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Welcome to Murdoch University

Congratulations on your offer of a place to study at Murdoch University. The details included in this booklet will assist you with accepting your offer, seeking advice on your enrolment options, choosing your units and completing your enrolment online. The 7 Steps below ensure that you have the basic information you need to navigate successfully through your first enrolment experience at Murdoch.

Students who are unable to access computer facilities due to exceptional circumstances are able to apply to receive their University correspondence via hardcopy. For further information please contact the External Studies Unit on 93602710.

- **STEP 1** Accept Offer and Activate Account
- **STEP 2** Research Your Options
- **STEP 3** Complete Your Enrolment
- **STEP 4** Select Your Activities
- **STEP 5** Get Advice
- **STEP 6** Go To Orientation and Start Uni
- **STEP 7** Important Information and FAQs
STEP 1

Accept Offer and Activate Account

☐ Go to the Murdoch Home page …
  … [http://www.murdoch.edu.au/](http://www.murdoch.edu.au/) and click on the “New students” link on the bottom left of your screen. This will take you to our New Students website.

☐ Select the Accept & Activate icon

☐ Read the instructions …
  … carefully for your offer type, then click on the “New students…walk this way” icon.

You will need your Offer Letter (Domestic students) or Confirmation of Enrolment- eCOE (International students) as this contains your Student Number.

☐ Enter your Student Number

☐ Enter your Date of Birth …
  … in the format DD/MM/YYYY (eg 12/03/1985) and click the SUBMIT button.

☐ Now you can:
  ☐ Choose to Accept, Defer or Reject your offer (domestic students only)
  ☐ Set your Murdoch Password (all students)
  ☐ Set and confirm your email address (all students)
  ☐ Select your course as offered (domestic students only)

☐ Congratulations …
  … you have accepted your place as a Murdoch student and you are now ready to select your units and complete your enrolment!
STEP 2

Research Your Options

☐ **Read your Course/Major Description (Appendix A)**

The description will provide you with information about your course and major, including recommended double majors and minors.

☐ **Review your Checklist and Unit Prerequisites (Appendix B)**

The checklist is the structure of your course and the units you need to complete for your degree. It includes required prerequisites to help you plan the order of your units.

☐ **Review the Sample Enrolments (Appendix C)**

The Sample Enrolment provides you with a pre-made study plan for your major. Some majors provide you with a choice of units in the requirements, so you may wish to create your own study plan.

☐ **Choose your units ...**

...you want to enrol in for the current year by using the information you have reviewed above from the checklist (Appendix B) and sample enrolment (Appendix C). You can find out about each unit in the Handbook online [http://handbook.murdoch.edu.au/units/](http://handbook.murdoch.edu.au/units/).

- **Part I units (100-level units)** are taken in the first year. Most of the Part I units are worth 3 points each, this means you will be taking 8 units in your first year, being 4 units each semester.
- **Part II units (200-level and above units)** are taken in the second or third year of study. Most Part II units are worth 4 points each, this means that you will be taking 6 Part II units in each of the 2nd and 3rd years, being 3 units each semester.
- **General Electives** are ‘free choice’ units. You can use these units to meet the requirements of a second major or a minor. Use the Handbook online ([http://handbook.murdoch.edu.au/](http://handbook.murdoch.edu.au/)) to help you search for these and for individual unit prerequisites.

☐ **Check your Timetable**

Generally you should find that the lectures for your core units and specified elective units will not clash, however some general elective units may not fit into your timetable. If this happens you may need to choose another general elective.
You can check the timetable for the units you have chosen for your first semester of enrolment to make sure they are not timetabled to run at the same time.

The quickest method of checking this is to refer to the online teaching timetable’s Nominated Units Enquiry website at: [http://www.murdoch.edu.au/admin/timetables/teaching/enquiry.html](http://www.murdoch.edu.au/admin/timetables/teaching/enquiry.html).

Don’t panic if you are unsure of your choice of units. Do the best you can, and then seek help via:

- **New Student website** [http://www.murdoch.edu.au/students/new/](http://www.murdoch.edu.au/students/new/) provides more details regarding the choices of units and enrolment in units via MyInfo.
- Investigate your **Course Advice Session(s)** that will be held during Orientation Week where there will be staff available to answer your queries about your course. (see Step 5)
- **Faculty Student Administration staff member.** You have been allocated a staff member to assist you with your enrolment queries regarding your chosen course, for contact details see Appendix G. Sample enrolments of popular double majors can be found on the Faculty Student Administration website [http://www.murdoch.edu.au/fsa/](http://www.murdoch.edu.au/fsa/).

- **Now you are ready to enrol ...**
STEP 3
Complete Your Enrolment

☐ Log in to MyMurdoch..
   … at http://www.murdoch.edu.au/goto/MyMurdoch to access your portal to Murdoch’s online facilities using your Murdoch User Name (Student Number) and Murdoch Password (as per Step 1).

☐ Click on MyInfo tab
   Log in to MyInfo using your Murdoch User Name (Student Number) and Murdoch Password (as per Step 1). And yes, the University is working on this double log in process!

ℹ️ What is MyInfo? MyInfo is the University’s student self enrolment and management system. Within MyInfo you can manage your enrolment including unit selection, unit set (majors, minors) enrolment and activity signup. You can also update your personal details (home and postal addresses, email address etc).

☐ Go to Self Enrolment Steps
   Within MyInfo on the left menu, click on <Change Enrolment Details> and then <Self Enrolment Steps>. Read all of the information on this page and then scroll down to the <Self Enrolment Steps> heading. Work your way through each of the steps.

ℹ️ Icons are used to represent the status of each Self Enrolment Step. Each step has an explanation to the process so please read each one carefully.

☐ Disclaimer – statement regarding your use of MyInfo
☐ Services – opportunity to join the Murdoch Student Guild or validate your Transperth Smartrider.
☐ Government Statistics – Government requirement to assist in forward planning.

☐ Course Completion Date
   Keeps the university informed of when you expect to graduate, so please keep this up to date as it is very important.

☐ Unit Sets (Majors and Minors)
   You will need to have at least one Unit Set recorded as your Primary Unit Set. Your Primary Unit Set must relate to the course you are currently enrolled under.
What are Unit Sets? This is the name given to Majors and Minors by MyInfo, and often referred to as a Course. You must have at least one primary unit set on MyInfo that matches the course you were offered (eg. Bachelor of Arts in History, with Primary Unit set of History).

All Engineering students are required to select at least one of the following unit sets:
- Bioprocess Engineering;
- Electrical Power Engineering;
- Environmental Engineering;
- Industrial Computer Systems Engineering;
- Instrumentation and Control Engineering;
- Medical Engineering;
- Metallurgical Engineering;
- Renewable Energy Engineering.

Students enrolled in the Engineering and Science double degree are required to select at least one unit set for Science. Please refer to the Handbook (http://handbook.murdoch.edu.au) for Science Majors.

- **Units**
  This is where you enrol in your individual units. Use the Search function to find the unit you want. You can also just type in the unit code of the unit you wish to enrol in. Do one unit at a time and **Save Changes** after each unit added. Remember to enrol in all of your units for the year.

  - D = internal, X = external, S1 = Semester 1, S2 = Semester 2.
  - When you have successfully enrolled in a unit the ‘Status’ column will show ‘Enrolled’ and the background colour will change from grey to blue.

  - Remember to make sure you have your Pop-Up Blockers turned off when you are in MyInfo as it will affect your ability to save your units.

- **Commonwealth Assistance Form (Domestic Students only)**
  This is a Commonwealth Government requirement. To complete this you will need your Tax File Number (TFN). If you do not have your TFN handy or have not applied for one from the Australian Taxation Office yet you can come back to this step later, however this step must be completed by the Census Date to avoid having your course cancelled as per Commonwealth Government regulations.

- **Check your Current Enrolment Details**
  When you have enrolled in all units that you intend to take for the year you are encouraged to view your current enrolment from the Current Enrolment Details menu in MyInfo. Select <Course and Unit Details> and then click on the course code next to the Units heading. You will need to check that all of the units that you intend to take for the year are included.
Unit Status shows as ENROLLED!

Well done, you have enrolled in your units. Please be aware that your Course Status will remain as Inactive until semester begins.

If you have any trouble getting into or navigating your way around MyMurdoch or MyInfo or have a technical issue, check out the Help link or contact the IT Service Desk (itservicedesk@murdoch.edu.au, p: 93602000 or Level 2, North Wing, Library).
STEP 4
Select Your Activities

☐ **Sign up for your Activities**

What are Activities? Activities are the collective term used for lectures, tutorials, workshops, seminars and laboratories.

You will need to have completed your Unit Enrolment (Step 3) before you can sign up to the associated activities.

Log in to MyMurdoch and then MyInfo as per Step 3 (http://www.murdoch.edu.au/goto/MyMurdoch). On the left menu, click on <Change Enrolment Details> and then <Activity Sign Up>. Read all of the information as it will tell you when the Activity Sign Up function is open.

The system works on a first-in-first-served basis so you are advised to enrol in your activities as soon as possible.

Click on <Add or Change Activities>. Read all of the information and then scroll down to see your Unit enrolments and the available activities.

Although signing up to a Lecture activity may not be mandatory for all units, it is recommended that you do to highlight any possible clashes on your timetable. If your unit attempt status is ‘Invalid’, you will be unable to sign up for activities for that unit.

☐ **Select Activities**

Make your selections for the different activities. It is recommended that you start with all your lectures first and save. Then choose the other associated activities for each unit, saving as you go. Be sure you also note the start week for each activity as they may not all start from Week 1 of Semester.

☐ **View Activities Timetable**

Click on the MyUnits page of MyMurdoch to see all of your activities displayed on your Personal Calendar. Print this out for your diary.
Your Program Chair(s) will advise you on the requirements of your course and answer any unit selection and enrolment queries at your “Investigate” - course advice session held before the start of the semester. This session will provide you with valuable information relating to your course, units and enrolment options and it is therefore essential that you attend.

For the full Orientation timetable see http://www.murdoch.edu.au/students/new/orientation.html.

When and Where is your “Investigate” course advice session?
When: Tuesday, July 29 at 1.30pm
Where: ECL3 (ECL lecture theatre 3)
Who: Bioprocess Engineering; Electrical Power Engineering; Engineering & Commerce; Engineering & Science; Engineering Technology; Environmental Engineering; Industrial Computer Systems Engineering; Instrumentation & Control Engineering; Medical Engineering; Metallurgical Engineering; Metallurgical Engineering & Chemistry; Renewable Energy Engineering

There are online maps of the three campuses for Murdoch at http://www.murdoch.edu.au/index/visitors/wherearewe#campuses The maps will provide details of where the course advice venues are.

If you are still unsure of your choice of units after you have read this booklet and you have attended the relevant “Investigate” course advice session you can email or phone your Faculty Student Administration staff member (Appendix G) with details of your query.
STEP 6

Go To Orientation and Start Uni

The Orientation program has been designed to meet your specific needs as a new student to Murdoch. This includes an introduction to key Murdoch University staff, the campus and to the facilities and services that are available to you. You should expect to attend at least 2 days at Orientation to experience the helpful and friendly atmosphere at Murdoch.

You can check the full orientation timetable ((http://www.murdoch.edu.au/students/new/orientation.html) for event and Investigate - course advice session details.

All students should attend Orientation to experience the helpful and friendly atmosphere at Murdoch.

☐ Things to do during Orientation Week:
  ☐ Discover – All about Murdoch and what you should expect here.
  ☐ Investigate – Your course advice session to find out what your enrolment options are and how your Program Chair can help you.
  ☐ Support – Who can help you? Find out before you need it!
  ☐ Explore – Campus and Library tours. How not to get lost.
  ☐ Connect – Computer use on campus
  ☐ Succeed – How to be a successful student and
  ☐ Meet the Student Guild and find out about their services
  ☐ Have your photo taken for your Student ID/Library Card
  ☐ Organise a parking permit (or avoid the queues and do it online at: http://www.oss.murdoch.edu.au/parking/)
  ☐ Join one of the many Murdoch Clubs & Societies
  ☐ Meet other students in your same course.
Important Information and FAQs

General Electives – What are they, where can I find them? A General Elective is a unit that is not a required unit (that is not a Core Unit or Specified Elective) for your major or course. It can be selected from outside your primary area of study and may form part of a second major or minor. There is no single ‘list’ of General Electives. You can select General Electives by taking the units that make up a second major or minor or by looking at the online Handbook complete list of units available [http://handbook.murdoch.edu.au/units/](http://handbook.murdoch.edu.au/units/).

Units – Which units do I need to do and how do I know that I have enrolled in the right units? Your Checklist of Units and Prerequisites (Appendix B) and Sample Enrolment (Appendix C) in this booklet show you which are your required units. The Sample Enrolments for other majors are available from the Faculty Student Administration website [http://www.murdoch.edu.au/fsa/](http://www.murdoch.edu.au/fsa/).

Invalid Units – Why is my unit enrolment INVALID? Beside the invalid unit, you will find a grey button labelled ‘Why is this Invalid?’ . When you click on this button, a pop-up window will display the reason that the unit is invalid. If you still require help, print off or copy down this information before contacting your Faculty Student Administration staff member (Appendix G).

Activities – How do I sign up & what do I do if they are full? Use Step 4 to assist you with your Activity sign up within the MyInfo part of MyMurdoch. If your chosen Activity is full, there are three options available: review your whole timetable to check if you can change to another unit, consider doing a unit externally (if available), or contact the Unit Coordinator if you have exceptional circumstances. Unit Coordinator contact details can be found by entering the unit code in the search bar on the MyUnits page of MyMurdoch.

Where can I find my credit and exemptions (Advanced Standing)? If you have notified the University that you wish to be assessed for Advanced Standing (either on your application or via contact with the Accreditation Officer), your credit and exemptions will be shown on the MyInfo part of MyMurdoch. Go to ‘Current Enrolment Details’, select <Course and Unit Details>, scroll down the list to ‘Advanced Standing’ and click on course code next to this heading (eg B1137). Allow at least 10 working days from receipt by the University of your application and supporting documentation before this information will be available on your enrolment record. Should you have any queries regarding Advanced Standing you should contact the Accreditation Officer (see Appendix H).
Enrolment Deadlines – Internal and External units. You will be expected to enrol in all your units for the current year as soon as possible. The last date to add a unit is the end of Week 1 of Semester. For external units, the mail-out of unit materials will commence two weeks prior to the start of each Semester, so you should enrol in your external units as soon as possible. If you enrol in an external unit you should allow up to 10 days from the date you enrolled to receive your materials.

University Regulations and Rules Students should ensure they are familiar with the University’s internal legislation, including provisions specifically relevant to their studies. University Regulations and Rules - see http://www.murdoch.edu.au/admin/legsln/

How do I add or change my course, major or minor? To change your course entirely will require a course transfer which can only be applied for near the end of each semester. The relevant course transfer form, Amend Course Details, can be found at http://www.oss.murdoch.edu.au/forms/. Most second majors and minors can be added or changed under ‘Unit Sets’ in the ‘Self Enrolment Steps’ on the MyInfo part of MyMurdoch.

Email Account & Correspondence The University’s primary form of contact with students is via email. The University automatically provides you with an email address, (yourstudentnumber@student.murdoch.edu.au) and you can access this email account at: https://wwwstudent.murdoch.edu.au/mail using your Murdoch User name and Password (same as MyMurdoch). You can choose to use a different email account, for example a Yahoo account. It is essential that you keep the email address listed in the MyInfo page of MyMurdoch up to date so that you receive important communications from your lecturers and the University.

Cancellation of Courses, Minors and Units The University reserves the right to cancel, without notice, any course, major, minor or unit if the number of students enrolled falls below limits set by the University.

Glossary A general summary to help you with some of the more common terms that you will come across as you plan your studies can be found on the Faculty Student Administration web page. A full list of Murdoch terminology and relevant regulation requirements can be found in the Murdoch Glossary (http://handbook.murdoch.edu.au/2008/09_glossary.pdf ).
## Engineering (BE)

<table>
<thead>
<tr>
<th>Qualifications</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical Power Engineering (BE)</td>
<td>Murdoch's Engineering majors provide four-year professional degrees in four specialist disciplines:</td>
</tr>
<tr>
<td>Instrumentation and Control Engineering (BE)</td>
<td>Engineering and Renewable Energy Engineering. All majors offer a modern approach to engineering</td>
</tr>
<tr>
<td>Renewable Energy Engineering (BE)</td>
<td>education designed to equip graduates with skills appropriate to the needs of the modern professional</td>
</tr>
<tr>
<td>Credit Points for Course</td>
<td>The BE degree requires an in-depth study of a range of mathematics, computing and engineering</td>
</tr>
<tr>
<td>96</td>
<td>fundamentals, combined with a full range of studies in the necessary specialist subject areas. This</td>
</tr>
<tr>
<td>Course Codes</td>
<td>is complemented with studies in management, accounting, economics and law. The first two years of</td>
</tr>
<tr>
<td>B1188</td>
<td>study are common for all majors and at the end of the second year students can choose their</td>
</tr>
<tr>
<td>Description</td>
<td>specialist majors.</td>
</tr>
<tr>
<td></td>
<td>Most of the third and fourth year units are based on a problem- or project-driven Engineering</td>
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<tr>
<td></td>
<td>Studio approach where the design tasks remain central to the teaching process. Both the students and</td>
</tr>
<tr>
<td></td>
<td>the teachers play active roles in solving the design problems and deriving practical solutions. This</td>
</tr>
<tr>
<td></td>
<td>style of teaching offers a number of benefits to students: richer teacher-student interactions,</td>
</tr>
<tr>
<td></td>
<td>increased focus on problem solving, team work, communication and design skills, more intensive work</td>
</tr>
<tr>
<td></td>
<td>practices with outcome-oriented, project-based activities, development of hands-on and practical</td>
</tr>
<tr>
<td></td>
<td>work to prepare for a professional career, increased student participation in learning activities,</td>
</tr>
<tr>
<td></td>
<td>more group and shared experiences, and greater involvement in assessment using peer reviews.</td>
</tr>
<tr>
<td></td>
<td>Industrial Computer Systems Engineering is concerned with the specification, design, implementation</td>
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<tr>
<td></td>
<td>and commissioning of industrial control systems, which are a combination of both computer hardware</td>
</tr>
<tr>
<td></td>
<td>and software. These systems are created from more fundamental, 'off the shelf' building blocks. It is</td>
</tr>
<tr>
<td></td>
<td>the role of the engineer in this area to create and implement an architecture in which these</td>
</tr>
<tr>
<td></td>
<td>building blocks will be used to provide a cost effective, robust and safe computer-based system which</td>
</tr>
</tbody>
</table>
|                                                   | meets the requirements of the industrial
Instrumentation and Control Engineering concerns the study of the methods and technologies for controlling a full range of manufacturing and industrial processes. This major requires in-depth studies in the basic sciences, especially mathematics and physics, as well as a range of specialist units in instrumentation methods, control theory and process engineering. Particular emphasis is placed on the use of industrial standard laboratory facilities and safety as well as direct involvement with the design and implementation of industrial control systems.

Electrical Power Engineering is a discipline on which every modern civilisation depends. There is a great need for power engineers to construct appropriate plants to meet forecast demand under economic and reliability constraints, to address major issues of system control and grid behaviour and to consider other forms of energy than oil, gas, coal or nuclear fuels. At the completion of this course, students will have gained a good understanding of power systems elements including power generators, transmission and distribution systems components as well as power systems analysis, operation and control. System stability, safety and protection issues will also be covered.

Renewable Energy Engineering involves the design and use of renewable energy technologies and energy sources. The main emphasis in the major is the engineering of systems for electricity generation, although complementary areas are also covered. The scope of the major encompasses detailed studies of related technologies, manufacturing, system design and implementation, computer modelling and analysis, system maintenance and fault diagnosis, economics, marketing and policy. Considerable emphasis is placed on providing students with hands-on experience with working systems and direct involvement with the design, implementation and engineering of such systems.

**Special Requirements**

All students must undertake at least 500 hours of approved work experience, plus complete a report outlining the experience gained, in order to complete the requirements of the degree. This work experience must be in a suitable engineering-related area and be approved by the Engineering Program Chair.

Engineering is offered now at the Murdoch campus however students will be required to attend the Rockingham campus for the laboratory components of certain units due to the location of specialised equipment.

**Professional Recognition**

Graduates of accredited engineering courses are eligible for graduate membership of Engineers Australia. Full Chartered Professional Engineer status can then be achieved after a further three to five years of work experience in the engineering profession.
### Bioprocess Engineering (BE)

<table>
<thead>
<tr>
<th>Qualifications</th>
<th>Bachelor of Engineering (BE) in Bioprocess Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit Points for Course</td>
<td>96</td>
</tr>
<tr>
<td>Course Codes</td>
<td>B1188</td>
</tr>
<tr>
<td>Description</td>
<td>Bioprocess Engineering is the application of chemical engineering principles to biological processes. Whilst sharing foundations of a traditional chemical engineering degree it takes the next step and implements biotechnologies. This innovative specialisation of chemical engineering sees its relevance to the food and beverage industry, petrochemical industry, synthesis of bio fuels, waste treatment, pollution control systems, metallurgical processing and the pharmaceutical industry. Students who are not only interested in biology and chemistry, but also their industrial applications should consider Bioprocess Engineering.</td>
</tr>
<tr>
<td>Professional Recognition</td>
<td>Engineers Australia provides accreditation guidelines and will commence assessment once the University has its first graduates.</td>
</tr>
</tbody>
</table>

### Environmental Engineering (BE)

<table>
<thead>
<tr>
<th>Title</th>
<th>Environmental Engineering (BE)</th>
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</thead>
<tbody>
<tr>
<td>School</td>
<td>School of Environmental Science</td>
</tr>
<tr>
<td>Qualifications</td>
<td>Bachelor of Engineering (BE) in Environmental Engineering</td>
</tr>
<tr>
<td>Credit Points for Course</td>
<td>96</td>
</tr>
<tr>
<td>Course Codes</td>
<td>B1188</td>
</tr>
<tr>
<td>Description</td>
<td>Environmentally sound engineered systems are of increasing interest in our society. This degree will equip graduates with the discipline knowledge and problem-solving skills to design water, energy, shelter and primary production systems underpinned by ecological knowledge. Graduates can be employed by engineering firms, land developers, utilities, international development and government agencies to design and manage engineered systems. Graduates will have a global perspective and ethical approach to sustainable development.</td>
</tr>
<tr>
<td>Professional Recognition</td>
<td>Murdoch University is following the requirements for course accreditation and recognition of graduates by Engineers Australia.</td>
</tr>
</tbody>
</table>
### Medical Engineering (BE)

<table>
<thead>
<tr>
<th>Qualifications</th>
<th>Bachelor of Engineering (BE) in Medical Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit Points for Course</td>
<td>96</td>
</tr>
<tr>
<td>Course Codes</td>
<td>B1188</td>
</tr>
<tr>
<td>Description</td>
<td>This major teaches students how to apply traditional engineering principles to biological processes in order to analyse and solve problems in biology and medicine. On graduating, students will be well placed to make significant contributions to the overall enhancement of health care and quality of life.</td>
</tr>
<tr>
<td>Professional Recognition</td>
<td>Engineers Australia provides accreditation guidelines and will commence assessment once we have our first graduates.</td>
</tr>
</tbody>
</table>

### Metallurgical Engineering (BE)

<table>
<thead>
<tr>
<th>Qualifications</th>
<th>Bachelor of Engineering (BE) in Metallurgical Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit Points for Course</td>
<td>96</td>
</tr>
<tr>
<td>Course Codes</td>
<td>B1188</td>
</tr>
<tr>
<td>Description</td>
<td>Metallurgical Engineers are expected to understand the fundamental science of mineral extraction processes and engineering aspects, and operate in an engineering environment, working in the design, commissioning and operation of metallurgical plants. The Bachelor of Metallurgical Engineering degree provides training in the core areas of extractive metallurgy - mineral processing, pyrometallurgy, hydrometallurgy and process mineralogy. Units in process control and instrumentation, modelling and simulation, financial management and process economics, and environmental and operational management, bridge the science and engineering disciplines.</td>
</tr>
<tr>
<td>Professional Recognition</td>
<td>Engineers Australia provides accreditation guidelines and will commence assessment once the University has its first graduates. Graduates will also be recognised by the Australian Institute of Mining and Metallurgy.</td>
</tr>
<tr>
<td><strong>Metallurgical Engineering (BE) + Chemistry (BSc)</strong></td>
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<tr>
<td>---------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Qualifications</strong></td>
<td>Bachelor of Engineering (BE) in Metallurgical Engineering + Bachelor of Science (BSc) in Chemistry</td>
</tr>
<tr>
<td><strong>Credit Points for Course</strong></td>
<td>120</td>
</tr>
<tr>
<td><strong>Course Codes</strong></td>
<td>B1211</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>This joint degree provides training in the core areas of chemistry and metallurgical engineering. It prepares graduates with a sound knowledge of chemistry, fundamentals of mineral extraction processes and process engineering necessary for working in an engineering environment including plant design, commissioning and operation of metallurgical plants in the mineral industry.</td>
</tr>
<tr>
<td><strong>Special Requirements</strong></td>
<td>Internet access and on-campus attendance.</td>
</tr>
<tr>
<td></td>
<td>Students must complete 400 hours of approved work experience and professional exposure as a requirement of the joint degree. Students normally meet this requirement by undertaking paid vacation employment in the mining industry.</td>
</tr>
<tr>
<td></td>
<td>Most units are offered in external mode and students studying externally are required to attend on-campus laboratory sessions for the laboratory-based units: these usually take the form of three- to five-day intensive sessions in non-teaching breaks.</td>
</tr>
<tr>
<td><strong>Professional Recognition</strong></td>
<td>Graduates are eligible for professional membership of the Australasian Institute of Mining and Metallurgy and the Royal Australian Chemical Institute (RACI). Accreditation by Engineers Australia will be sought as soon as possible.</td>
</tr>
</tbody>
</table>
**Engineering (BE) + Commerce (BCom)**

<table>
<thead>
<tr>
<th>Qualifications</th>
<th>Bachelor of Engineering (BE) + Bachelor of Commerce (BCom)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit Points for Course</td>
<td>122</td>
</tr>
<tr>
<td>Course Code</td>
<td>B1203</td>
</tr>
<tr>
<td>Description</td>
<td>This joint degree offers a combination of studies in both Engineering and Commerce. This qualification will provide a very competitive set of skills to enable graduates to work in and across the boundaries of engineering as well the commercial aspects of organisational activities. The Engineering degree can be taken with majors in Industrial Computer Systems Engineering, Instrumentation and Control Engineering, Electrical Power Engineering or Renewable Energy Engineering, and the Commerce degree normally with a major in Management. Students interested in completing other Commerce majors in conjunction with Engineering should consult the relevant Program Chairs for the two courses.</td>
</tr>
<tr>
<td>Special Requirements</td>
<td>All students must undertake at least 500 hours of approved work experience, plus complete a report outlining the experience gained, in order to complete the requirements of the degree. This work experience must be in a suitable engineering-related area and be approved by the Engineering Program Chair. Engineering is offered now at the Murdoch campus however students will be required to attend the Rockingham campus for the laboratory components of certain units due to the location of specialised equipment.</td>
</tr>
<tr>
<td>Professional Recognition</td>
<td>Graduates of accredited engineering courses are eligible for Graduate Membership of Engineers Australia. Full Chartered Professional Engineer status can then be achieved after a further three to five years of work experience in the engineering profession.</td>
</tr>
</tbody>
</table>
### Engineering (BE) + Science (BSc)

<table>
<thead>
<tr>
<th>Qualifications</th>
<th>Bachelor of Engineering (BE) + Bachelor of Science (BSc)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit Points for Course</td>
<td>120</td>
</tr>
<tr>
<td>Course Codes</td>
<td>B1216</td>
</tr>
<tr>
<td>Description</td>
<td>This five-year course leads to the award of both a Bachelor of Engineering and a Bachelor of Science. Students will study one of the Engineering majors as described fully under the BE course description and combine this with study for a BSc. Students can complete any of the Bachelors of Science available at Murdoch, subject to quota, but should note that depending on the combination more than 5 years of full time study may be necessary. Currently popular combinations include: Environmental Science, Energy Studies, Chemistry and Physics. This is a very demanding combination of courses and students should be sure that they are able to undertake the load commitment and study level required.</td>
</tr>
<tr>
<td>Special Requirements</td>
<td>All students must undertake at least 500 hours of approved work experience, plus complete a report outlining the experience gained, in order to complete the requirements of the degree. This work experience must be in a suitable engineering-related area and be approved by the Engineering Program Chair. Engineering is offered now at the Murdoch campus however students will be required to attend the Rockingham campus for the laboratory components of certain units due to the location of specialised equipment.</td>
</tr>
<tr>
<td>Professional Recognition</td>
<td>Graduates of accredited engineering courses are eligible for Graduate Membership of Engineers Australia. Full Chartered Professional Engineer status can then be achieved after a further three to five years of work experience in the engineering profession.</td>
</tr>
</tbody>
</table>
APPENDIX B

Checklist of Units & Prerequisites

Power Engineering (BE)
Industrial Computer Systems Engineering (BE)
Instrumentation and Control Engineering (BE)
Renewable Energy Engineering (BE)

Course Structure — 96 points

Part I — 24 points

- **Foundation Unit — 3 points**
  Select one Foundation Unit from the Foundation Units section in this Handbook.

Core Units — 21 points

- **PEC152 Principles of Physics — 3 pts**
  Murd: S1-Int, S1-Ext, S2-Int, S2-Ext
  (students who have not achieved a final scaled score of 60% or more in TEE Physics must first complete PEC120 General Physics — 3 pts [Murd: S1-Int, S1-Ext, S2-Ext])

- **MAS182 Applied Mathematics — 3 pts**
  Murd: S1-Int, S1-Ext, S2-Int, S2-Ext
  (students who have not completed Year 11 Introduction to Calculus or TEE Applicable Mathematics or equivalent will be required to undertake MAS164 Fundamentals of Mathematics — 3 pts [Murd: S1-Int, S1-Ext, S2-Int] prior to completing this unit)

- **ENG141 Design Concepts in Science and Engineering — 3 pts**
  Murd: S1-Int

- **ENG109 Computing for Scientists and Engineers — 3 pts**
  Murd: S2-Int

- **MAS161 Calculus and Matrix Algebra — 3 pts**
  Murd: S2-Int

- **ENG125 Circuits and Systems I — 3 pts**
  Murd: S2-Int

- **PEC144 Chemical Principles — 3 pts**
  Murd: S1-Int, S1-Ext, S2-Int, S2-Ext

- **PEC140 Introduction to Chemistry — 3 pts**
  Murd: S1-Int, S1-Ext, S2-Int, S2-Ext
  Students who have not successfully completed Chemistry at TEE level should enrol in PEC140 Introduction to Chemistry — 3 pts

Part II — 72 points

Core Units — 56 points

- **ENG241 Principles of Process Engineering — 4 pts**
  Murd: S1-Int

- **MAS284 Applied Statistics and Process Management — 4 pts**
  Murd: S1-Int, S1-Ext, S2-Int, S2-Ext

- **ENG243 Circuits and Systems II — 4 pts**
  Murd: S1-Int

- **MAS261 Mathematical Methods — 4 pts**
  Murd: S1-Int, S1-Ext

- **ENG262 Principles of Electronic Instrumentation — 4 pts**
  Murd: S2-Int

- **ENG267 Control Systems and Process Dynamics — 4 pts**
  Murd: S2-Int

- **ENG453 Engineering Law, Management and Ethics — 4 pts**
  Murd: S1-Int

- **Either**
  
  **ENG450 Engineering Internship — 12 pts**
  Murd: H-Int, S1-Int, S2-Int, U-Int, Y-Int
  OR

  **ENG460 Engineering Thesis — 12 pts**
  Murd: H-Int, S1-Int, S2-Int, U-Int, Y-Int

(continued following pages)
Plus 16 credit points from one of the following majors:

**Industrial Computer Systems Engineering**

*All students*

☐ ENG454 Industrial Computer Systems Design — 4 pts  
Murd: S1-Int, U-Int

*Murd students*

☐ ENG305 PLC Systems — 4 pts  
Murd: S1-Int

☐ ENG345 SCADA and Instrument Systems — 4 pts  
Murd: S2-Int

☐ ENG306 Real Time and Embedded Systems — 4 pts  
Murd: S2-Int

**Industrial Computer Systems Engineering (continued)**

*Republic Polytechnic students*

☐ ENG333 Engineering Studio: PLC and SCADA Systems — 6 pts  
SGP-REPOLY: T2J-Int

☐ ENG334 Engineering Studio: Real Time and Embedded Systems — 6 pts  
SGP-REPOLY: SS2-Int

**Instrumentation and Control Engineering**

*All students*

☐ ENG420 Instrumentation and Control Systems Design — 4 pts  
Murd: S1-Int

*Murd students*

☐ ENG303 Advanced Process Engineering — 4 pts  
Murd: S1-Int

☐ OR

EXM224 Principles of Unit Operations — 4 pts  
Murd: S1-Int, S1-Ext

☐ ENG304 Process Control Engineering I — 4 pts  
Murd: S1-Int

☐ ENG346 Process Control Engineering II — 4 pts  
Murd: S2-Int

*Republic Polytechnic students*

☐ ENG331 Engineering Studio: Process Engineering — 6 pts  
SGP-REPOLY: T2J-Int

☐ ENG332 Engineering Studio: Control Engineering — 6 pts  
SGP-REPOLY: SS2-Int

**Electrical Power Engineering**

☐ ENG347 Electromechanical Energy Conversion — 4 pts  
Murd: S1-Int

☐ ENG348 Power Transmission and Distribution Networks — 4 pts  
Murd: S2-Int

☐ ENG349 Power Electronic Converters and Systems — 4 pts  
Murd: S1-Int, S2-Int

☐ ENG455 Operation and Control of Power Systems — 4 pts  
Murd: S1-Int

**Renewable Energy Engineering**

☐ ENG307 Resources for Renewable Energy — 4 pts  
Murd: S1-Int

☐ **ENG352 Energy Supply Systems — 4 pts**  
Murd: S2-Int, Y-Ext

**Renewable Energy Engineering (continued)**

☐ ENG351 Renewable Energy Design Workshop — 4 pts  
Murd: S2-Int

☐ ENG421 Renewable Energy Systems Engineering — 4 pts  
Murd: S1-Int

**Restricted Electives — 16 points**

In order to obtain professional accreditation in Australia, students must undertake units that are acceptable to Engineers Australia.

Choose units from the majors listed above or any other Part II units with permission of the Engineering Program Chair. The units may be selected to complete a second Engineering major.

**Prerequisites — Engineering (BE)**

Advanced Process Engineering (ENG303)  
Prerequisites: G172/ENG172 Introduction to Process Analysis OR ENG241 Principles of Process Engineering OR EXM224 Principles of Unit Operations.
Prerequisites — Engineering (BE) (Continued)

Applied Mathematics (MAS182)
- Prerequisites: M164/MAS164 Fundamentals of Mathematics or at least a pass in the Year 11 course Introduction to Calculus together with a final scaled score of 55% or more in TEE Applicable Mathematics.

Applied Statistics and Process Management (MAS284)
- Prerequisites: A basic understanding of simple descriptive statistics and elementary probability.

Calculus and Matrix Algebra (MAS161)
- Prerequisites: M182/MAS182 Applied Mathematics or a final scaled score of 55% or more in TEE Calculus or equivalent.

Chemical Principles (PEC144)
- Prerequisites: A thorough knowledge of Year 12 secondary-level Chemistry is assumed. Students who did not achieve a final scaled score of 60% or more in TEE Chemistry within the three years immediately preceding enrolment are required to pass PEC140 Introduction to Chemistry prior to enrolling. Students who are unsure of their status should consult the Chemistry Program Chair.

Circuits and Systems I (ENG125)

Circuits and Systems II (ENG243)
- Prerequisites: G125/ENG125 Circuits and Systems I; G165/ENG165 Engineering Mathematics I or MAS182 Applied Mathematics. Co-requisite of MAS161 Calculus and Matrix Algebra or MAS242 Engineering Mathematics.

Computing for Scientists and Engineers (ENG109)
- Prerequisites: G125/ENG125 Circuits and Systems I; G165/ENG165 Engineering Mathematics I or MAS182 Applied Mathematics. Co-requisite of MAS161 Calculus and Matrix Algebra or MAS242 Engineering Mathematics.

Control Systems and Process Dynamics (ENG267)

Design Concepts in Science and Engineering (ENG141)

Electromechanical Energy Conversion (ENG347)
- Prerequisites: Completion of all 200 level units in the BE Electrical Power Engineering major.

Energy Supply Systems (ENG352)
- Prerequisites: Completion of all 200 level units in the BE Renewable Energy Engineering course or completion of all 200 level units in Environmental Engineering.

Engineering Internship (ENG450)
- Prerequisites: Permission of Engineering Program Chair.

Engineering Law, Management and Ethics (ENG453)
- Prerequisites: Enrolment in the Bachelor of Engineering and completion of all the requirements of the 3rd year of the Bachelor of Engineering.

Engineering Studio: Control Engineering (ENG332)

Engineering Studio: PLC and SCADA Systems (ENG333)
- Prerequisites: G267/ENG267 Control Systems and Process Dynamics, G262/ENG262 Principles of Electronic Instrumentation.

Engineering Studio: Process Engineering (ENG331)

Energy Supply Systems (ENG352)
- Prerequisites: Completion of all 200 level units in the BE Renewable Energy Engineering course or completion of all 200 level units in Environmental Engineering.

Engineering Internship (ENG450)
- Prerequisites: Permission of Engineering Program Chair.

Engineering Law, Management and Ethics (ENG453)
- Prerequisites: Enrolment in the Bachelor of Engineering and completion of all the requirements of the 3rd year of the Bachelor of Engineering.

Engineering Studio: Control Engineering (ENG332)

Engineering Studio: PLC and SCADA Systems (ENG333)
- Prerequisites: G267/ENG267 Control Systems and Process Dynamics, G262/ENG262 Principles of Electronic Instrumentation.

Engineering Studio: Process Engineering (ENG331)

Engineering Studio: Real Time and Embedded Systems (ENG334)
- Prerequisites: G267/ENG267 Control Systems and Process Dynamics, G262/ENG262 Principles of Electronic Instrumentation.

Engineering Thesis (ENG460)
- Prerequisites: Permission of Engineering Program Chair.

Fundamentals of Mathematics (MAS164)

General Physics (PEC120)
- TEE Applicable Mathematics or MAS164 Fundamentals of Mathematics are strongly recommended and may be taken concurrently.

Industrial Computer Systems Design (ENG454)
- Prerequisites: ENG305 PLC Systems; ENG306 Realtime and Embedded Systems; ENG345 SCADA and Instrument System.
Prerequisites — Engineering (BE) (Continued)

Instrumentation and Control Systems Design (ENG420)
Prerequisites: ENG303 Advanced Process Engineering, ENG304 Process Control Engineering I and ENG346 Process Control Engineering II.

Introduction to Chemistry (PEC140)
Prerequisites: This unit is for students with a weak background in Chemistry. Students with a final scaled score of more than 60% in TEE Chemistry within the past three years may be excluded from the unit. A knowledge of basic mathematics will be assumed.

Mathematical Methods (MAS261)
Prerequisites: M161/MAS161 Calculus and Matrix Algebra or A208/MAS208 Mathematical Modelling.

Operation and Control of Power Systems (ENG455)

PLC Systems (ENG305)
Prerequisites: Completion of all 200 level units in the BE Industrial Computer Systems Engineering major.

Power Electronic Converters and Systems (ENG349)
Prerequisites: Completion of all 200 level units in the BE Electrical Power Engineering major.

Power Transmission and Distribution Networks (ENG348)
Prerequisites: Completion of all 200 level units in the BE Electrical Power Engineering major.

Principles of Electronic Instrumentation (ENG262)
Prerequisites: MAS161 Calculus and Matrix Algebra and ENG125 Circuits and Systems I.

Principles of Physics (PEC152)
Prerequisites: Concurrent enrolment in MAS182 Applied Mathematics or MAS161 Calculus and Matrix Algebra; plus a final scaled score of 60% or more in TEE Physics or M120/PEC120 General Physics.

Principles of Process Engineering (ENG241)
Prerequisites: MAS182 Applied Mathematics, MAS161 Calculus and Matrix Algebra.

Principles of Unit Operations (EXM224)
Prerequisites: M182/MAS182 Applied Mathematics or M161/MAS161 Calculus and Matrix Algebra and M152/PEC152 Principles of Physics or high school physics, or enrolment in G1034 Graduate Diploma in Extractive Metallurgy.

Process Control Engineering I (ENG304)
Prerequisites: Completion of all 200 level units in the BE Instrumentation and Control Engineering major.

Process Control Engineering II (ENG346)
Prerequisites: Completion of all 200 level units in the BE Instrumentation and Control Engineering major.

Real Time and Embedded Systems (ENG306)
Prerequisites: Completion of all 200 level units in the BE Industrial Computer Systems Engineering major.

Renewable Energy Design Workshop (ENG351)
Prerequisites: Completion of all 200-level units in the BE Renewable Energy Engineering course.

Renewable Energy Systems Engineering (ENG421)

Resources for Renewable Energy (ENG307)
Prerequisites: Completion of all 200 level units in the BE Renewable Energy Engineering major.

SCADA and Instrument Systems (ENG345)
Prerequisites: Completion of all 200 level units in the BE Industrial Computer Systems Engineering major.
Bioprocess Engineering (BE)

Course Structure — 96 points

Part I — 24 points

☐ Foundation Unit — 3 points
Select one Foundation Unit from the Foundation Units section in this Handbook.

Core Units — 21 points
☐ MAS182 Applied Mathematics — 3 pts
   Murd: S1-Int, S1-Ext, S2-Int, S2-Ext
☐ PEC144 Chemical Principles — 3 pts
   Murd: S1-Int, S1-Ext, S2-Int, S2-Ext
☐ ENG141 Design Concepts in Science and Engineering — 3 pts
   Murd: S1-Int
☐ ENG109 Computing for Scientists and Engineers — 3 pts
   Murd: S2-Int
☐ MAS161 Calculus and Matrix Algebra — 3 pts
   Murd: S2-Int, S2-Ext
☐ PEC152 Principles of Physics — 3 pts
   Murd: S1-Int, S1-Ext, S2-Int, S2-Ext
☐ BIO152 Cell Biology — 3 pts
   Murd: S2-Int

Part II — 72 points

Core Units — 48 points
☐ ENG241 Principles of Process Engineering — 4 pts
   Murd: S1-Int
☐ MAS284 Applied Statistics and Process Management — 4 pts
   Murd: S1-Int, S1-Ext, S2-Int, S2-Ext
☐ BIO263 Microbiology I — 4 pts
   Murd: S1-Int
☐ MAS208 Mathematical Modelling — 4 pts
   Murd: S2-Int, S2-Ext
☐ PEC238 Biological Chemistry — 4 pts
   Murd: S2-Int, S2-Ext
☐ ENG267 Control Systems and Process Dynamics — 4 pts
   Murd: S2-Int
☐ PEC201 Thermodynamics — 4 pts
   Murd: S2-Int, S2-Ext
☐ ENG303 Advanced Process Engineering — 4 pts
   Murd: S1-Int
☐ ENG361 Reactor Engineering — 4 pts
   Murd: S1-Int
☐ BIO301 Industrial Bioprocessing and Bioremediation — 4 pts
   Murd: S2-Int
☐ ENG428 Engineering Design — 4 pts
   Murd: S1-Int, S2-Int
☐ ENG453 Engineering Law, Management and Ethics — 4 pts
   Murd: S1-Int

Specified Electives — 12 points
Select from the following:
☐ ENG450 Engineering Internship — 12 pts
   Murd: H-Int, S1-Int, S2-Int, U-Int, Y-Int
   OR
☐ ENG460 Engineering Thesis — 12 pts
   Murd: H-Int, S1-Int, S2-Int, U-Int, Y-Int

Restricted Electives — 12 points
In order to obtain professional accreditation, students must undertake units that are acceptable to Engineers Australia. Choose any units at Part II from the other Engineering majors or other Part II units with permission of the Engineering Program Chair.

Prerequisites — Bioprocess Engineering (BE)
Advanced Process Engineering (ENG303)
Prerequisites: G172/ENG172 Introduction to Process Analysis OR ENG241 Principles of Process Engineering OR EXM224 Principles of Unit Operations.

Applied Mathematics (MAS182)
Prerequisites: M164/MAS164 Fundamentals of Mathematics or at least a pass in the Year 11 course Introduction to Calculus together with a final scaled score of 55% or more in TEE Applicable Mathematics.

Applied Statistics and Process Management (MAS284)
Prerequisites: A basic understanding of simple descriptive statistics and elementary probability.

Biological Chemistry (PEC238)
Prerequisites: PEC114 Chemistry for Biological Sciences or PEC116 Chemistry for Physical Sciences or PEC144 Chemical Principles. Students with good grades in PEC115 Chemistry for Environmental Science may be admitted with the permission of the Unit Coordinator.

Calculus and Matrix Algebra (MAS161)
Prerequisites: M182/MAS182 Applied Mathematics or a final scaled score of 55% or more in TEE Calculus or equivalent.
Prerequisites — Bioprocess Engineering (BE) (Continued)

Cell Biology (BIO152)
Prerequisites: A thorough knowledge of Year 12 secondary level Chemistry is assumed. Students who did not achieve a final scaled score of 61% or more in TEE Chemistry within the three years immediately preceding enrolment are required to pass M140/PEC140 Introduction to Chemistry or PEC144 Chemical Principles or M114/PEC114 Chemistry for Biological Sciences or M115/PEC115 Chemistry for Environmental Science or M116/PEC116 Chemistry for Physical Sciences prior to enrolling.

Chemical Principles (PEC144)
Prerequisites: A thorough knowledge of Year 12 secondary-level Chemistry is assumed. Students who did not achieve a final scaled score of 60% or more in TEE Chemistry within the three years immediately preceding enrolment are required to pass PEC140 Introduction to Chemistry prior to enrolling. Students who are unsure of their status should consult the Chemistry Program Chair.

Computing for Scientists and Engineers (ENG109)
Control Systems and Process Dynamics (ENG267)
Prerequisites: G166/ENG166/ENG242 Engineering Mathematics II or MAS242 Engineering Mathematics or MAS161 Calculus and Matrix Algebra; ENG109 Computing for Scientists and Engineers; PEC152 Principles of Physics. Co-requisite MAS208 Mathematical Modelling or MAS261 Mathematical Methods.

Design Concepts in Science and Engineering (ENG141)

Engineering Design (ENG428)
Prerequisites: Completion of all required third year Engineering units.

Engineering Internship (ENG450)
Prerequisites: Permission of Engineering Program Chair.

Engineering Law, Management and Ethics (ENG453)
Prerequisites: Enrolment in the Bachelor of Engineering and completion of all the requirements of the 3rd year of the Bachelor of Engineering.

Engineering Thesis (ENG460)
Prerequisites: Permission of Engineering Program Chair.

Industrial Bioprocessing and Bioremediation (BIO301)
Prerequisites: N263/BIO263 Microbiology I and either successful completion or concurrent enrolment in N270/BIO270 Biochemistry I. For Bioprocess Engineering students the prerequisite is BIO263 Microbiology I and PEC238 Biological Chemistry.

Mathematical Modelling (MAS208)
Prerequisites: M182/MAS182 Applied Mathematics or M161/MAS161 Calculus and Matrix Algebra.

Microbiology I (BIO263)
Prerequisites: N152/BIO152 Cell Biology.

Principles of Physics (PEC152)
Prerequisites: Concurrent enrolment in MAS182 Applied Mathematics or MAS161 Calculus and Matrix Algebra; plus a final scaled score of 60% or more in TEE Physics or M120/PEC120 General Physics.

Principles of Process Engineering (ENG241)
Prerequisites: MAS182 Applied Mathematics, MAS161 Calculus and Matrix Algebra.

Reactor Engineering (ENG361)
Prerequisites: EXM224 Principles of Unit Operations in Mineral Processing OR ENG241 Principles of Process Engineering.

Thermodynamics (PEC201)
Prerequisites: MAS161 Calculus and Matrix Algebra or MAS182 Applied Mathematics or MAS183 Statistical Data Analysis and Databases; PEC152 Principles of Physics; PEC114 Chemistry for Biological Sciences or PEC115 Chemistry for Environmental Science or PEC116 Chemistry for Physical Sciences or PEC144 Chemical Principles or enrolment in G1034 Graduate Diploma in Extractive Metallurgy.
Environmental Engineering (BE)
Course Structure — 96 points

Part I — 24 points

☐ Foundation Unit — 3 points
Select one Foundation Unit from the Foundation Units section in this Handbook

Core Units — 21 points

☐ BIOC103 Environmental Biology — 3 pts
  Murd: S1-Int, S1-Ext

☐ ENV102 Introduction to Environmental Science — 3 pts
  Murd: S1-Int, S1-Ext, S2-Int

☐ PEC144 Chemical Principles — 3 pts
  Murd: S1-Int, S1-Ext, S2-Int, S2-Ext

☐ ENG141 Design Concepts in Science and Engineering — 3 pts
  Murd: S1-Int

☐ MASI161 Calculus and Matrix Algebra — 3 pts
  Murd: S2-Int, S2-Ext

☐ ENG109 Computing for Scientists and Engineers — 3 pts
  Murd: S2-Int

☐ PEC152 Principles of Physics — 3 pts
  Murd: S1-Int, S1-Ext, S2-Int, S2-Ext

Part II — 72 points

Core Units — 68 points

☐ ENV211 Pollution and its Control — 4 pts
  Murd: S1-Int, S1-Ext

☐ ENV206 Water Conservation and Auditing — 4 pts
  Murd: S1-Int, S1-Ext

☐ ENV268 Ecology — 4 pts
  Murd: S2-Int, S2-Ext

☐ ENV210 Environmental Technology for Sustainable Development — 4 pts
  Murd: S2-Int, S2-Ext

☐ ENV281 Water and Earth Science — 4 pts
  Murd: S1-Int, S1-Ext

☐ ENV318 Sustainable Water Systems — 4 pts
  Murd: S2-Int, S2-Ext

☐ ENV319 Environmental Management — 4 pts
  Murd: S2-Int, S2-Ext

☐ ENG241 Principles of Process Engineering — 4 pts
  Murd: S1-Int

☐ MASI284 Applied Statistics and Process Management — 4 pts
  Murd: S1-Int, S1-Ext, S2-Int, S2-Ext

☐ ENG267 Control Systems and Process Dynamics — 4 pts
  Murd: S2-Int

☐ ENG352 Energy Supply Systems — 4 pts
  Murd: S2-Int, Y-Ext

☐ MASI208 Mathematical Modelling — 4 pts
  Murd: S2-Int, S2-Ext

☐ ENG453 Engineering Law, Management and Ethics — 4 pts
  Murd: S1-Int

☐ ENG428 Engineering Design — 4 pts
  Murd: S1-Int, S2-Int

☐ ENG450 Engineering Internship — 12 pts
  Murd: H-Int, S1-Int, S2-Int, U-Int, Y-Int
  OR

☐ ENG460 Engineering Thesis — 12 pts
  Murd: H-Int, S1-Int, S2-Int, U-Int, Y-Int

General Electives — 4 points
Select from any 200- to 500-level units offered by the University, subject to individual unit prerequisites.

Prerequisites — Environmental Engineering (BE)
Applied Statistics and Process Management (MAS284)
Prerequisites: A basic understanding of simple descriptive statistics and elementary probability.

Calculus and Matrix Algebra (MAS161)
Prerequisites: M182/MAS182 Applied Mathematics or a final scaled score of 55% or more in TEE Calculus or equivalent.

Chemical Principles (PEC144)
Prerequisites: A thorough knowledge of Year 12 secondary-level Chemistry is assumed. Students who did not achieve a final scaled score of 60% or more in TEE Chemistry within the three years immediately preceding enrolment are required to pass PEC140 Introduction to Chemistry prior to enrolling. Students who are unsure of their status should consult the Chemistry Program Chair.

Computing for Scientists and Engineers (ENG109)

Control Systems and Process Dynamics (ENG267)
Prerequisites: G166/ENG166/ENG242 Engineering Mathematics II or MAS242 Engineering Mathematics or MAS161 Calculus and Matrix Algebra; ENG109 Computing for Scientists and Engineers; PEC152 Principles of Physics. Co-requisite MAS208 Mathematical Modelling or MAS261 Mathematical Methods.

Design Concepts in Science and Engineering (ENG141)
Prerequisites — Environmental Engineering (BE) (Continued)

Ecology (ENV268)
Prerequisites: BIO103 Environmental Biology or the Bachelor of Applied Science in Environmental Science.

Energy Supply Systems (ENG352)
Prerequisites: Completion of all 200 level units in the BE Renewable Energy Engineering course or completion of all 200 level units in Environmental Engineering.

Engineering Design (ENG428)
Prerequisites: Completion of all required third year Engineering units.

Engineering Internship (ENG450)
Prerequisites: Permission of Engineering Program Chair.

Engineering Law, Management and Ethics (ENG453)
Prerequisites: Enrolment in the Bachelor of Engineering and completion of all the requirements of the 3rd year of the Bachelor of Engineering.

Engineering Thesis (ENG460)
Prerequisites: Permission of Engineering Program Chair.

Environmental Biology (BIO103)
Note: Ext students enrolled in BIO103 must be resident in Australia due to customs restrictions which prevent the forwarding of the practical kit to overseas destinations.

Environmental Management (ENV319)
Prerequisites: Completion of at least 18 points at Part II or enrolment in a postgraduate course from the School of Environmental Science or enrolment in the Bachelor of Applied Science in Environmental Science.

Environmental Technology for Sustainable Development (ENV210)
Prerequisites: ENV104 Australian Environmental Issues, or ENV102 Introduction to Environmental Science.

Introduction to Environmental Science (ENV102)

Mathematical Modelling (MAS208)
Prerequisites: M182/MAS182 Applied Mathematics or M161/MAS161 Calculus and Matrix Algebra.

Pollution and its Control (ENV211)
Prerequisites: ENV102 Introduction to Environmental Science and PEC144 Chemical Principles or PEC115 Chemistry for Environmental Science or equivalent, or enrolment in the Bachelor of Technology in Environmental Technology or the Bachelor of Applied Science in Environmental Science.

Principles of Physics (PEC152)
Prerequisites: Concurrent enrolment in MAS182 Applied Mathematics or MAS161 Calculus and Matrix Algebra; plus a final scaled score of 60% or more in TEE Physics or M120/PEC120 General Physics.

Principles of Process Engineering (ENG241)
Prerequisites: MAS182 Applied Mathematics, MAS161 Calculus and Matrix Algebra.

Sustainable Water Systems (ENV318)
Prerequisites: ENV206 Water Conservation and Auditing OR ENV211 Pollution and its Control OR ENV210 Environmental Technology for Sustainable Development.

Water and Earth Science (ENV281)
Prerequisites: A thorough knowledge of Year 12 secondary-level chemistry is assumed.

Water Conservation and Auditing (ENV206)
Medical Engineering (BE)
Course Structure — 96 points

Part I — 24 points

☐ Foundation Unit — 3 points
Select one Foundation Unit from the Foundation Units section in this Handbook.

Core Units — 21 points

☐ BMS101 Introduction to the Human Body — 3 pts
Murd: S1-Int

☐ BMS107 Principles of Vertebrate Physiology — 3 pts
Murd: S2-Int

☐ ENG125 Circuits and Systems I — 3 pts
Murd: S2-Int

☐ ENG141 Design Concepts in Science and Engineering — 3 pts
Murd: S1-Int

☐ MAS161 Calculus and Matrix Algebra — 3 pts
Murd: S2-Int, S2-Ext

☐ MAS183 Statistical Data Analysis and Databases — 3 pts
Murd: S1-Int

☐ PEC152 Principles of Physics — 3 pts
Murd: S1-Int, S1-Ext, S2-Int, S2-Ext

Part II — 72 points

Core Units — 60 points

☐ ENG243 Circuits and Systems II — 4 pts
Murd: S1-Int

☐ ENG262 Principles of Electronic Instrumentation — 4 pts
Murd: S2-Int

☐ ENG267 Control Systems and Process Dynamics — 4 pts
Murd: S2-Int

☐ ENG304 Process Control Engineering I — 4 pts
Murd: S1-Int

☐ MAS208 Mathematical Modelling — 4 pts
Murd: S2-Int, S2-Ext

☐ BMS264 Biomedical Physiology — 4 pts
Murd: S1-Int

☐ CHI280 Human Anatomy I — 4 pts
Murd: S1-Int

☐ ENG371 Biomedical Instrumentation — 4 pts
Murd: S1-Int

☐ ENG372 Biomedical Signal Processing — 4 pts
Murd: S1-Int

☐ ENG373 Biomedical Systems Engineering — 4 pts
Murd: S2-Int

☐ MAS230 Biostatistical Methods — 4 pts
Murd: S2-Int, S2-Ext

☐ CHI209 Biomechanics and Chiropractic Skills — 4 pts
Murd: S2-Int

VET4XX Diagnostic Imaging for Medical Engineers - 4 pts
NA 2008

☐ ENG428 Engineering Design — 4 pts
Murd: S1-Int, S2-Int

☐ ENG453 Engineering Law, Management and Ethics — 4 pts
Murd: S1-Int

Specified Electives — 12 points
Select from the following:

☐ ENG450 Engineering Internship — 12 pts
Murd: H-Int, S1-Int, S2-Int, U-Int, Y-Int

☐ ENG460 Engineering Thesis — 12 pts
Murd: H-Int, S1-Int, S2-Int, U-Int, Y-Int

Prerequisites — Medical Engineering (BE)

Biomechanics and Chiropractic Skills (CHI209)
Prerequisites: BMS101 Introduction to the Human Body and BMS108 Comparative Musculoskeletal Anatomy. Co-requisite CHI282 Human Anatomy II. This unit is subject to quota and Chiropractic and Sports Science students will be given priority.

Biomedical Instrumentation (ENG371)
Prerequisites: ENG262 Principles of Electronic Instrumentation

Biomedical Physiology (BMS264)
Prerequisites: BMS107 Principles of Vertebrate Biology or N362/BIO362 Comparative Animal Physiology.

Biomedical Signal Processing (ENG372)
Prerequisites: ENG243 Circuits and Systems II; ENG267 Control Systems and Process Dynamics

Biomedical Systems Engineering (ENG373)
Prerequisites: ENG371 Biomedical Instrumentation; ENG372 Biomedical Signal Processing; MAS208 Mathematical Modelling; ENG267 Control Systems and Process Dynamics.

Biostatistical Methods (MAS230)
Prerequisites: M180/MAS180 Introduction to Statistics or M183/MAS183 Statistical Data Analysis and Databases or M184/MAS184 Biostatistics and Information Retrieval.
**Prerequisites — Medical Engineering (BE)**

*(Continued)*

Biostatistics and Information Retrieval (MAS184)
Prerequisites: Nil

Calculus and Matrix Algebra (MAS161)
Prerequisites: M182/MAS182 Applied Mathematics or a final scaled score of 55% or more in TEE Calculus or equivalent.

Circuits and Systems I (ENG125)
Prerequisites: MAS182 Applied Mathematics.
Corequisite: MAS161 Calculus and Matrix Algebra.

Circuits and Systems II (ENG243)

Control Systems and Process Dynamics (ENG267)
Prerequisites: G166/ENG166/ENG242 Engineering Mathematics II or MAS242 Engineering Mathematics or MAS161 Calculus and Matrix Algebra; ENG109 Computing for Scientists and Engineers; PEC152 Principles of Physics. Co-requisite MAS208 Mathematical Modelling or MAS261 Mathematical Methods.

Design Concepts in Science and Engineering (ENG141)

Engineering Design (ENG428)
Prerequisites: Completion of all required third year Engineering units.

Engineering Internship (ENG450)
Prerequisites: Permission of Engineering Program Chair.

Engineering Law, Management and Ethics (ENG453)
Prerequisites: Enrolment in the Bachelor of Engineering and completion of all the requirements of the 3rd year of the Bachelor of Engineering.

Engineering Thesis (ENG460)
Prerequisites: Permission of Engineering Program Chair.

Human Anatomy I (CHI280)
Prerequisites: BMS101 Introduction to the Human Body and BMS108 Comparative Musculoskeletal Anatomy. This unit is subject to quota and Chiropractic and Sports Science students will be given priority.

Introduction to the Human Body (BMS101)

Mathematical Modelling (MAS208)
Prerequisites: M182/MAS182 Applied Mathematics or M161/MAS161 Calculus and Matrix Algebra.

Principles of Electronic Instrumentation (ENG262)
Prerequisites: MAS161 Calculus and Matrix Algebra and ENG125 Circuits and Systems I.

Principles of Physics (PEC152)
Prerequisites: Concurrent enrolment in MAS182 Applied Mathematics or MAS161 Calculus and Matrix Algebra; plus a final scaled score of 60% or more in TEE Physics or M120/PEC120 General Physics.

Principles of Vertebrate Physiology (BMS107)
BMS101 Introduction to the Human Body or ANS102 Introduction to the Animal Body are strongly recommended as precursor units.

Process Control Engineering I (ENG304)
Prerequisites: Completion of all 200 level units in the BE Instrumentation and Control Engineering major.
Metallurgical Engineering (BE)
Course Structure — 96 points

Part I — 24 points

- Foundation Unit — 3 points
  Select one Foundation Unit from the Foundation Units section in this Handbook.

Core Units — 21 points

- MAS182 Applied Mathematics — 3 pts
  Murd: S1-Int, S1-Ext, S2-Int, S2-Ext
- PEC144 Chemical Principles — 3 pts
  Murd: S1-Int, S1-Ext, S2-Int, S2-Ext
- ENG141 Design Concepts in Science and Engineering — 3 pts
  Murd: S1-Int
- MAS161 Calculus and Matrix Algebra — 3 pts
  Murd: S2-Int, S2-Ext
- EXM130 Geological Processes — 3 pts
  Murd: S2-Int, S2-Ext
- PEC152 Principles of Physics — 3 pts
  Murd: S1-Int, S1-Ext, S2-Int, S2-Ext
- EXM131 Introduction to Extractive Metallurgy — 3 pts
  Murd: S1-Int, S1-Ext

Part II — 72 points

Core Units — 60 points

- EXM224 Principles of Unit Operations — 4 pts
  Murd: S1-Int, S1-Ext
- MAS284 Applied Statistics and Process Management — 4 pts
  Murd: S1-Int, S1-Ext, S2-Int, S2-Ext
- PEC247 Physical and Inorganic Chemistry — 4 pts
  Murd: S1-Int, S1-Ext
- MAS208 Mathematical Modelling — 4 pts
  Murd: S2-Int, S2-Ext
- PEC201 Thermodynamics — 4 pts
  Murd: S2-Int, S2-Ext
- EXM256 Process Mineralogy — 4 pts
  Murd: S2-Int
- EXM358 Pyrometallurgy — 4 pts
  Murd: S1-Int, S1-Ext
- ENG361 Reactor Engineering — 4 pts
  Murd: S1-Int
- EXM301 Mineral Processing I — 4 pts
  Murd: S1-Int
- EXM302 Mineral Processing II — 4 pts
  Murd: S2-Int

Specified Electives — 12 points

Select from the following:

- ENG450 Engineering Internship — 12 pts
  Murd: H-Int, S1-Int, S2-Int, U-Int, Y-Int
OR
- ENG460 Engineering Thesis — 12 pts
  Murd: H-Int, S1-Int, S2-Int, U-Int, Y-Int
OR
- EXM436 Process Design Project/Thesis — 12 pts
  Murd: S1-Int, S2-Int

Prerequisites — Metallurgical Engineering (BE)

Advanced Topics in Extractive Metallurgy (EXM435)
Prerequisites: M301/EXM301 Mineral Processing I,
M302/EXM302 Mineral Processing II,
M357/EXM357 Hydrometallurgy, M358/EXM358
Pyrometallurgy, or by permission of the Unit Coordinator.

Applied Mathematics (MAS182)
Prerequisites: M164/MAS164 Fundamentals of Mathematics or at least a pass in the Year 11
course Introduction to Calculus together with a
final scaled score of 55% or more in TEE
Applicable Mathematics.

Applied Statistics and Process Management (MAS284)
Prerequisites: A basic understanding of simple
descriptive statistics and elementary probability.
Introduction to Extractive Metallurgy (EXM131)
Prerequisites: Knowledge of physical sciences at senior high school level is assumed.

Mathematical Modelling (MAS208)
Prerequisites: M182/MAS182 Applied Mathematics or M161/MAS161 Calculus and Matrix Algebra.

Mineral Processing I (EXM301)
Prerequisites: M131/EXM131 Introduction to Extractive Metallurgy, and M182/MAS182 Applied Mathematics or M161/MAS161 Calculus and Matrix Algebra OR enrolment in G1034 Graduate Diploma in Extractive Metallurgy.

Mineral Processing II (EXM302)
Prerequisites: M131/EXM131 Introduction to Extractive Metallurgy, and M182/MAS182 Applied Mathematics or M161/MAS161 Calculus and Matrix Algebra OR enrolment in G1034 Graduate Diploma in Extractive Metallurgy.

Mineral Resources and Environment (EXM355)
Prerequisites: M130/EXM130 Geological Processes or approval of unit coordinator.

Physical and Inorganic Chemistry (PEC247)
Prerequisites: PEC114 Chemistry for Biological Sciences or PEC115 Chemistry for Environmental Science or PEC116 Chemistry for Physical Sciences or PEC144 Chemical Principles; MAS182 Applied Mathematics or MAS161 Calculus and Matrix Algebra or MAS183 Statistical Data Analysis and Databases.

Principles of Physics (PEC152)
Prerequisites: Concurrent enrolment in MAS182 Applied Mathematics or MAS161 Calculus and Matrix Algebra; plus a final scaled score of 60% or more in TEE Physics or M120/PEC120 General Physics.

Principles of Unit Operations (EXM224)
Prerequisites: M182/MAS182 Applied Mathematics or M161/MAS161 Calculus and Matrix Algebra and M152/PEC152 Principles of Physics or high school physics, or enrolment in G1034 Graduate Diploma in Extractive Metallurgy.

Process Design Project/Thesis (EXM436)
Prerequisites — Metallurgical Engineering (BE) (Continued)

Process Mineralogy (EXM256)
  Prerequisites: M130/EXM130 Geological Processes or equivalent, or approval of the unit coordinator, or enrolment in G1034 Graduate Diploma in Extractive Metallurgy.

Pyrometallurgy (EXM358)
  Prerequisites: M201/PEC201 Chemical Thermodynamics, or enrolment in G1034 Graduate Diploma in Extractive Metallurgy.

Reactor Engineering (ENG361)
  Prerequisites: EXM224 Principles of Unit Operations in Mineral Processing OR ENG241 Principles of Process Engineering.

Thermodynamics (PEC201)
  Prerequisites: MAS161 Calculus and Matrix Algebra or MAS182 Applied Mathematics or MAS183 Statistical Data Analysis and Databases; PEC152 Principles of Physics; PEC114 Chemistry for Biological Sciences or PEC115 Chemistry for Environmental Science or PEC116 Chemistry for Physical Sciences or PEC144 Chemical Principles or enrolment in G1034 Graduate Diploma in Extractive Metallurgy.
Engineering (BE) + Commerce (BCom)

Engineering + Management

Course Structure — 122 points

Part I — 30 points

□ Foundation Unit — 3 points

Select one Foundation Unit from the Foundation Units section in this Handbook.

Core Units — 27 points

□ MAS161 Calculus and Matrix Algebra — 3 pts
  Murd: S2-Int, S2-Ext

□ PEC152 Principles of Physics — 3 pts
  Murd: S1-Int, S1-Ext, S2-Int, S2-Ext
  (Students who have not completed Physics at TEE level will be required to undertake PEC120 General Physics — 3 pts [Murd: S1-Int, S1-Ext, S2-Ext] prior to completing this unit)

□ ENG141 Design Concepts in Science and Engineering — 3 pts
  Murd: S1-Int

□ BUS165 Principles of Commercial Law — 3 pts
  Murd: S1-Int, S1-Ext, S2-Int
  Peel: S2-Int Rock: S2-Int

□ ENG109 Computing for Scientists and Engineers — 3 pts
  Murd: S2-Int

□ ENG125 Circuits and Systems I — 3 pts
  Murd: S2-Int

□ BUS160 Introduction to Accounting — 3 pts
  Murd: S2-Int
  Peel: S1-Int Rock: S2-Int

□ BUS169 Principles of Marketing — 3 pts
  Murd: S1-Int, S2-Int
  Peel: S1-Int Rock: S2-Int

□ BUS145 Principles of Management — 3 pts
  Murd: F3-Int, S1-Int, S2-Int
  Peel: S1-Int Rock: S2-Int

Part II — 92 points

Core Units — 92 points

For all BE courses, students should complete the Core and Restricted Elective units as listed under the individual course descriptions.

Students completing the BE/BCom (Management) should also take:

□ BUS240 Human Resources and Organisational Development — 4 pts
  Murd: S2-Int

□ BUS228 Workplace Law — 4 pts
  Murd: F3-Int, S2-Int

□ BUS317 Strategic Management — 4 pts
  Murd: S2-Int

□ BUS223 Organisational Theory and Behaviour — 4 pts, Murd: S1-Int

□ BUS320 Advanced HR Perspectives — 4 pts
  Murd: S1-Int

Prerequisites — Engineering (BE) + Commerce (BCom)

Advanced HR Perspectives (BUS320)
  Prerequisites: C145/BUS145 Principles of Management and either C240/BUS240 Organisation Management and Development or BUS240 Human Resources and Organisational Development.

Calculus and Matrix Algebra (MAS161)
  Prerequisites: M182/MAS182 Applied Mathematics or a final scaled score of 55% or more in TEE Calculus or equivalent.

Circuits and Systems I (ENG125)
  Prerequisites: MAS182 Applied Mathematics.
  Corequisite: MAS161 Calculus and Matrix Algebra.

Computing for Scientists and Engineers (ENG109)

Design Concepts in Science and Engineering (ENG141)

General Physics (PEC120)
  TEE Applicable Mathematics or MAS164 Fundamentals of Mathematics are strongly recommended and may be taken concurrently.

Human Resources and Organisational Development (BUS240)
  Prerequisites: C145/BUS145 Principles of Management.

Introduction to Accounting (BUS160)

Organisational Theory and Behaviour (BUS223)
  Prerequisites: C145/BUS145 Principles of Management or enrolment in the Graduate Certificate in Human Resource Management or the Graduate Diploma in Human Resource Management.

Principles of Commercial Law (BUS165)

Principles of Management (BUS145)

Principles of Marketing (BUS169)

Principles of Physics (PEC152)
  Prerequisites: Concurrent enrolment in MAS182 Applied Mathematics or MAS161 Calculus and Matrix Algebra; plus a final scaled score of 60% or more in TEE Physics or M120/PEC120 General Physics.
Prerequisites — Engineering (BE) + Commerce (BCom) (Continued)

Strategic Management (BUS317)
Prerequisites: C240/BUS240 Organisation and Management Development and either C223/BUS223 Organisational Theory and Behaviour or C320/BUS320 Human Resources Management.

Workplace Law (BUS228); Prerequisites:
C165/BUS165 Principles of Commercial Law
### Metallurgical Engineering (BE) + Chemistry (BSc)

#### Course Structure — 120 points

##### Part I — 27 points

- **Foundation Unit — 3 points**
  Select one Foundation Unit from the Foundation Units section in this Handbook.

- **Core Units — 24 points**
  - EXM131 Introduction to Extractive Metallurgy — 3 pts
    Murd: S1-Int, S1-Ext
  - PEC144 Chemical Principles — 3 pts
    Murd: S1-Int, S1-Ext, S2-Int, S2-Ext
  - MAS182 Applied Mathematics — 3 pts
    Murd: S1-Int, S1-Ext, S2-Int, S2-Ext
  - EXM130 Geological Processes — 3 pts
    Murd: S2-Int, S2-Ext
  - PEC152 Principles of Physics — 3 pts
    Murd: S1-Int, S1-Ext, S2-Int, S2-Ext
  - MAS161 Calculus and Matrix Algebra — 3 pts
    Murd: S2-Int, S2-Ext
  - PEC143 Chemical Laboratory Techniques — 3 pts
    Murd: S1-Ext, S2-Int
  - ENG141 Design Concepts in Science and Engineering — 3 pts
    Murd: S1-Int

##### Part II — 96 points

- **Core Units — 88 points**
  - EXM224 Principles of Unit Operations — 4 pts
    Murd: S1-Int, S1-Ext
  - PEC247 Physical and Inorganic Chemistry — 4 pts
    Murd: S1-Int, S1-Ext
  - PEC240 Analytical Chemistry — 4 pts
    Murd: S1-Int, S1-Ext
  - PEC201 Thermodynamics — 4 pts
    Murd: S2-Int, S2-Ext
  - EXM256 Process Mineralogy — 4 pts
    Murd: S2-Int
  - MAS208 Mathematical Modelling — 4 pts
    Murd: S2-Int, S2-Ext
  - EXM301 Mineral Processing I — 4 pts
    Murd: S1-Int
  - MAS284 Applied Statistics and Process Management — 4 pts
    Murd: S1-Int, S1-Ext, S2-Int, S2-Ext
  - PEC340 Instrumental Analysis — 4 pts
    Murd: S2-Int, S2-Ext
  - EXM302 Mineral Processing II — 4 pts
    Murd: S2-Int
  - PEC238 Biological Chemistry — 4 pts
    Murd: S2-Int, S2-Ext
  - EXM358 Pyrometallurgy — 4 pts
    Murd: S1-Int, S1-Ext
  - PEC347 Aquatic Chemistry — 4 pts
    Murd: S1-Int, S1-Ext
  - ENG267 Control Systems and Process Dynamics — 4 pts
    Murd: S2-Int
  - EXM357 Hydrometallurgy — 4 pts
    Murd: S2-Int, S2-Ext
  - EXM355 Mineral Resources and Environment — 4 pts
    NA 2008
  - EXM435 Advanced Topics in Extractive Metallurgy — 4 pts
    Murd: S1-Int
  - ENG453 Engineering Law, Management and Ethics — 4 pts
    Murd: S1-Int
  - EXM436 Process Design Project/Thesis — 12 pts
    Murd: S1-Int, S2-Int
  - ENG361 Reactor Engineering — 4 pts
    Murd: S1-Int

- **General Electives — 5 points**
  Select from any 200- to 400-level units offered by the University, subject to individual unit prerequisites. Students are advised to consider using these points to meet the requirements of a second major or minor. Please refer to any recommended Double Majors and Minors listed in the description of this course.

#### Prerequisites — Metallurgical Engineering (BE) + Chemistry (BSc)

- EXM302 Mineral Processing II — 4 pts
  Murd: S2-Int
- PEC238 Biological Chemistry — 4 pts
  Murd: S2-Int, S2-Ext
- EXM358 Pyrometallurgy — 4 pts
  Murd: S1-Int, S1-Ext
- PEC347 Aquatic Chemistry — 4 pts
  Murd: S1-Int, S1-Ext
- ENG267 Control Systems and Process Dynamics — 4 pts
  Murd: S2-Int
- EXM357 Hydrometallurgy — 4 pts
  Murd: S2-Int, S2-Ext
- EXM355 Mineral Resources and Environment — 4 pts
  NA 2008
- EXM435 Advanced Topics in Extractive Metallurgy — 4 pts
  Murd: S1-Int
- ENG453 Engineering Law, Management and Ethics — 4 pts
  Murd: S1-Int
- EXM436 Process Design Project/Thesis — 12 pts
  Murd: S1-Int, S2-Int
- ENG361 Reactor Engineering — 4 pts
  Murd: S1-Int

Advanced Topics in Extractive Metallurgy (EXM435) Prerequisites: M301/EXM301 Mineral Processing I, M302/EXM302 Mineral Processing II, M357/EXM357 Hydrometallurgy, M358/EXM358 Pyrometallurgy, or by permission of the Unit Coordinator. Analytical Chemistry (PEC240) Prerequisites: PEC114 Chemistry for Biological Sciences or PEC115 Chemistry for Environmental Science or PEC116 Chemistry for Physical Sciences or PEC144 Chemical Principles.
Prerequisites — Metallurgical Engineering (BE) + Chemistry (BSc) (Continued)

Applied Mathematics (MAS182)
  Prerequisites: M164/MAS164 Fundamentals of Mathematics or at least a pass in the Year 11 course Introduction to Calculus together with a final scaled score of 55% or more in TEE Applicable Mathematics.

Applied Statistics and Process Management (MAS284)
  Prerequisites: A basic understanding of simple descriptive statistics and elementary probability.

Aquatic Chemistry (PEC347)
  Prerequisites: PEC247 Physical and Inorganic Chemistry or PEC240 Analytical Chemistry.

Biological Chemistry (PEC238)
  Prerequisites: PEC114 Chemistry for Biological Sciences or PEC116 Chemistry for Physical Sciences or PEC144 Chemical Principles. Students with good grades in PEC115 Chemistry for Environmental Science may be admitted with the permission of the Unit Coordinator.

Calculus and Matrix Algebra (MAS161)
  Prerequisites: M182/MAS182 Applied Mathematics or a final scaled score of 55% or more in TEE Calculus or equivalent.

Chemical Laboratory Techniques (PEC143)
  Prerequisites: A thorough knowledge of Year 12 Chemistry is assumed. Students who did not achieve a final scaled score of more than 60% in TEE Chemistry within the three years immediately preceding enrolment are required to pass PEC140 Introduction to Chemistry before enrolling in this unit.

Chemical Principles (PEC144)
  Prerequisites: A thorough knowledge of Year 12 secondary-level Chemistry is assumed. Students who did not achieve a final scaled score of 60% or more in TEE Chemistry within the three years immediately preceding enrolment are required to pass PEC140 Introduction to Chemistry prior to enrolling. Students who are unsure of their status should consult the Chemistry Program Chair.

Control Systems and Process Dynamics (ENG267)
  Prerequisites: G166/ENG166/ENG242 Engineering Mathematics II or MAS242 Engineering Mathematics or MAS161 Calculus and Matrix Algebra; ENG109 Computing for Scientists and Engineers; PEC152 Principles of Physics. Co-requisite MAS208 Mathematical Modelling or MAS261 Mathematical Methods.

Design Concepts in Science and Engineering (ENG141)

Engineering Law, Management and Ethics (ENG453)
  Prerequisites: Enrolment in the Bachelor of Engineering and completion of all the requirements of the 3rd year of the Bachelor of Engineering.

Geological Processes (EXM130)
  Prerequisites: No prior knowledge of geology is required. Knowledge of physical sciences at senior high school level is assumed.

Hydrometallurgy (EXM357)
  Prerequisites: M201/PEC201 Chemical Thermodynamics, or enrolment in G1034 Graduate Diploma in Extractive Metallurgy.

Instrumental Analysis (PEC340)
  Prerequisites: PEC240 Analytical Chemistry.

Introduction to Extractive Metallurgy (EXM131)
  Prerequisites: Knowledge of physical sciences at senior high school level is assumed.

Mathematical Modelling (MAS208)
  Prerequisites: M182/MAS182 Applied Mathematics or M161/MAS161 Calculus and Matrix Algebra.

Mineral Processing I (EXM301)
  Prerequisites: M131/EXM131 Introduction to Extractive Metallurgy, and M182/MAS182 Applied Mathematics or M161/MAS161 Calculus and Matrix Algebra OR enrolment in G1034 Graduate Diploma in Extractive Metallurgy.

Mineral Processing II (EXM302)
  Prerequisites: M131/EXM131 Introduction to Extractive Metallurgy, and M182/MAS182 Applied Mathematics or M161/MAS161 Calculus and Matrix Algebra OR enrolment in G1034 Graduate Diploma in Extractive Metallurgy.

Mineral Resources and Environment (EXM355)
  Prerequisites: M130/EXM130 Geological Processes or approval of unit coordinator.

Physical and Inorganic Chemistry (PEC247)
  Prerequisites: PEC114 Chemistry for Biological Sciences or PEC115 Chemistry for Environmental Science or PEC116 Chemistry for Physical Sciences or PEC144 Chemical Principles; MAS182 Applied Mathematics or MAS161 Calculus and Matrix Algebra or MAS183 Statistical Data Analysis and Databases.
Prerequisites — Metallurgical Engineering (BE) + Chemistry (BSc) (Continued)

Principles of Physics (PEC152)
Prerequisites: Concurrent enrolment in MAS182, Applied Mathematics or MAS161 Calculus and Matrix Algebra; plus a final scaled score of 60% or more in TEE Physics or M120/PEC120 General Physics.

Principles of Unit Operations (EXM224)
Prerequisites: M182/MAS182 Applied Mathematics or M161/MAS161 Calculus and Matrix Algebra and M152/PEC152 Principles of Physics or high school physics, or enrolment in G1034 Graduate Diploma in Extractive Metallurgy.

Process Design Project/Thesis (EXM436)

Process Mineralogy (EXM256)
Prerequisites: M130/EXM130 Geological Processes or equivalent, or approval of the unit coordinator, or enrolment in G1034 Graduate Diploma in Extractive Metallurgy.

Pyrometallurgy (EXM358)
Prerequisites: M201/PEC201 Chemical Thermodynamics, or enrolment in G1034 Graduate Diploma in Extractive Metallurgy.

Reactor Engineering (ENG361)
Prerequisites: EXM224 Principles of Unit Operations in Mineral Processing OR ENG241 Principles of Process Engineering.

Thermodynamics (PEC201)
Prerequisites: MAS161 Calculus and Matrix Algebra or MAS182 Applied Mathematics or MAS183 Statistical Data Analysis and Databases; PEC152 Principles of Physics; PEC114 Chemistry for Biological Sciences or PEC115 Chemistry for Environmental Science or PEC116 Chemistry for Physical Sciences or PEC144 Chemical Principles or enrolment in G1034 Graduate Diploma in Extractive Metallurgy.
Engineering (BE) + Science (BSc)

Further information

Course Structure
Students should choose units from both courses, Bachelor of Engineering and Bachelor of Science, that would enable them to complete the core requirements of both degrees. Students should consult with the Program Chairs in order to meet prerequisites and ensure that appropriate electives are taken.
## Bachelor of Engineering (BE) in Bioprocess Engineering

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Semester 1</th>
<th>Semester 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Foundation Unit (see appendix D)</td>
<td>3pts</td>
</tr>
<tr>
<td></td>
<td>ENG109 Computing for Scientists and Engineers</td>
<td>3pts</td>
</tr>
<tr>
<td></td>
<td>ENG125 Circuits and Systems I</td>
<td>3pts</td>
</tr>
<tr>
<td></td>
<td>PEC114 Chemistry For Biological Sciences</td>
<td>3pts</td>
</tr>
<tr>
<td></td>
<td><strong>12pts</strong></td>
<td></td>
</tr>
</tbody>
</table>

| Year 2 | ENG141 Introduction to the Engineering Profession | 3pts |
|        | MAS182 Applied Mathematics (Students who have not completed Year 11 Introduction to Calculus or TEE Applicable Mathematics or equivalent will be required to undertake MAS164 Fundamentals of Mathematics prior to completing this unit) | 3pts |
|        | PEC152 Principles of Physics (Students who have not achieved a final scaled score of 60% or more in TEE Physics or 60% or more in TEE Applicable Mathematics will be required to undertake PEC120 General Physics and MAS164 Fundamentals of Mathematics respectively.) | 9pts |
|        | **15pts** | |

| Year 3 | EXM224 Principles of Unit Operations | 4pts |
|        | MAS284 Applied Statistics and Process Management | 4pts |
|        | BIO263 Microbiology I | 4pts |
|        | **12pts** | |
|        | MAS161 Calculus and Matrix Algebra | 3pts |
|        | ENG267 Control Systems and Process Dynamics | 4pts |
|        | MAS208 Mathematical Modelling | 4pts |
|        | PEC238 Biological Chemistry | 4pts |
|        | **15pts** | |

| Year 4 | ENG303 Advanced Process Engineering | 4pts |
|        | ENG361 Reactor Engineering | 4pts |
|        | Restricted Elective (see list below)** | 4pts |
|        | **12pts** | |
|        | ENG450 Engineering Internship | 12pts |
|        | **12pts** | |

**Part II Restricted Elective Unit [refer to page 41]:** Select four units from the list of the majors, other than the one you are enrolled in. These units may be selected to complete a second engineering major.
### Bachelor of Engineering (BE) in Electrical Power Engineering

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Semester 1</th>
<th>Semester 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Foundation Unit (see appendix D)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ENG109 Computing for Scientists and Engineers</td>
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<tr>
<td></td>
<td>ENG125 Circuits and Systems I</td>
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<tr>
<td></td>
<td>PEC140 Introduction to Chemistry (for students who have not done high school chemistry)</td>
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<td>OR</td>
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<tr>
<td></td>
<td>PEC116 Chemistry for Physical Sciences</td>
<td>12pts</td>
</tr>
</tbody>
</table>

| Year 2 | ENG141 Introduction to the Engineering Profession                          | MAS161 Calculus and Matrix Algebra                                          |
|        | MAS182 Applied Mathematics (Students who have not completed Year 1 Introduction to Calculus or TEE Applicable Mathematics or equivalent will be required to undertake MAS164 Fundamentals of Mathematics prior to completing this unit) | 3pts                                                                  |
|        | PEC120 General Physics (for students who have not completed Physics at TEE) | ENG267 Control Systems and Process                                          |
|        | OR                                                                          | Dynamics                                                                   |
|        | PEC152 Principles of Physics (for students who have done TEE physics)       | MAS208 Mathematical Modelling                                               |
|        |                                                                            | 11pts                                                                     |

| Year 3 | ENG243 Circuits and Systems II                                              | ENG262 Principles of Electronic Instrumentation                             |
|        | MAS242 Engineering Mathematics                                              | ENG348 Power Transmission and Distribution Networks                         |
|        | EXM224 Principles of Unit Operations                                        | Restricted Elective (see list below)**                                     |
|        |                                                                            | Restricted Elective (see list below)**                                     |
|        |                                                                            | 16pts                                                                     |

| Year 4 | ENG347 Electromechanical Energy Conversion                                 | ENG450 Engineering Internship                                               |
|        | ENG349 Power Electric Converters and Systems                               |                                                                            |
|        | Restricted Elective (see list below)**                                    | ENG460 Engineering Thesis                                                   |
|        |                                                                            | 12pts                                                                     |

|        | ENG453 Engineering Law, Management and Ethics                              |                                                                            |
|        | ENG455 Operation and Control of Power Systems                              |                                                                            |
|        | Restricted Elective (see list below)**                                    |                                                                            |

(See next page)
Bachelor of Engineering (BE) in Electrical Power Engineering (Continued)

**Part II Restricted Elective Unit:** Select four from the following any of the majors other than the one you are enrolled in. The units may be selected to complete a second engineering major.

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Semester 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Electrical Power Engineering</strong></td>
<td></td>
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<tr>
<td>ENG347 Electromechanical Energy Conversion</td>
<td>ENG348 Power Transmission and Distribution Networks</td>
</tr>
<tr>
<td>ENG349 Power Electronic Converters and Systems</td>
<td></td>
</tr>
<tr>
<td>ENG455 Operation and Control of Power Systems</td>
<td></td>
</tr>
<tr>
<td><strong>Industrial Computer Systems Engineering</strong></td>
<td></td>
</tr>
<tr>
<td>ENG305 PLC Systems</td>
<td>ENG306 Real Time and Embedded Systems</td>
</tr>
<tr>
<td>ENG454 Industrial Computer Systems Design</td>
<td>ENG345 SCADA Systems</td>
</tr>
<tr>
<td><strong>Instrumentation and Control Engineering</strong></td>
<td></td>
</tr>
<tr>
<td>ENG303 Advanced Process Engineering</td>
<td>ENG346 Process Control Engineering II</td>
</tr>
<tr>
<td>ENG304 Process Control Engineering I</td>
<td></td>
</tr>
<tr>
<td>ENG420 Instrumentation and Control Systems Design</td>
<td></td>
</tr>
<tr>
<td><strong>Renewable Energy Engineering</strong></td>
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</tr>
<tr>
<td>ENG421 Renewable Energy Systems Engineering</td>
<td>ENG351 Renewable Energy Design Workshops</td>
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# Bachelor of Engineering (BE) in Industrial Computer Systems Engineering

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<th>Semester 2</th>
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<td>Foundation Unit (see appendix D) 3pts</td>
<td>ENG109 Computing for Scientists and Engineers 3pts</td>
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<tr>
<td></td>
<td>ENG125 Circuits and Systems I 3pts</td>
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</tr>
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<td></td>
<td>PEC140 Introduction to Chemistry (for students who have not done high school chemistry) 3pts</td>
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<td>OR</td>
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<tr>
<td></td>
<td>PEC116 Chemistry for Physical Sciences 12pts</td>
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<tr>
<td>Year 2</td>
<td>ENG141 Introduction to the Engineering Profession 3pts</td>
<td>MAS161 Calculus and Matrix Algebra 3pts</td>
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<tr>
<td></td>
<td>MAS182 Applied Mathematics (Students who have not completed Year 11 Introduction to Calculus or TEE applicable Mathematics or equivalent will be required to undertake MAS164 Fundamentals of Mathematics prior to completing this unit) 3pts</td>
<td>ENG267 Control Systems and Process Dynamics 4pts</td>
</tr>
<tr>
<td></td>
<td>PEC120 General Physics (for students who have not completed Physics at TEE) 3pts</td>
<td>MAS208 Mathematical Modelling 4pts</td>
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<td></td>
<td>OR</td>
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<tr>
<td></td>
<td>PEC152 Principles of Physics (for students who have done TEE physics) 9pts</td>
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<td>Year 3</td>
<td>ENG243 Circuits and Systems II 4pts</td>
<td>ENG262 Principles of Electronic 4pts</td>
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<tr>
<td></td>
<td>MAS242 Engineering Mathematics 4pts</td>
<td>Instrumentation 4pts</td>
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<td></td>
<td>EXM224 Principles of Unit Operations 4pts</td>
<td>ENG306 Real Time and Embedded Systems 4pts</td>
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<td>12pts</td>
<td>Restricted Elective (see list below)** 12pts</td>
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<tr>
<td>Year 4</td>
<td>ENG305 PLC Systems 4pts</td>
<td>ENG345 SCADA and Instrument Systems 4pts</td>
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<tr>
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<td>Restricted Elective (see list below)** 4pts</td>
<td>ENG450 Engineering Internship 12pts</td>
</tr>
<tr>
<td></td>
<td>Restricted Elective (see list below)** 4pts</td>
<td>OR</td>
</tr>
<tr>
<td></td>
<td>12pts</td>
<td>ENG460 Engineering Thesis 12pts</td>
</tr>
<tr>
<td></td>
<td>ENG453 Engineering Law, Management and Ethics 4pts</td>
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<td>ENG454 Industrial Computer Systems Design 4pts</td>
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<td></td>
<td>Restricted Elective (see list below)** 4pts</td>
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<tr>
<td></td>
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</table>

**Part II Restricted Elective Unit [refer to page 41]** – Select four units from the list of the majors, other than the one you are enrolled in. These units may be selected to complete a second engineering major.
### Bachelor of Engineering (BE) in Instrumentation and Control Engineering

<table>
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<tr>
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<th>Semester 1</th>
<th>Semester 2</th>
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<tr>
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<td>Foundation Unit (see appendix D)</td>
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<tr>
<td></td>
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<td></td>
<td>ENG125 Circuits and Systems I</td>
<td>3pts</td>
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<td>PEC140 Introduction to Chemistry (for students who have not done high school chemistry)</td>
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<tr>
<td>OR</td>
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<tr>
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<td>ENG141 Introduction to the Engineering Profession</td>
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<tr>
<td></td>
<td>MAS161 Calculus and Matrix Algebra</td>
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<td>ENG267 Control Systems and Process</td>
<td>4pts</td>
</tr>
<tr>
<td></td>
<td>Dynamics</td>
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<tr>
<td></td>
<td>MAS208 Mathematical Modelling</td>
<td>11pts</td>
</tr>
<tr>
<td>OR</td>
<td>PEC120 General Physics (for students who have not completed Physics at TEE)</td>
<td>3pts</td>
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<tr>
<td>OR</td>
<td>PEC152 Principles of Physics (for students who have done TEE physics)</td>
<td>9pts</td>
</tr>
<tr>
<td>Year 3</td>
<td>ENG243 Circuits and Systems II</td>
<td>4pts</td>
</tr>
<tr>
<td></td>
<td>ENG262 Principles of Electronic Instrumentation</td>
<td>4pts</td>
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<tr>
<td></td>
<td>EXM224 Principles of Unit Operations</td>
<td>4pts</td>
</tr>
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<td>Restricted Elective (see list below)**</td>
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<td></td>
<td>12pts</td>
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<tr>
<td>Year 4</td>
<td>ENG303 Advanced Process Engineering</td>
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<td>ENG304 Process Control Engineering I</td>
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<tr>
<td></td>
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<tr>
<td></td>
<td>ENG453 Engineering Law, Management and Ethics</td>
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<td></td>
<td>ENG420 Instrumentation and Control Systems Design</td>
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<tr>
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** Part II Restricted Elective Unit [refer to page 41]: – Select four units from the list of the majors, other than the one you are enrolled in. These units may be selected to complete a second engineering major.**
### Bachelor of Engineering (BE) in Renewable Energy Engineering

<table>
<thead>
<tr>
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<th>Semester 1</th>
<th>Semester 2</th>
</tr>
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<tbody>
<tr>
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</tr>
<tr>
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</tr>
<tr>
<td></td>
<td>ENG125 Circuits and Systems I</td>
<td>3pts</td>
</tr>
<tr>
<td></td>
<td>PEC140 Introduction to Chemistry (for students who have not done high school chemistry)</td>
<td>3pts</td>
</tr>
<tr>
<td></td>
<td>OR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PEC116 Chemistry for Physical Sciences</td>
<td>12pts</td>
</tr>
<tr>
<td></td>
<td><strong>ENG141 Introduction to the Engineering Profession</strong></td>
<td>3pts</td>
</tr>
<tr>
<td></td>
<td><strong>MAS182 Applied Mathematics (Students who have not completed Year 11 Introduction to Calculus or TEE Applicable Mathematics or equivalent will be required to undertake MAS164 Fundamentals of Mathematics prior to completing this unit)</strong></td>
<td>3pts</td>
</tr>
<tr>
<td></td>
<td><strong>PEC120 General Physics (for students who have not completed Physics at TEE)</strong></td>
<td>3pts</td>
</tr>
<tr>
<td></td>
<td><strong>PEC152 Principles of Physics (for students who have done TEE physics)</strong></td>
<td>9pts</td>
</tr>
<tr>
<td></td>
<td><strong>ENG243 Circuits and Systems II</strong></td>
<td>4pts</td>
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<tr>
<td></td>
<td><strong>MAS242 Engineering Mathematics</strong></td>
<td>4pts</td>
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<td></td>
<td><strong>EXM224 Principles of Unit Operations</strong></td>
<td>4pts</td>
</tr>
<tr>
<td>Year 2</td>
<td></td>
<td>12pts</td>
</tr>
<tr>
<td></td>
<td><strong>ENG262 Principles of Electronic Instrumentation</strong></td>
<td>4pts</td>
</tr>
<tr>
<td></td>
<td><strong>ENG352 Energy Supply Systems</strong></td>
<td>4pts</td>
</tr>
<tr>
<td></td>
<td><strong>Restricted Elective (see list below)</strong></td>
<td>4pts</td>
</tr>
<tr>
<td></td>
<td><strong>ENG351 Renewable Energy Design Workshop</strong></td>
<td>4pts</td>
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<tr>
<td></td>
<td><strong>ENG450 Engineering Internship</strong></td>
<td>12pts</td>
</tr>
<tr>
<td></td>
<td><strong>OR</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>ENG460 Engineering Thesis</strong></td>
<td>12pts</td>
</tr>
<tr>
<td></td>
<td><strong>ENG453 Engineering Law, Management and Ethics</strong></td>
<td>4pts</td>
</tr>
<tr>
<td></td>
<td><strong>ENG421 Renewable Energy Systems Engineering</strong></td>
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</tr>
<tr>
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<td><strong>Restricted Elective (see list below)</strong></td>
<td>4pts</td>
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<tr>
<td>Year 3</td>
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</table>

**Part II Restricted Elective Unit [refer to page 41]:** – Select four units from the list of the majors, other than the one you are enrolled in. These units may be selected to complete a second engineering major.
# Bachelor of Engineering and Commerce (Management) – (BE) + (BCom)

<table>
<thead>
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<th>Semester 2</th>
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<tbody>
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</tr>
<tr>
<td></td>
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<td>BUS165 Principles of Commercial Law 3pts</td>
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<td></td>
<td></td>
<td>ENG109 Computing for Scientists and Engineers 3pts</td>
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<tr>
<td></td>
<td></td>
<td>BUS160 Introduction to Accounting 3pts</td>
</tr>
<tr>
<td></td>
<td>ENG141 Introduction to the Engineering Profession 3pts</td>
<td>ENG125 Circuits and Systems I 3pts</td>
</tr>
<tr>
<td></td>
<td>MAS182 Applied Mathematics (Students who have not completed Year 11 Introduction to Calculus or TEE Applicable Mathematics or equivalent will be required to undertake MAS164 Fundamentals of Mathematics prior to completing this unit) 3pts</td>
<td>BUS240 Organisation and Management Development</td>
</tr>
<tr>
<td></td>
<td>PEC152 Principles of Physics (Students who have not completed Physics at TEE level will be required to undertake PEC120 General Physics prior to completing this unit) 3pts</td>
<td>BUS228 Workplace Law 4pts</td>
</tr>
<tr>
<td></td>
<td>BUS145 Principles of Management 3pts</td>
<td>MAS208 Mathematical Modelling 4pts</td>
</tr>
<tr>
<td></td>
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<td>12pts</td>
</tr>
<tr>
<td>2</td>
<td>BUS161 Introduction to Economics 3pts</td>
<td>BUS317 Strategic Management 4pts</td>
</tr>
<tr>
<td></td>
<td>ENG243 Circuits and Systems II 3pts</td>
<td>ENG267 Control Systems and Process Dynamics 4pts</td>
</tr>
<tr>
<td></td>
<td>MAS242 Engineering Mathematics 4pts</td>
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<td></td>
<td>11pts 12pts</td>
</tr>
<tr>
<td>3</td>
<td>BUS320 Management of Human Resources 4pts</td>
<td>Core Unit or Restricted Elective for specific Engineering major** 4pts</td>
</tr>
<tr>
<td></td>
<td>BUS223 Organisational Theory and Behaviour 4pts</td>
<td>Core Unit or Restricted Elective for specific Engineering major** 4pts</td>
</tr>
<tr>
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<td>ENG241 Principles of Process Engineering 4pts</td>
<td>Core Unit or Restricted Elective for specific Engineering major** 4pts</td>
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<td>EXM224 Principles of Unit Operations 12pts</td>
<td>Core Unit or Restricted Elective for specific Engineering major** 12pts</td>
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<td>4</td>
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<td>Core Unit or Restricted Elective for specific Engineering major** 4pts</td>
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<td>Core Unit or Restricted Elective for specific Engineering major** 4pts</td>
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<td>Core Unit or Restricted Elective for specific Engineering major** 4pts</td>
<td>Core Unit or Restricted Elective for specific Engineering major** 12pts</td>
</tr>
<tr>
<td></td>
<td>ENG450 Engineering Internship 12pts</td>
<td>OR ENG460 Engineering Thesis 12pts</td>
</tr>
<tr>
<td>5</td>
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<tr>
<td>6</td>
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</table>

**Core Unit or Restricted Elective for specific Engineering major**
### Bachelor of Engineering in Environmental Engineering (BE)

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<th>Semester 2</th>
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<td>Foundation Unit (see appendix D)</td>
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<tr>
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<td>MAS161 Calculus and Matrix Algebra (students who did not achieve a scaled score of 55% or higher in TEE Calculus must complete MAS182 prior to enrolling in this unit)</td>
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<tr>
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<tr>
<td></td>
<td>ENV102 Introduction to Environmental Science</td>
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<tr>
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<td>PEC152 Principles of Physics (students who have not achieved a scaled score of 60% or higher in TEE Physics must complete PEC120 General Physics prior to enrolling in this unit)</td>
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<td>PEC144 Chemical Principles (students who have not achieved a scaled score of 60% or higher in TEE Chemistry must complete PEC140 Introduction to Chemistry prior to enrolling in this unit)</td>
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<td>ENV206 Water Conservation and Auditing</td>
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<td>ENV281 Water and Earth Science</td>
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<td>MAS284 Applied Statistics and Process Management</td>
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<td>ENV211 Pollution and its Control</td>
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<td>ENG352 Energy Supply Systems (year long for 4 points total)</td>
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<td>ENG428 Engineering Design</td>
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<td></td>
<td>ENV268 Ecology</td>
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<td>ENV318 Sustainable Water System</td>
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<td>ENV210 Environmental Technology for Sustainable Development</td>
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<td>ENV218 Sustainable Water System</td>
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<td>MAS208 Mathematics Modelling</td>
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<td>ENG450 Engineering Internship</td>
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<td>ENG460 Engineering Thesis</td>
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<td>ENG352 Energy Supply Systems (year long for 4 points total)</td>
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Bachelor of Engineering in Medical Engineering (BE)

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<tr>
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<td>ENG125 Circuits and Systems I 3pts</td>
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<td>MAS161 Calculus and Matrix Algebra 3pts</td>
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<td>(students who do not have a TEE Calculus final scaled score of 55% or more must completed MAS182 Applied Mathematics prior to enrolling into this unit.)</td>
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<tr>
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<td>PEC152 Principles of Physics 3pts</td>
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<tr>
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<td>(students who do not have a TEE Physics final scaled score of 60% or more must complete PEC152 General Physics prior or enrolling into this unit, concurrent enrolment in MAS182 is required.)</td>
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<tr>
<td>Year 2</td>
<td>BMS101 Introduction to the Human Body 3pts</td>
<td>BMS107 Principles of Vertebrate Physiology 3pts</td>
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<td>ENG141 Design Concepts in Science and Engineering 3pts</td>
<td>ENG262 Principles of Electronic Instrumentation 4pts</td>
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<td>MAS183 Statistical Data Analysis and Databases 3pts</td>
<td>ENG267 Control Systems and Process Dynamics 4pts</td>
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<td>9pts</td>
<td>MAS208 Mathematical Modelling 4pts</td>
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<td>ENG243 Circuits and Systems II 4pts</td>
<td>MAS230 Biostatistical Methods 4pts</td>
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<td>BMS264 Biomedical Physiology 4pts</td>
<td>CHI209 Clinical Biomechanics 4pts</td>
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<td>ENG371 Biomedical Instrumentation 4pts</td>
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<td>ENG372 Biomedical Signal Processing 4pts</td>
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<td>Year 5</td>
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<td>ENG428 Engineering Design 4pts</td>
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<td>VET4xx Diagnostic Imaging for Medical Engineers 4pts</td>
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## Bachelor of Engineering in Metallurgical Engineering (BE)

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<td><strong>EXM130 Geological Processes</strong></td>
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<td><strong>PEC152 Principles of Physics</strong> (Students who have not achieved 60% or more in TEE physics or equivalent will be required to undertake PEC120 General Physics prior to completing this unit.)</td>
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<td><strong>PEC116 Chemistry For Physical Sciences</strong> (Students who have not achieved a final scaled score of 60% or more in TEE Chemistry will be required to undertake PEC140 Introduction to Chemistry prior to enrolling in this unit.)</td>
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<td>Semester 2</td>
<td><strong>EXM131 Introduction to Extractive Metallurgy</strong> 3pts</td>
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<td><strong>MAS182 Applied Mathematics</strong> (Students who have not completed Year 11 Introduction to Calculus and achieved 55% or more in TEE Applicable Mathematics or equivalent will be required to undertake MAS164 Fundamentals of Mathematics prior to completing this unit)</td>
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<td><strong>ENG141 Introduction to the Engineering Profession</strong></td>
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<td><strong>MAS161 Calculus and Matrix Algebra</strong></td>
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<td><strong>EXM256 Process Mineralogy</strong></td>
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<td><strong>MAS208 Mathematical Modelling</strong></td>
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<td><strong>ENG361 Reactor Engineering</strong></td>
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<td><strong>EXM435 Advanced Topics in Extractive Metallurgy</strong></td>
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<td><strong>EXM436 Process Design Project/Thesis</strong></td>
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## Metallurgical Engineering (BE) + Chemistry (BSc)

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<td>PEC240 Analytical Chemistry 4pts</td>
<td>PEC238 Biological Chemistry 4pts</td>
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<td>PEC347 Aquatic Chemistry 4pts</td>
<td>EXM357 Hydrometallurgy 4pts</td>
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<td>ENG267 Control Systems and Process Dynamics 4pts</td>
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<td>EXM436 Process Design Project/Thesis (year long) 6pts</td>
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<td>14pts</td>
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<tr>
<td></td>
<td>EXM435 Advanced Topics in Extractive Metallurgy (year long)</td>
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All Murdoch students are required to complete one Foundation Unit unless they have been awarded Advanced Standing including an exemption for it. Check the teaching timetable for most up-to-date day, time and room location of each Foundation Unit: (http://www.murdoch.edu.au/admin/timetables/teaching/). All foundation units have Lectures: 2 hours per week; workshops/tutorials: 2 hours per week. Below are the foundation units on offer for semester 2.

**FDN115 Interactions of Society and Technology**
Murdoch: Semester 1-internal, Semester 1-external, Semester 2-internal, Semester 2-external
Peel: Semester 1-internal, Semester 2-internal,
Rockingham: Semester 1-internal, Semester 2-internal
Unit Coordinator – Martina Muller, m.muller@murdoch.edu.au
Tel: 9360 2955, Room: Science and Computing 2.011

Society’s constantly evolving interrelationship with technology has fundamentally changed our perception of ourselves and society. It is increasingly important for people to have a broad understanding of social, historical, ethical, economic and environmental factors that interconnect societal development with the nature of technology. FDN115 will provide students with an understanding of these important issues. Topics: histories of western culture and sciences, the nature of democracy, life cycle analysis and sustainability, political structures, cities, reproductive technologies, privacy, medicine, design and innovation.

**FDN150 Reinventing Australia**
Murdoch: Semester 1-internal, Semester 1-external, Semester 2-internal, Semester 2-external
Rockingham: Semester 1-internal
Unit Coordinator – Dr Brad Pettitt, b.pettit@murdoch.edu.au
Tel: 9360 6465, Room: Social Sciences Room 3.017

As Australia is in some sense being ‘reinvented’ by globalisation, new technology and other forces for change, we consider just what ‘Australia’ is and possibilities for shaping its future. Topics: contemporary issues such as the environment, Aboriginal rights, the family and citizenship. Our aim is to identify and understand some of the salient features of Australian society.
## APPENDIX E

### Personal Study Plan

Unit Sets: ________________________________________________________________
________________________________________________________________________

<table>
<thead>
<tr>
<th>YEAR</th>
<th>SEMESTER 1</th>
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</table>
APPENDIX F

Program Chair & Academic Contact Details

Engineering (Bioprocess, Electrical Power, Industrial Computer Systems, Instrumentation and Control, Medical, Renewable Energy): Dr Gareth Lee
gareth.lee@murdoch.edu.au
08 9360 6098 Physical Sciences Room 3.025D

Environmental Engineering: Dr Martin Anda m.anda@murdoch.edu.au
08 9360 6123 Environmental Science Room 3.049

Metallurgical Engineering: Dr Nimal Subasinghe n.subasinghe@murdoch.edu.au
08 9360 2568 Science and Computing Room 2.037

Correct at time of printing. For the most up-to-date list of Academic contacts, please consult:
http://www.murdoch.edu.au/contacts/academic/

APPENDIX G

Enrolment Enquires

Enrolment advice will be provided at the Course Advice Sessions and during Orientation Week. If you have attended one of these sessions and still have enrolment queries, please contact your Faculty Student Administration staff member.

Annette Connolly, Student Administrative Officer
a.connolly@murdoch.edu.au
Education and Humanities Building Room 2.002
ph: 08 9360 6268
http://www.murdoch.edu.au/fsa/

The New Students website (http://www.murdoch.edu.au/students/new/) will also assist you with links to enrolment procedures, sample enrolments, including unit selection for common double majors, Fees, Orientation and Services and Facilities.
## Handy Contacts and Websites

<table>
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<tr>
<th>Need help with:</th>
<th>Contact</th>
<th>Email</th>
<th>Phone (+618)</th>
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<tr>
<td>IT/MyInfo</td>
<td>IT Service Desk</td>
<td><a href="mailto:itservicedesk@murdoch.edu.au">itservicedesk@murdoch.edu.au</a></td>
<td>9360 2000</td>
<td>Library (north) Level 2</td>
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<td>IT Service Desk</td>
<td><a href="mailto:itservicedesk@murdoch.edu.au">itservicedesk@murdoch.edu.au</a></td>
<td>9360 2000</td>
<td>Library (north) Level 2</td>
</tr>
<tr>
<td>Parking Permits</td>
<td>Student Service Centre</td>
<td><a href="mailto:parking@murdoch.edu.au">parking@murdoch.edu.au</a></td>
<td>9360 6127</td>
<td>Chancellery 2.020</td>
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<td>HECS-Help and Fees</td>
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<td><a href="mailto:fees@murdoch.edu.au">fees@murdoch.edu.au</a></td>
<td>9360 6127</td>
<td>Chancellery 2.020</td>
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<td>Books/Unit materials</td>
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<td><a href="mailto:bookshop@murdoch.edu.au">bookshop@murdoch.edu.au</a></td>
<td>9360 2540</td>
<td>Refectory 2.051</td>
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<tr>
<td>International Students</td>
<td>Murdoch International</td>
<td><a href="mailto:internat@murdoch.edu.au">internat@murdoch.edu.au</a></td>
<td>9360 6770</td>
<td>Senate 1.001</td>
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<tr>
<td>Advanced Standing – Credit &amp; Exemptions</td>
<td>Mr Allan Wong (Domestic Students)</td>
<td><a href="mailto:A.Wong@murdoch.edu.au">A.Wong@murdoch.edu.au</a></td>
<td>9360 6352</td>
<td>Chancellery 2.027</td>
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<td>Mr John Tan (International Stud.)</td>
<td><a href="mailto:J.Tan@murdoch.edu.au">J.Tan@murdoch.edu.au</a></td>
<td>9360 6010</td>
<td>Senate 1.001</td>
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<tr>
<td>First Year Experience Coordinator</td>
<td>Pamela Martin-Lynch</td>
<td><a href="mailto:p.martin-lynch@murdoch.edu.au">p.martin-lynch@murdoch.edu.au</a></td>
<td>9360 2519</td>
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### Handy Websites

- Faculty Student Administration: [http://www.murdoch.edu.au/fsa](http://www.murdoch.edu.au/fsa)
- Guild of Students: [http://guild.murdoch.edu.au](http://guild.murdoch.edu.au)
- Murdoch International: [http://www.international.murdoch.edu.au](http://www.international.murdoch.edu.au)
- Parking and Transport: [http://www.murdoch.edu.au/index/students/P&T](http://www.murdoch.edu.au/index/students/P&T)
- Unit coordinator details: [http://www.murdoch.edu.au/index/units](http://www.murdoch.edu.au/index/units)