Electives (chosen from list).....	6
^ Students accepted into the Honours Stream will take Honours Project and other students will take Design Project	
Electives	
MECH ENG 4101 Biomechanical Engineering	3
MECH ENG 4105 Advanced Vibrations.....	3
MECH ENG 4110 Automotive Vehicle Dynamics & Safety	3
MECH ENG 4111 CFD for Engineering Applications.....	3
MECH ENG 4113 Computational Acoustics.....	3
MECH ENG 4114 Corrosion: Principles & Prevention.....	3
MECH ENG 4115 Engineering Acoustics	3
MECH ENG 4117 Finance for Engineers	3
MECH ENG 4118 Finite Element Analysis of Structures.....	3
MECH ENG 4121 Materials Selection & Failure Analysis.....	3
MECH ENG 4119 Fire Engineering	3
MECH ENG 4126 Topics in Welded Structures.....	3

6.5.15 Mining Engineering

6.5.15.1 B.E.(Mining)

Students are required to complete satisfactorily courses to the value of 24 units at each of Levels I, II, III and IV:

Level I

C&ENVENG 1008 Engineering Planning & Design IA.....	3
C&ENVENG 1010 Engineering Mechanics - Statics	3
MINING 1011 Introduction to Mining Engineering IA	3
C&ENVENG 1012 Engineering Modelling & Analysis IA	3
GEOLOGY 1104 Geology for Engineers.....	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MECHENG 1007 Engineering Mechanics- Dynamics	3

Level II

MECH ENG 2021 Thermo-Fluids I	3
CHEM ENG 2019 Introduction to Minerals Processing.....	3
C&ENVENG 2025 Strength of Materials IIA.....	3
C&ENVENG 2068 Environmental Engineering & Sustainability II	3
C&ENVENG 2069 Geotechnical Engineering IIA	3
C&ENVENG 2070 Engineering Modelling & Analysis IIA	3
GEOLOGY 2504 Economic & Mine Geology II	3
MATHS 2201 Engineering Mathematics I	3

Level III

MINING 3068 Mine Ventilation	3
MINING 3069 Rock Breakage.....	3
MINING 3070 Resource Estimation	3
MINING 3071 Mining Systems	3
MINING 3072 Mining Geomechanics	3
MINING 3073 Mine Planning	3
MINING 4104 Socio-Environmental Aspects of Mining.....	3
MINING 4107 Surface Mining Systems.....	3

Level IV

MINING 4101 Mine Management	3
MINING 4102 Mine Geotechnical Engineering	3
MINING 4106 Hard Rock Mine Design & Feasibility.....	3
MINING 4100A/B Mining Research Project*	6

MINING 4111 Coal Mine Design & Feasibility	3
Electives	6
*Students who are not selected for Honours will be required to complete two additional final year elective courses instead of the Mining Research Project	
Electives	
C&ENVENG 4106 Introduction to Geostatistics	3
MINING 4108 Underground Mining Systems	3
MINING 4109 Mining in a Global Environment.....	3
MINING 4110 Mine Asset Management & Services.....	3
MINING 4112 Advanced Mine Geotechnical Engineering	3
MINING 4114 Simulation & Animation for Mining Engineering	3

6.5.15.2 B.E.(Mining)/B.Ma.& Comp.Sc. (Mathematics focus)

To qualify for both the award of the degree of B.E.(Mining) and the degree of B.Ma.&Comp.Sc. with a Mathematics focus, students are required to complete satisfactorily:

Level I

C&ENVENG 1008 Engineering Planning & Design IA.....	3
C&ENVENG 1010 Engineering Mechanics - Statics	3
MINING 1011 Introduction to Mining Engineering IA	3
C&ENVENG 1012 Engineering Modelling & Analysis IA	3
GEOLOGY 1104 Geology for Engineers.....	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
MECHENG 1007 Engineering Mechanics - Dynamics	3

*See Clause 6.2 regarding Level I Mathematics requirements

Level II

MECH ENG 2021 Thermo-Fluids I	3
CHEM ENG 2019 Introduction to Minerals Processing Engineering	3
C&ENVENG 2025 Strength of Materials IIA.....	3
C&ENVENG 2068 Environmental Engineering & Sustainability II	3
C&ENVENG 2069 Geotechnical Engineering IIA	3
MATHS 2201 Engineering Maths I	3
MATHS 2202 Engineering Maths II	3
GEOLOGY 2504 Economic & Mine Geology	3

Level III

MINING 3068 Mine Ventilation	3
MINING 3069 Rock Breakage.....	3
MINING 3070 Resource Estimation	3
MINING 3071 Mining Systems	3
MINING 3072 Mining Geomechanics	3
MINING 3073 Mine Planning	3
MINING 4104 Socio-Environmental Aspects of Mining.....	3
MINING 4107 Surface Mining Systems.....	3

Level IV

Mathematics courses*	24
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*24 units of additional Mathematics courses of which 18 units must be at Level III

Level V

MINING 4101 Mine Management	3
MINING 4102 Mine Geotechnical Engineering	3
MINING 4106 Hard Rock Mine Design & Feasibility.....	3
MINING 4100A/B Mining Research Project*	6
MINING 4111 Coal Mine Design & Feasibility	3
Electives	6

*Students who are not selected for Honours will be required to complete two additional final year elective courses instead of the Mining Research Project

Electives

C&ENVENG 4106 Introduction to Geostatistics	3
MINING 4108 Underground Mining Systems	3
MINING 4109 Mining in a Global Environment.....	3
MINING 4110 Mine Asset Management & Services.....	3
MINING 4112 Advanced Mine Geotechnical Engineering	3
MINING 4113 Advanced Mine Ventilation.....	3
MINING 4114 Simulation & Animation for Mining Engineering	3

6.5.15.3 B.E.(Mining)/B.Sc.

To qualify for a Bachelor of Science award, students must complete a major pursuant to Bachelor of Science Program Rules.

To qualify for the award of the degrees of B.E.(Mining) and B.Sc. students are required to complete satisfactorily courses as indicated:

Level I

C&ENVENG 1010 Engineering Mechanics - Statics	3
MINING 1011 Introduction to Mining Engineering IA	3
GEOLOGY 1100 Earth’s Interior I.....	3
GEOLOGY 1103 Earth Systems.....	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
PHYSICS 1100 Physics IA.....	3
PHYSICS 1200 Physics IB	3

*See Clause 6.2 regarding Level I Mathematics requirements.

Level II

MECH ENG 2021 Thermo-Fluids I	3
CHEM ENG 2019 Introduction to Minerals Processing.....	3
C&ENVENG 2025 Strength of Materials IIA	3
C&ENVENG 2069 Geotechnical Engineering IIA	3
GEOLOGY 2500 Sedimentary Geology II	3
GEOLOGY 2503 Landscape Processes & Environments II	3
GEOLOGY 2504 Economic & Mine Geology	3
MATHS 2201 Engineering Mathematics I	3

Level III

MINING 3068 Mine Ventilation	3
MINING 3069 Rock Breakage.....	3
MINING 3070 Resource Estimation	3
MINING 3071 Mining Systems	3
MINING 3072 Mining Geomechanics	3
MINING 3073 Mine Planning	3
GEOLOGY 2501 Structural Geology II.....	3
GEOLOGY 2502 Igneous & Metamorphic Geology II.....	3

Level IV

GEOLOGY 3008 Geophysics III.....	3
GEOLOGY 3010 Remote Sensing	3
GEOLOGY 3013 Tectonics III.....	3
GEOLOGY 3016 Igneous & Metamorphic Geology III.....	3
GEOLOGY 3019 Field Geoscience Program III.....	3
GEOLOGY 3500 Exploration Methods III	3
GEOLOGY 3502 Mineral and Energy Resources	3
GEOLOGY 3504 Basins, Sediments and Regolith.....	3

Level V

MINING 4101 Mine Management	3
MINING 4102 Mine Geotechnical Engineering	3
MINING 4106 Hard Rock Mine Design & Feasibility.....	3
MINING 4100A/B Mining Research Project*	6
MINING 4111 Coal Mine Design & Feasibility	3
Electives	6

*Students who are not selected for Honours will be required to complete two additional final year elective courses instead of the Mining Research Project

Electives

C&ENVENG 4106 Introduction to Geostatistics	3
MINING 4104 Socio-Environmental Aspects of Mining.....	3
MINING 4107 Surface Mining Systems.....	3
MINING 4108 Underground Mining Systems	3
MINING 4109 Mining in a Global Environment.....	3
MINING 4110 Mine Asset Management & Services.....	3
MINING 4112 Advanced Mine Geotechnical Engineering	3
MINING 4114 Simulation & Animation for Mining Engineering	3

6.5.16 Petroleum Engineering

6.5.16.1 B.E.(Petroleum)

Students are required to complete satisfactorily courses to the value of at least 24 units at each of Levels I, II, III and IV:

Level I

COMP SCI 1201 Introduction to Programming for Engineers	3
C&ENVENG 1010 Engineering Mechanics - Statics	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
PETROENG 1005 Introduction to Petroleum Geosciences & the Oil Industry	3
PETROENG 1006 Introduction to Petroleum Engineering	3
PHYSICS 1100 Physics IA.....	3
MECH ENG 1007 Engineering Mechanics - Dynamics	3

*See Clause 6.2 regarding Level I Mathematics requirements

Level II

CHEM ENG 1007 Process Engineering 1	3
MATHS 2104 Numerical Methods.....	3
MATHS 2201 Engineering Mathematics I	3
MECH ENG 2021 Thermo-fluids I*	3
PETROENG 2001 Reservoir Thermodynamics & Fluid Properties.....	3
PETROENG 2005 Sedimentology & Stratigraphy	3
PETROENG 2009 Formation Evaluation, Petrophysics & Rock Properties.....	3
PETROENG 2010 Drilling Engineering	3

*International students are required to present ENG 3003 Engineering Communication EAL in lieu of C&ENVENG 1010 Engineering Mechanics - Statics

Level III

PETROENG 3001 Reservoir Simulation.....	3
PETROENG 3005 Reservoir Characterisation & Modelling	3
PETROENG 3007 Well Testing & Pressure Transient Analysis.....	3
PETROENG 3019 Structural Geology & Seismic Methods	3
PETROENG 3020 Production Engineering	3
PETROENG 3023 Well Completion & Simulation.....	3
PETROENG 3025 Reservoir Engineering.....	3
PETROENG 3026 Formation Damage & Productivity Enhancement	3

Level IV	
PETROENG 4037 Unconventional Resources and Recovery	3
PETROENG 4004A/B Petroleum Engineering Honours Project ^	6
<i>or</i>	
PETROENG 4020A/B Petroleum Engineering Design Project ^	6
PETROENG 4022 Integrated Field Development Planning & Economics Project	3
PETROENG 4027 Decision-Making & Risk Analysis.....	3
PETROENG 4033 Integrated Reservoir & Project Management	3
PETROENG 4034 Petroleum Business & Project Economics.....	3
PETROENG 4035 Reservoirs, Resources & Reserves	3
^ Students accepted into the Honours stream will take PETROENG 4004A/B Petroleum Engineering Honours Project and other students will take PETROENG 4020A/B Petroleum Engineering Design Project	

6.5.16.2 B.E.(Petroleum)/B.E.(Chemical)

To qualify for the combined award of B.E.(Petroleum) and B.E.(Chemical), students are required to complete satisfactorily the courses as indicated below:

Level I	
CHEM 1101 Foundations of Chemistry IA ⁺	3
<i>and</i>	
CHEM 1201 Foundations of Chemistry IB ⁺	3
<i>or</i>	
CHEM 1100 Chemistry IA ⁺	3
<i>and</i>	
CHEM 1200 Chemistry IB ⁺	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
PETROENG 1005 Introduction to Petroleum Geosciences & the Oil Industry	3
PETROENG 1006 Introduction to Petroleum Engineering	3
CHEM ENG 1007 Process Engineering I	3
COMP SCI 1201 Programming for Engineers	3

⁺ Students with a Subject Achievement score of at least 13 in SACE Stage 2 Chemistry (or equiv) must enrol in CHEM 1100/ CHEM 1200. All other students must enrol in CHEM 110 /CHEM 1201

*See Clause 6.2 regarding Level I Mathematics requirements

Level II	
CHEM ENG 2010 Introduction to Process Simulation	3
CHEM ENG 2014 Process Heat Transfer	3
CHEM ENG 2018 Process Fluid Mechanics.....	3
MATHS 2201 Engineering Mathematics I	3
PETROENG 2010 Drilling Engineering	3
MATHS 2104 Numerical Methods.....	3
CHEM ENG 2011 Chemical Engineering Thermodynamics	3
PETROENG 2009 Formation Evaluation, Petrophysics & Rock Properties.....	3

Level III	
CHEM ENG 3020 Production Engineering	3
CHEM ENG 3030 Simulation & Concept Design	3
CHEM ENG 3031 Process Control & Utilities.....	3
CHEM ENG 3034 Chemical Engineering Applications B	3
CHEM ENG 3035 Chemical Engineering Applications A	3
PETROENG 3001 Reservoir Simulation.....	3
PETROENG 3005 Reservoir Characterisation & Modelling	3
PETROENG 3025 Reservoir Engineering.....	3

Level IV	
CHEM ENG 3036 Unit Operations Lab	3

CHEM ENG 4050 Chemical Engineering Applications D	3
CHEM ENG 4056 Research Practice.....	3
CHEM ENG 3033 Chemical Engineering Applications C	3
CHEM ENG 4014 Plant Design Project.....	6
CHEM ENG 4034 Professional Practice IV.....	3
Chemical Engineering or Petroleum Engineering elective	3
Level V	
PETROENG 4037 Unconventional Resources and Recovery	3
PETROENG 4004A/B Petroleum Engineering Honours Project ^	6
<i>or</i>	
PETROENG 4020A/B Petroleum Engineering Design Project ^	6
PETROENG 4022 Integrated Field Development Planning & Economics Project	3
PETROENG 4027 Decision-Making & Risk Analysis.....	3
PETROENG 4034 Petroleum Business & Project Economics.....	3
Petroleum Engineering Electives.....	6
^ Students accepted into the Honours stream will take PETROENG 4004A/B Petroleum Engineering Honours Project and other students will take PETROENG 4020A/B Petroleum Engineering Design Project	
Petroleum Engineering Electives	
PETROENG 3019 Structural Geology & Seismic Methods	3
PETROENG 3020 Production Engineering	3
PETROENG 3023 Well Completion & Simulation.....	3
PETROENG 3026 Formation Damage and Productivity Enhancement.....	3
PETROENG 4033 Integrated Reservoir & Project Management	3
PETROENG 4035 Reservoirs, Resources & Reserves	3
Chemical Engineering Electives	
CHEM ENG 4052 Food Process Engineering	3
CHEM ENG 4053 Pinch Analysis and Process Synthesis	3
CHEM ENG 4032 Composite and Multiphase Polymers.....	3

6.5.16.3 B.E.(Petroleum)/B.E.(Civil and Structural)

To qualify for the combined award of B.E.(Petroleum) and B.E.(Civil & Structural), students are required to complete satisfactorily the courses as indicated below:

Level I	
C&ENVENG 1008 Engineering Planning & Design IA.....	3
C&ENVENG 1009 Civil & Environmental Engineering IA	3
C&ENVENG 1010 Engineering Mechanics - Statics	3
COMP SCI 1201 Introduction to Programming for Engineers	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
PETROENG 1005 Introduction to Petroleum Geosciences & the Oil Industry	3
PETROENG 1006 Introduction to Petroleum Engineering	3
*See Clause 6.2 regarding Level I Mathematics requirements.	
Level II	
C&ENVENG 2025 Strength of Materials IIA.....	3
C&ENVENG 2069 Geotechnical Engineering IIA	3
C&ENVENG 2071 Water Engineering IIA.....	3
C&ENVENG 2072 Structural Engineering Design.....	3
MATHS 2201 Engineering Mathematics I	3
PETROENG 2005 Sedimentology & Stratigraphy	3
PETROENG 2009 Formation Evaluation, Petrophysics & Rock Properties.....	3
PETROENG 2010 Drilling Engineering	3
Level III	
C&ENVENG 3001 Structural Mechanics IIIA.....	3

C&ENVENG 3005 Structural Design III (Concrete)	3
C&ENVENG 3007 Structural Design III (Steel)	3
C&ENVENG 3012 Geotechnical Engineering Design III	3
PETROENG 3019 Structural Geology & Seismic Methods	3
PETROENG 3020 Production Engineering	3
PETROENG 3025 Reservoir Engineering.....	3
PETROENG 3026 Formation Damage & Productivity Enhancement	3

Level IV

C&ENVENG 4003A/BV Civil & Structural Engineering Research Project Part 1 ^	6
C&ENVENG 4034 Civil Engineering Management IV	3
C&ENVENG 3077 Engineering Hydrology	3
C&ENVENG 3079 Water Engineering & Design III (S2)	3
MATHS 2104 Numerical Methods.....	3
Electives	6

^ Students who are not selected for Honours will be required to complete two additional final year elective courses instead of the Civil & Structural Research Project.

Electives

Alternatively, students may take up to 3 units of Level II or III courses offered by the School of Mathematical Sciences. In special circumstances other combinations of elective courses may be acceptable but must be approved by the Head of School. Students may also, with the approval of the Head of School, replace one or more elective courses with appropriate courses offered by other schools in the University.

The elective courses offered by the School in any one year will depend on staff availability, and will be chosen from the following:

C&ENVENG 4069 Advanced Reinforced Concrete	3
C&ENVENG 4070 Structural Design of Masonry Buildings	3
C&ENVENG 4073 Water Distribution Systems & Design	3
C&ENVENG 4075 Water Resources Optimisations and Modelling	3
C&ENVENG 4077 Coastal Engineering & Design	3
C&ENVENG 4079 Deep Foundation Engineering and Design	3
C&ENVENG 4085 Traffic Engineering & Design	3
C&ENVENG 4087 Environmental Modelling & Management.....	3
C&ENVENG 4091 Waste Management Analysis & Design.....	3
C&ENVENG 4092 Wastewater Engineering & Design	3
C&ENVENG 4096 FRP Retrofitting of Concrete Structures	3
C&ENVENG 4097 Analysis of Rivers & Sediment Transport.....	3
C&ENVENG 4099 Structural Response to Blast Loading	3
C&ENVENG 4106 Introduction to Geostatistics	3
C&ENVENG 4107 Prestressed Concrete Structures.....	3

Level V

PETROENG 4004A/B Petroleum Engineering Honours Project ^	6
<i>or</i>	
PETROENG 4020A/B Petroleum Engineering Design Project ^	6
PETROENG 4022 Integrated Field Development & Economics Project	3
PETROENG 4027 Decision-Making & Risk Analysis.....	3
PETROENG 4034 Petroleum Business & Project Economics.....	3
PETROENG 4035 Reservoirs, Resources & Reserves	3
Petroleum Engineering Electives.....	6

^ Students accepted into the Honours stream will take PETROENG 4004A/B Petroleum Engineering Honours Project and other students will take PETROENG 4020A/B Petroleum Engineering Design Project

Petroleum Engineering Electives

PETROENG 3001 Reservoir Simulation.....	3
PETROENG 3005 Reservoir Characterisation & Modelling	3
PETROENG 3007 Well Testing & Pressure Transient Analysis	3
PETROENG 3023 Well Completion & Simulation.....	3

PETROENG 4037 Unconventional Resources and Recovery	3
PETROENG 4033 Integrated Reservoir & Project Management	3

6.5.16.4 B.E.(Petroleum)/B.E.(Mechanical)

To qualify for the combined award of B.E.(Petroleum) and B.E.(Mechanical), students are required to complete satisfactorily the courses as indicated below:

Level I

C&ENVENG 1010 Engineering Mechanics - Statics	3
ELEC ENG 1009 Electrical & Electronic Engineering IA	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
MECH ENG 1006 Design Graphics & Communication.....	3
MECH ENG 1007 Engineering Mechanics - Dynamics	3
PETROENG 1005 Introduction to Petroleum Geosciences & the Oil Industry	3
PETROENG 1006 Introduction to Petroleum Engineering	3

*See Clause 6.2 regarding Level I Mathematics requirements.

Level II

CHEM ENG 1009 Materials I	3
MATHS 2201 Engineering Mathematics I	3
MECH ENG 2002 Stress Analysis & Design.....	3
MECH ENG 2021 Thermo-Fluids I	3
MECH ENG 2100 Design Practice.....	3
PETROENG 2005 Sedimentology & Stratigraphy	3
PETROENG 2009 Formation Evaluation, Petrophysics & Rock Properties.....	3
PETROENG 2010 Drilling Engineering	3

Level III

MECH ENG 2019 Dynamics & Control I.....	3
MECH ENG 2020 Materials & Manufacturing	3
MECH ENG 3027 Engineering Systems Design & Communication.....	3
MECH ENG 3030 Structural Design & Solid Mechanics	3
MECH ENG 3102 Heat Transfer & Thermodynamics	3
PETROENG 3023 Well Completion & Stimulation.....	3
PETROENG 3025 Reservoir Engineering.....	3
PETROENG 3026 Formation Damage & Productivity Enhancement.....	3

Level IV

MECH ENG 4132A/B Mechanical Design Project Level IV ^	6
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or

MECH ENG 4133A/B Mechanical Honours Project Level IV ^	6
MECH ENG 3105 Sustainability & the Environment.....	3
MECH ENG 3028 Dynamics & Control II.....	3
MATHS 2104 Numerical Methods	3
Mechanical Engineering Electives.....	9

^ Students accepted into the Honours stream will take MECH ENG 4133A Mechanical Honours Project and other students will take MECH ENG 4132A/B Mechanical Design Project.

Mechanical Engineering Electives

MECH ENG 4102 Advanced PID Control.....	3
MECH ENG 4103 Advanced Computer Aided Design	3
MECH ENG 4104 Advanced Topics in Fluid Mechanics.....	3
MECH ENG 4105 Advanced Vibrations.....	3
MECH ENG 4107 Airconditioning.....	3
MECH ENG 4109 Automotive Combustion, Powertrain and NVH	3
MECH ENG 4110 Automotive Vehicle Dynamics & Safety	3

MECH ENG 4111 CFD for Engineering Applications.....	3
MECH ENG 4112 Combustion Technology & Emission Control	3
MECH ENG 4113 Computational Acoustics.....	3
MECH ENG 4114 Corrosion: Principles and Prevention.....	3
MECH ENG 4115 Engineering Acoustics	3
MECH ENG 4117 Finance for Engineers	3
MECH ENG 4118 Finite Element Analysis of Structures.....	3
MECH ENG 4120 Fracture Mechanics.....	3
MECH ENG 4121 Materials Selection & Failure Analysis.....	3
MECH ENG 4124 Robotics M	3
MECH ENG 4125 Stresses in Plates & Shells	3
MECH ENG 4127 Wind Engineering.....	3
Level V	
PETROENG 3020 Production Engineering	3
PETROENG 4004A/B Petroleum Engineering Honours Project ^	6
<i>or</i>	
PETROENG 4020A/B Petroleum Engineering Design Project ^	6
PETROENG 4022 Integrated Field Development & Economics Project	3
PETROENG 4027 Decision-Making & Risk Analysis.....	3
PETROENG 4034 Petroleum Business & Project Economics.....	3
Petroleum Engineering Electives.....	6
^ Students accepted into the Honours stream will take PETROENG 4004A/B Petroleum Engineering Honours Project and other students will take PETROENG 4020A/B Petroleum Engineering Design Project	
Petroleum Engineering Electives	
PETROENG 3001 Reservoir Simulation.....	3
PETROENG 3005 Reservoir Characterisation & Modelling	3
PETROENG 3007 Well Testing & Pressure Transient Analysis.....	3
PETROENG 3019 Structural Geology & Seismic Methods	3
PETROENG 4037 Unconventional Resources and Recovery	3
PETROENG 4033 Integrated Reservoir & Project Management	3
PETROENG 4035 Reservoirs, Resources & Reserves	3

6.5.16.5 B.E.(Petroleum)/B.E.(Mining)

To qualify for the combined award of B.E.(Petroleum) and B.E.(Mining), students are required to complete satisfactorily the courses as indicated below:

Level I	
CHEM ENG 1007 Process Engineering I	3
COMP SCI 1201 Introduction to Programming for Engineers.....	3
C&ENVENG 1010 Engineering Mechanics - Statics	3
MINING 1011 Introduction to Mining Engineering IA	3
MATHS 1011 Mathematics IA*	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
PETROENG 1005 Introduction to Petroleum Geosciences & the Oil Industry	3
PETROENG 1006 Introduction to Petroleum Engineering	3
*See Clause 6.2 regarding Level I Mathematics requirements.	
Level II	
C&ENVENG 2025 Strength of Materials IIA.....	3
C&ENVENG 2069 Geotechnical Engineering IIA	3
C&ENVENG 2071 Water Engineering IIA.....	3
GEOLOGY 2504 Economic & Mine Geology II.....	3
MATHS 2104 Numerical Methods.....	3
MATHS 2201 Engineering Mathematics I	3
PETROENG 2009 Formation Evaluation, Petrophysics & Rock Properties.....	3

PETROENG 2010 Drilling Engineering	3
Level III	
MINING 3068 Mine Ventilation	3
MINING 3069 Rock Breakage.....	3
MINING 3070 Resource Estimation	3
MINING 3071 Mining Systems	3
MINING 3072 Mining Geomechanics	3
MINING 3073 Mine Planning	3
MINING 4101 Mine Management.....	3
MINING 4102 Mine Geotechnical Engineering	3
Level IV	
MINING 4106 Hard Rock Mine Design & Feasibility.....	6
PETROENG 3001 Reservoir Simulation.....	3
PETROENG 3005 Reservoir Characterisation & Modelling	3
PETROENG 3007 Well Testing & Pressure Transient Analysis.....	3
PETROENG 3019 Structural Geology & Seismic Methods	3
PETROENG 3020 Production Engineering	3
PETROENG 3025 Reservoir Engineering.....	3
PETROENG 4111 Coal Mine Design & Feasibility	3
Level V	
PETROENG 4037 Unconventional Resources and Recovery	3
PETROENG 4004A/B Petroleum Engineering Honours Project.....	6
<i>or</i>	
PETROENG 4020A/B Petroleum Engineering Design Project	6
<i>or</i>	
MINING 4100A/B Mining Research Project Part 1&2	6
<i>or</i>	
Mining Electives.....	6
PETROENG 4022 Integrated Field Development & Economics Project	3
PETROENG 4027 Decision-Making & Risk Analysis.....	3
PETROENG 4033 Integrated Reservoir & Project Management	3
PETROENG 4034 Petroleum Business & Project Economics.....	3
PETROENG 4035 Reservoir, Resources & Reserves.....	3
Mining Electives	
MINING 4104 Socio-Environmental Aspects of Mining.....	3
MINING 4107 Surface Mining Systems.....	3
MINING 4108 Underground Mining Systems	3
MINING 4109 Mining in a Global Environment.....	3
MINING 4110 Mine Asset Management & Services.....	3
MINING 4112 Advanced Mine Geotechnical Engineering	3
MINING 4113 Advanced Mine Ventilation (3 units)	3
MINING 4114 Simulation & Animation for Mining Engineers.....	3

6.5.16.6 B.E.(Petroleum)/B.Sc.(Geology & Geophysics)

To qualify for the combined award of B.E.(Petroleum) and B.Sc.(Geology & Geophysics), candidates are required to complete satisfactorily the courses as indicated below:

Level I	
GEOLOGY 1100 Earth's Interior I	3
GEOLOGY 1103 Earth Systems	3
MATHS 1011 Mathematics IA*	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
PETROENG 1005 Introduction to Petroleum Geosciences & the Oil Industry	3
PETROENG 1006 Introduction to Petroleum Engineering	3
PHYSICS 1100 Physics IA.....	3

COMP SCI 1201 Introduction to Programming for Engineers 3

*See Clause 6.2 regarding Level I Mathematics requirements.

Level II

C&ENVENG 1010 Engineering Mechanics - Statics 3

CHEM ENG 1007 Process Engineering 3

PETROENG 2001 Reservoir Thermodynamics & Fluid Properties..... 3

PETREONG 2005 Sedimentology & Stratigraphy 3

PETROENG 2009 Formation Evaluation, Petrophysics & Rock Properties..... 3

PETROENG 2010 Drilling Engineering 3

MATHS 2201 Engineering Maths I 3

MATHS 2202 Engineering Maths II 3

Level III

GEOLOGY 2501 Structural Geology II..... 3

GEOLOGY 2502 Igneous & Metamorphic Geology II..... 3

GEOLOGY 2503 Landscape Processes & Environments II 3

PETROENG 3005 Reservoir Characterisation & Modelling 3

PETROENG 3019 Structural Geology & Seismic Methods 3

PETREONG 3020 Production Engineering 3

PETROENG 3025 Reservoir Engineering..... 3

PETROENG 3026 Formation Damage & Productivity Enhancement 3

Level IV

GEOLOGY 3008 Geophysics III..... 3

SOIL & WAT 3010 Remote Sensing III..... 3

GEOLOGY 3013 Tectonics III..... 3

GEOLOGY 3016 Igneous & Metamorphic Geology III..... 3

GEOLOGY 3019 Field Geoscience Program III..... 3

GEOLOGY 3500 Exploration Methods III 3

GEOLOGY 3502 Mineral & Energy Resources III..... 3

GEOLOGY 3504 Basins, Sediments and Regolith III..... 3

Level V

PETROENG 4004A/B Petroleum Engineering Honours Project ^ 6

or

PETROENG 4020A/B Petroleum Engineering Design Project ^ 6

PETROENG 4022 Integrated Field Development & Economics Project 3

PETROENG 4027 Decision-Making & Risk Analysis..... 3

PETROENG 4034 Petroleum Business & Project Economics..... 3

PETROENG 4035 Reservoirs, Resources & Reserves 3

Petroleum Engineering Electives..... 6

^ Students accepted into the Honours stream will take PETROENG 4004A/B Petroleum Engineering Honours Project and other students will take PETROENG 4020A/B Petroleum Engineering Design Project

Petroleum Engineering Electives

PETROENG 3001 Reservoir Simulation..... 3

PETROENG 3007 Well Testing & Pressure Transient Analysis 3

PETROENG 3023 Well Completion & Simulation..... 3

PETROENG 4037 Unconventional Resources and Recovery 3

PETROENG 4033 Integrated Reservoir & Project Management 3

6.5.17 Pharmaceutical Engineering

6.5.17.1 B.E.(Pharmaceutical)

Students are required to complete satisfactorily courses to the value of 24 units at each of Levels I, II, III and IV:

Level I

BIOLOGY 1101 Biology I: Molecules, Genes & Cells 3

BIOLOGY 1201 Biology I: Human Perspectives..... 3

CHEM 1101 Foundations of Chemistry IA ⁺	3
<i>and</i>	
CHEM 1201 Foundations of Chemistry IB ⁺	3
<i>or</i>	
CHEM 1100 Chemistry IA ⁺	3
<i>and</i>	
CHEM 1200 Chemistry IB ⁺	3
CHEM ENG 1007 Process Engineering I	3
CHEM ENG 1010 Professional Practice 1	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
+ Students with a Subject Achievement score of at least 13 in SACE Stage 2 Chemistry or equivalent must enrol in CHEM 1100/CHEM 1200. All other students must enrol in CHEM 1101/CHEM 1201	
*See Clause 6.2 regarding Level I Mathematics requirements.	
Level II	
CHEM 2510 Chemistry IIA ⁺	3
CHEM 2540 Medicinal & Biological Chemistry II.....	3
CHEM ENG 2010 Introduction to Process Simulation	3
CHEM ENG 2011 Chemical Engineering Thermodynamics	3
CHEM ENG 2012 Principles of Pharmaceutical Engineering	3
CHEM ENG 2014 Process Heat Transfer	3
BIOCHEM 2501 Biochemistry II: Metabolism	3
CHEM ENG 2018 Process Fluid Mechanics.....	3
+ CHEM 2510 requires either passes in both CHEM 1100 & CHEM 1200 or credits in both CHEM 1101 & CHEM 1201	
Level III	
CHEM 3214 Medicinal & Biological Chemistry III.....	3
CHEM ENG 3025 Pharmaceutical Plant Design & Process Engineering.....	3
CHEM ENG 3021 Advanced Pharmaceutical Unit Operations	3
CHEM ENG 3024 Professional Practice III	3
CHEM ENG 3027 Pharmaceutical Engineering Applications B.....	3
CHEM ENG3022 Pharmaceutical Engineering Applications A	3
CHEM ENG 3036 Unit Operations Laboratory	3
PHARM 2100 Drugs, Chemicals & Health	3
Level IV	
CHEM ENG 3031 Process Control & Utilities.....	3
CHEM ENG 4054 Research Project (H) ^	3
<i>or</i>	
CHEM ENG 4055 Advanced Unit Operations Laboratory	3
CHEM ENG 4034 Professional Practice IV.....	3
CHEM ENG 4035 Pharmaceutical Plant Design Project.....	6
CHEM ENG 4036 Pharmaceutical Manufacturing & Packaging Systems	3
CHEM ENG 4038 Particulate Processes & Colloid Science.....	3
PHARM 4200 Drugs, Discovery & Development.....	3
^ Students accepted into the Honours stream will take Research Project H and other students will take Advanced Unit Operations Laboratory	

6.5.18 Software Engineering

6.5.18.1 B.E.(Software)

Students are required to complete satisfactorily courses to the value of 24 units at each of Levels I, II, III and IV:

Level I

COMP SCI 1003 Internet Computing.....	3
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COMP SCI 1102 Object Oriented Programming +	3
COMP SCI 1103 Algorithm Design & Data Structures	3
ELEC ENG 1009 Electrical & Electronic Engineering IA	3
ELEC ENG 1010 Electrical & Electronic Engineering IB.....	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
STATS 1000 Statistical Practice I	3

*See Clause 6.2 regarding Level I Mathematics requirements.

+ Students who do not have prior programming experience or who are not confident in their programming ability should complete COMP SCI 1101 Introduction to Programming prior to undertaking COMP SCI 1102 Object Oriented Programming followed by COMP SCI 1103 Algorithm Design and Data Structures and COMP SCI 2201 Algorithm and Data Structure Analysis in the following year. Students who take COMP SCI 1101 Introduction to Programming will present it in lieu of a level II elective.

Level II

COMP SCI 2000 Computer Systems	3
COMP SCI 2002 Database & Information Systems	3
COMP SCI 2201 Algorithm & Data Structure Analysis.....	3
COMP SCI 2005 Systems Programming in C & C+ +	3
COMP SCI 2006 Introduction to Software Engineering.....	3
Level II Electives*	9

Level III

COMP SCI 3001 Computer Networks & Applications	3
COMP SCI 3002 Programming Techniques	3
COMP SCI 3004 Operating Systems	3
COMP SCI 3005 Computer Architecture	3
COMP SCI 3013 Event Driven Computing	3
COMP SCI 3017 Software Engineering Group Project I A.....	3
COMP SCI 3018 Software Engineering Group Project I B	3
Level III Elective*	3

Level IV

COMP SCI 4003A/B Software Engineering Group Project II.....	6
<i>or</i>	
COMP SCI 4011A/B Software Engineering Honours Project ^	6
COMP SCI 4023 Software Process Improvement.....	3
COMP SCI 4054 High Integrity Software Engineering	3
ELEC ENG 4064 Business Management Systems	3
C&ENVENG 4034 Engineering Management IV	3
Level IV Electives	6

*Electives to be chosen from courses in Computer Science, Mathematics and Electrical & Electronic Engineering.

^ Students accepted into the Honours stream will take COMP SCI 4011A/B Software Engineering Honours Project and other students will take Software Engineering Group Project

Level IV Electives

(Other electives may be acceptable but require the approval of the Faculty.)

COMP SCI 3007 Artificial Intelligence	3
COMP SCI 3009 Advanced Programming Paradigms	3
COMP SCI 3012 Distributed Systems UG	3
COMP SCI 3014 Computer Graphics.....	3
COMP SCI 4000 Software Architectures.....	3
COMP SCI 4005 Adaptive Business Intelligence.....	3
COMP SCI 4009 Modern Heuristic Methods.....	3
COMP SCI 4022 Computer Vision	3
COMP SCI 4041 Language Translators	3
COMP SCI 4044 Computer Systems Security.....	3

COMP SCI 4045 Distributed High Performance Computing.....	3
COMP SCI 4077 Systems Modelling & Simulation	3
COMP SCI 4091 Commercialising IT Research.....	3
COMP SCI 4092 Mobile & Wireless Networks.....	3
COMP SCI 4094 Distributed Databases & Data Mining.....	3
COMP SCI 4095 Evolutionary Computation.....	3
ELEC ENG 4056 Real Time Systems	3
PURE MTH 3018 Coding & Cryptology III.....	3

6.5.19 Telecommunications Engineering

6.5.19.1 B.E.(Telecommunications)

Students are required to complete satisfactorily courses to the value of 24 units at each of Levels I, II, III and IV:

Level I

COMP SCI 1201 Introduction to Programming for Engineers.....	3
COMP SCI 1202 Object-Oriented Programming E	3
ELEC ENG 1009 Electrical & Electronic Engineering IA	3
ELEC ENG 1010 Electrical & Electronic Engineering IB.....	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
PHYSICS 1100 Physics IA.....	3
PHYSICS 1200 Physics IB	3

Level II

COMP SCI 2000 Computer Systems UG.....	3
COMP SCI 1203 Algorithm Design & Data Structures	3
ELEC ENG 2007 Signals & Systems.....	3
ELEC ENG 2008 Electronics	3
ELEC ENG 2009 Engineering Electromagnetics.....	3
ELEC ENG 2011 Circuit Analysis.....	3
MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Mathematics II	3

Level III

COMP SCI 3001 Computer Networks & Applications	3
APP MTH 3016 Random Processes III	3
ELEC ENG 3018 RF Engineering	3
ELEC ENG 3024 Project Management for Electrical Engineering.....	3
ELEC ENG 3027 Control	3
ELEC ENG 3028 Digital Systems	3
ELEC ENG 3033 Signal Processing	3
ELEC ENG 3034 Telecommunications Principles.....	3

Level IV

C&ENVENG 4034 Engineering Management IV	3
ELEC ENG 4036A/B Design Project [#]	6
<i>or</i>	
ELEC ENG 4039A/B Honours Project [#]	6
ELEC ENG 4054 Telecommunications Systems	3
ELEC ENG 4063 Communications	3
ELEC ENG 4064 Business Management Systems	3
Elective.....	3

[#]Students accepted into the Honours stream will take Honours Project and other students will take Design Project

Electives

COMP SCI 3004 Operating Systems	3
COMP SCI 3005 Computer Architecture	3

COMP SCI 3006 Software Engineering & Project.....	3
ELEC ENG 4056 Real Time Systems	3
ELEC ENG 4057 RF Systems	3
ELEC ENG 4055 Systems Engineering.....	3
ELEC ENG 4061 Image Processing.....	3
PURE MTH 3018 Coding & Cryptology III.....	3

6.5.19.2 B.E.(Telecommunications)/B.A.

To satisfy the Arts component of this program, students must undertake 30 units of Arts courses, which includes an approved major sequence (24 units). The remaining 6 units can be undertaken at any level. Students should consult the B.A. academic program rules for the list of approved major sequences and specific requirements of each.

To satisfy the BE (Telecommunications) component of this program students are required to satisfactorily complete the courses listed below:

Level I

COMP SCI 1201 Introduction to Programming for Engineers.....	3
COMP SCI 1202 Object-Oriented Programming E	3
ELEC ENG 1009 Electrical & Electronic Engineering IA	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
PHYSICS 1100 Physics IA.....	3
PHYSICS 1200 Physics IB.....	3
Level I Arts Course.....	3

*See Clause 6.2 regarding Level I Mathematics requirements.

Level II

ELEC ENG 2007 Signals & Systems	3
ELEC ENG 2009 Engineering Electromagnetics.....	3
ELECENG 2011 Circuit Analysis	3
ELEC ENG 1010 Electrical & Electronic Engineering IB.....	3
MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Mathematics II	3
Level I Arts courses	6

Level III

COMP SCI 2000 Computer Systems	3
COMP SCI 1203 Algorithm Design & Data Structures	3
ELEC ENG 2008 Electronics II.....	3
ELEC ENG 3028 Digital Systems	3
ELEC ENG 3033 Signal Processing III.....	3
ELEC ENG 3034 Telecommunications Principles.....	3
Advanced Level Arts courses.....	6

Level IV

APP MTH 3016 Random Processes III.....	3
COMP SCI 3001 Computer Networks & Applications	3
ELEC ENG 3018 RF Engineering	3
ELEC ENG 3024 Project Management for Electrical Engineering.....	3
ELEC ENG 3027 Control	3
Advanced Level Arts courses.....	9

Level V

ELEC ENG 4036A/B Design Project [#]	6
<i>or</i>	
ELEC ENG 4039A/B Honours Project [#]	6
ELEC ENG 4035 Communications	3
ELEC ENG 4054 Telecommunications Systems	3

Elective	6
Advanced Level Arts courses	6
# Students accepted into the Honours stream will take Honours Project and other students will take Design Project Part.	
Electives	
COMP SCI 3004 Operating Systems	3
COMP SCI 3005 Computer Architecture	3
COMP SCI 3006 Software Engineering & Project.....	3
ELEC ENG 4056 Real Time Systems	3
ELEC ENG 4057 RF Systems	3
ELEC ENG 4055 Systems Engineering.....	3
ELEC ENG 4061 Image Processing.....	3
PURE MTH 3018 Coding & Cryptology III.....	3

6.5.19.3 B.E.(Telecommunications)/B.Ec.

To qualify for the combined award of B.E.(Telecommunications) and B.Ec., students are required to complete satisfactorily courses listed below:

Level I

COMP SCI 1201 Introduction to Programming for Engineers.....	3
COMP SCI 1202 Object-Oriented Programming E	3
ECON 1004 Principles of Microeconomics I	3
ELEC ENG 1009 Electrical & Electronic Engineering IA	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
PHYSICS 1100 Physics IA.....	3
PHYSICS 1200 Physics IB	3

* See Clause 6.2 regarding Level I Mathematics requirements.

Level II

ECON 1000 Principles of Macroeconomics I	3
ECON 2503 Intermediate Mathematical Economics II	3
<i>or</i>	
ECON 2504 Intermediate Econometrics II.....	3
ELEC ENG 1010 Electrical & Electronic Engineering IB.....	3
ELEC ENG 2007 Signals & Systems.....	3
ELEC ENG 2009 Engineering Electromagnetics.....	3
ELEC ENG 2011 Circuit Analysis.....	3
MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Mathematics II	3

Level III

COMP SCI 2000 Computer Systems	3
COMP SCI 1203 Algorithm Design & Data Structures	3
ELEC ENG 2008 Electronics	3
ECON 2506 Intermediate Microeconomics II	3
ECON 2507 Intermediate Macroeconomics II	3
ELEC ENG 3028 Digital Systems	3
ELEC ENG 3033 Signal Processing	3
ELEC ENG 3034 Telecommunications Principles.....	3

Level IV

APP MTH Random Processes III.....	3
COMP SCI 3001 Computer Networks & Applications	3
COMMGMT 2500 Organisational Behaviour II.....	3
ELEC ENG 3018 RF Engineering	3
ELEC ENG 3024 Project Management for Electrical Engineering.....	3

Level III Economics courses*	6
*Level III Economics courses chosen from those listed in the Specific Academic Program Rules of the Degree of Bachelor of Economics.	
Level V	
ELEC ENG 4036A/B Design Project [#]	6
<i>or</i>	
ELEC ENG 4039A/B Honours Project [#]	6
ELEC ENG 4035 Communications	3
ELEC ENG 4054 Telecommunications Systems	3
Engineering Elective	3
Level III Economics courses	9
[#] Students accepted into the Honours stream will take Honours Project and other students will take Design Project	
Engineering Electives	
ELEC ENG 4056 Real Time Systems	3
ELEC ENG 4061 Image Processing	3

6.5.19.4 B.E.(Telecommunications)/B.Fin.

To qualify for the combined award of B.E.(Telecommunications) and B.Fin., students are required to complete satisfactorily courses listed below:

Level I	
COMP SCI 1201 Introduction to Programming for Engineers	3
COMP SCI 1202 Object-Oriented Programming E	3
ECON 1004 Principles of Microeconomics I	3
ELEC ENG 1009 Electrical & Electronic Engineering IA	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB	3
MATHS 1013 Mathematics IM*	3
PHYSICS 1100 Physics IA	3
PHYSICS 1200 Physics IB	3
* See Clause 6.2 regarding Level I Mathematics requirements.	
Level II	
ECON 1000 Principles of Macroeconomics I	3
ECON 1009 International Finance Institutions & Markets I	3
ELEC ENG 1010 Electrical & Electronic IB	3
ELEC ENG 2007 Signals & Systems	3
ELEC ENG 2009 Engineering Electromagnetics	3
ELEC ENG 2011 Circuit Analysis	3
MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Mathematics II	3
Level III	
ACCTING 1002 Accounting for Decision Makers I	3
COMP SCI 2000 Computer Systems	3
COMP SCI 1203 Algorithm Design & Data Structures	3
CORPFIN 2500 Business Finance II	3
ECON 2504 Intermediate Econometrics II	3
ELEC ENG 2008 Electronics	3
ELEC ENG 3028 Digital Systems	3
ELEC ENG 3033 Signal Processing	3
Level IV	
CORPFIN 2501 Financial Institutions Management II	3
ECON 2508 Financial Economics II	3
COMP SCI 3001 Computer Networks & Applications	3
ELEC ENG 3018 RF Engineering	3
ELEC ENG 3024 Project Management for Electrical Engineering	3

ELEC ENG 3034 Telecommunications Principles.....	3
APP MTH 3012 Financial Modelling: Tools & Techniques.....	3
<i>or</i>	
CORPFIN 3502 Options, Futures & Risk Management III	3
Level III Finance course	3
Level V	
ELEC ENG 4054 Telecommunications Systems	3
ELEC ENG 4063 Communications	3
ELEC ENG 4036A/B Design Project [#]	6
<i>or</i>	
ELEC ENG 4039A/B Honours Project [#]	6
APP MTH 3016 Random Processes III.....	3
CORPFIN 3501 Portfolio Theory and Management III.....	3
Engineering Elective	3
Level III Finance courses.....	3
[#] Students accepted into the Honours stream will take Honours Project and other students will take Design Project	
Engineering Electives:	
ELEC ENG 4056 Real Time Systems.....	3
ELEC ENG 4061 Image Processing.....	3

6.5.19.5 B.E.(Telecommunications)/LLB.

To qualify for the combined award of B.E.(Telecommunications) and LL.B, students are required to complete satisfactorily courses below:

Level I

ELEC ENG 1009 Electrical & Electronic Engineering IA	3
ELEC ENG 1010 Electrical & Electronic Engineering IB.....	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
LAW 1501 Foundations of Law.....	3
LAW 1502 Law of Torts I.....	3
LAW 1504 Principles of Public Law or equivalent	3
LAW 1505 Law of Torts II.....	3

*See Clause 6.2 regarding Level I Mathematics requirements

Level II

COMP SCI 1201 Introduction to Programming for Engineers	3
COMP SCI 1202 Object-Oriented Programming E	3
PHYSICS 1100 Physics IA.....	3
PHYSICS 1200 Physics IB	3
Law courses to be advised by Law School.....	12

Level III

ELEC ENG 2011 Circuit Analysis.....	3
MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Mathematics II	3
ELEC ENG 2007 Signals & Systems.....	3
ELEC ENG 2009 Engineering Electromagnetics.....	3
ELEC ENG 2008 Electronics	3
Law courses to be advised by Law School.....	6

Level IV

COMP SCI 1203 Algorithm Design & Data Structures for Engineers	3
COMP SCI 2000 Computer Systems	3
ELEC ENG 3027 Control	3
ELEC ENG 3028 Digital Systems	3
Law courses to be advised by Law School.....	12

Level V

Note: Level V is indicative only—for enrolment information continuing students should visit www.ecms.adelaide.edu.au/enrol/guides

Electrical & Electronic Engineering courses:

APP MTH 3016 Random Processes III	3
COMP SCI 3001 Computer Networks & Applications	3
ELEC ENG 3018 RF Engineering	3
ELEC ENG 3024 Project Management for Electrical Engineers	3
ELEC ENG 3033 Signal Processing III.....	3
ELEC ENG 3034 Telecommunications Principles.....	3
Law courses to be advised by Law School.....	6

Level VI

ELEC ENG 4036A/B Design Project ^	6
<i>or</i>	
ELEC ENG 4039A/B Honours Project ^	6
ELEC ENG 4054 Telecommunications Systems	3
ELEC ENG 4063 Communications	3
Law courses to be advised by Law School.....	12

plus

12 additional units of Law courses to be specified by the Law School.

^ Students accepted into the Honours stream will take Honours Project and other students will take Design Project

6.5.19.6 B.E.(Telecommunications)/B.Ma.&Comp.Sc.

To qualify for both the award of the degree of B.E.(Telecommunications) and the degree of B.Ma.&Comp.Sc. with a Mathematics Major, students are required to complete satisfactorily:

Level I

COMP SCI 1201 Introduction to Programming for Engineers.....	3
COMP SCI 1202 Object-Oriented Programming E	3
ELEC ENG 1009 Electrical & Electronic Engineering IA	3
ELEC ENG 1010 Electrical & Electronic Engineering IB.....	3
MATHS 1011 Mathematics IA	3
MATHS 1012 Mathematics IB.....	3
MATHS 1013 Mathematics IM*	3
PHYSICS 1100 Physics IA.....	3
PHYSICS 1200 Physics IB	3

*See Clause 6.2 regarding Level I Mathematics requirements.

Level II

COMP SCI 2000 Computer Systems	3
COMP SCI 1203 Algorithm Design & Data Structures	3
MATHS 2201 Engineering Mathematics I	3
MATHS 2202 Engineering Mathematics II	3
ELEC ENG 2007 Signals & Systems II.....	3
ELEC ENG 2008 Electronics II.....	3
ELEC ENG 2009 Engineering Electromagnetics.....	3
ELEC ENG 2011 Circuit Analysis.....	3

Level III

COMP SCI 3001 Computer Networks & Applications	3
ELEC ENG 3018 RF Engineering	3
ELEC ENG 3024 Project Management for Electrical Engineering.....	3
ELEC ENG 3028 Digital Systems	3
ELEC ENG 3033 Signal Processing	3
ELEC ENG 3034 Telecommunications Principles.....	3
Level II or III Mathematics or Computer Science courses	6

Level IV

APP MTH 3016 Random Processes III3	
ELEC ENG 3027 Control	3
Level III Maths or Computer Science courses	18
Level V	
C&ENVENG 4034 Engineering Management IV	3
ELEC ENG 4035 Communications	3
ELEC ENG 4054 Telecommunications Systems	3
ELEC ENG 4064 Business Management Systems	3
ELEC ENG 4036A/B Design Project [#]	6
<i>or</i>	
ELEC ENG 4039A/B Honours Project [#]	6
Electives	6
[#] Students accepted into the Honours stream will take Honours Project and other students will take Design Project	
Electives	
COMP SCI 3004 Operating Systems	3
COMP SCI 3005 Computer Architecture	3
COMP SCI 3006 Software Engineering & Project.....	3
ELEC ENG 4056 Real Time Systems	3
ELEC ENG 4057 RF Systems	3
ELEC ENG 4055 Systems Engineering.....	3
ELEC ENG 4061 Image Processing.....	3
PURE MTH 3018 Coding & Cryptology III.....	3

6.6 Unacceptable combinations of courses

No student will be permitted to count towards an award any course, together with any other course, which, in the opinion of the Faculty concerned, contains a substantial amount of the same material; and no course or portion of a course may be counted twice towards an award.

6.7 Graduation

Subject to Chapter 89 of the Statutes, candidates who have satisfied the requirements for any award of the University shall be admitted to that award.

7 Special circumstances

When in the opinion of the relevant Faculty special circumstances exist, the Council, on the recommendation of the Faculty in each case, may vary any of the provisions of the Academic Program Rules for any particular award.