

Engineering Technology - Course Outline

ENGR 101: 2013 Trimester 2

This document sets out the workload and assessment requirements for ENGR 101. It also provides contact information for staff involved in the course. If the contents of this document are altered during the course, you will be advised of the change by an announcement in lectures and/or on the course web site. A printed copy of this document is held in the School Office.

Objectives

By the end of the course, students should have:

1. Gained an understanding of fundamental principles underlying Engineering, especially electronic, mechatronic, networked and software systems (BE graduate attributes 3(a)).
2. Gained experience in working within a team, including breaking up and allocating tasks, managing a team, and working with other people to achieve a defined task (BE graduate attributes 2(a), 2(b) and 3(d)).
3. Practiced communication through explaining what they have done in coursework and reasons for it with their peers and others (BE graduate attribute 2(b)).
4. Developed an understanding of engineering ethics and professionalism (BE graduate attribute 1(a)).
5. Demonstrated creative and critical thinking through the design, implementation and testing of systems to solve real-world problems (BE graduate 3(b)).
6. Gained confidence in dealing with computers based on experience of building, configuring, installing and testing a modern operating system (BE graduate attributes 3(a) and 3(d)).
7. Gained an understanding of the issues of networks. This includes security issues and to be able to configure machines and systems to use networks safely (BE graduate attributes 3(a) and 3(d)).

Textbook

There is a custom textbook for ENGR 101. Titled ENGR101: Engineering Technology, compiled from many McGraw Hill textbooks. It covers important information for ENGR 101 that may be assessed in the tests and the exam. It has also has additional information that is not examinable in this course because it is intended to be a fundamental resource throughout a student's degree containing much useful information about many aspects of engineering.

We suggest you obtain a copy. Arguably, it contains too much information and is too good value for money - thus do not be put off by its size! It is designed to stimulate interest in engineering as well as being comprehensive and directly useful for this course.

You will find many useful resources in the library and you are encouraged to seek out extra information as appropriate.

Lectures and Tutorials

A list of lecture topics, laboratories and assignment due dates is available online on the Moodle system Topics include: Binary numbers , Negative binary numbers, Logic Computer Architectures, Study skills, Boolean design, Ipenz: professionalism, Adders, ALU, Writing skills, Networking, Internet, Software Quality Decision-making techniques, Presentation skills, Encoding Compression and encryption, Testing and debugging, Brainstorming / mind mapping, Compilers, Ethics, Plagiarism and responsibility, Operating systems, Design methods, Evaluation and Test, Engineers without Borders, Systems & feedback, Signals, Bloom's Taxonomy + Knowing you're correct, Numeracy & Modelling, Sustainability and reliability.

Lecture & Tutorial Times:

There are four lecture sessions per week. The first three are regular lectures; the fourth addresses planning for the laboratories, tutorials, and information about the course. It is important to attend all the lectures.

- Mon 1510 - 1600 Laby: LB LT118
- Tue 1510 - 1600 Laby: LB LT118
- Wed 1510 - 1600 Hunter: HU LT119
- Tue 1000-1050 Alan McDiarmid: AMLT105

Lectures are in the period 15 Jul – 23 Aug and 9 Sept - 18 Oct 2013

Tutorials may occasionally be held during normal lecture times. Additional tutorials may also be held in preparation for tests and the examination. The times for these extra tutorials will be announced in lectures.

Laboratories

You are required to attend a two-hour laboratory in CO 145 once every week including the introduction in week one.

You must sign in to a particular laboratory session during week one and you must attend that session throughout the course. Lab sign in will be done from Wednesday 10th July via the [electronic sign in system](#) and will be completed by Tuesday 15th July, so that groups can be confirmed in Cotton 145 and any conflicts resolved. Note the laboratory slots are often first-come, first served so please register early. [See the web site for details](#). In your first session you will be assigned to a table group, and you must remain in that table group throughout the course. For any problems with laboratories, please contact [Arthur Roberts](#) who is the Bachelor of Engineering technician in charge of the laboratory. If you are unable to attend your assigned laboratory due to illness or other extraordinary circumstances, again contact [Arthur Roberts](#) as soon as possible.

As part of the laboratory work during the first half of the course, you will be expected to attend a session on 5-6:30 p.m. Wednesday 14th of August. The location will be announced closer to the date.

The laboratories in the first half of the course are computer based. If you have access to a computer outside the labs, you may use it to work on the laboratory assignments, but you will need to acquire your own software. Note that you must still attend the laboratory session.

Please note that we do not have the resources to provide assistance if you have difficulties with a computer at home -- the tutors can only answer questions about the laboratories and the workstations in the laboratories. Note also that we cannot offer you any help with choosing, setting up, or fixing your own computer system, other than the general advice that we provide on the website.

School of Engineering and Computer Science

The School office is located on level three of the Cotton Building ([Cotton 358](#)).

Staff

The course organiser for ENGR 101 is [Will Browne](#). The lecturers for the course are [Will Browne](#), [Andy Linton](#), [Aaron Chen](#) and [Ryan Chard](#). Their contact details as of the start of the course are listed below.

- [Will Browne](#)
- [Cotton 341](#)
- +64 4 463 5233 extension 8489
- will.browne@ecs.vuw.ac.nz

- [Aaron Chen](#)
- [Cotton 330](#)
- +64 4 463 5114
- aaron.chen@ecs.vuw.ac.nz

- [Andy Linton](#)
- [Cotton 331](#)
- Andy.Linton@ecs.vuw.ac.nz

- [Ryan Chard](#)
- [Cotton 351](#)
- ryan.chard@ecs.vuw.ac.nz

[Arthur Roberts](#) is in charge of the day to day running of the laboratories. His contact details are:

- [Arthur Roberts](#)
- [Cotton 145](#)
- +64 4 463 6750
- Arthur.Roberts@ecs.vuw.ac.nz

Announcements and Communication

The main means of communication outside of lectures will be the [Moodle](#). There you will find, among other things, this document, the lecture schedule, assignment handouts, and the [ENGR 101 Forum](#). The forum is a web-based bulletin board system. Questions and comments can be posted to the forum, and staff will read these posts and frequently respond to them.

Group Work

There will be group work in this course during parts of the laboratory work and Autonomous Vehicle Challenge.

Workload

In order to maintain satisfactory progress in ENGR 101, you should plan to spend an average of at least 12 hours per week on this paper. A plausible and approximate breakdown for these hours would be:

- Lectures: 4 hours
- Laboratories: 2 hours
- Reading and preparation: 2 hour
- Assignments and prework for laboratories: 3 hours

Note this is a weekly average and assignments are fortnightly, so a good student would expect to spend four hours on an assignment plus relevant reading and preparation if necessary. Studying for exam and test is very important and necessary during the midtrimester break and study week, with at least 30 hours in total recommended.

Assessment

Assessment for the ENGR101 is based on

- five written assignments,
- five laboratory assignments,
- the Autonomous Vehicle Challenge (AVC),
- two tests,
- the exam.

Written Assignments

There will be five written assignments. The purpose of the assignments is to help you to learn the material in the course. They are worth an important fraction of the assessment and experience shows that those not making a good attempt at the assignments often do poorly in tests and the exam. Assignments will assess students' mastery of the technical material in the course (Objective 1). The assignments will require some written answers to aid the development of good written communication skills (Objective 3).

The written assignments will be made available via the [Moodle website](#) at least a week before the due date. You should check each assignment for submission details, as they will require electronic submission in PDF format only [note: hard copy submission is not allowed as we cannot trace submissions]. Before the assignment's due date you may resubmit as many times as you wish, but the most recent submission of a file will always overwrite previous submissions.

The due dates for the assignments are due at 5pm on Wednesdays:

- Assignment 1: 24th July
- Assignment 2: 7th August
- Assignment 3: 21th August
- Assignment 4: 18th September
- Assignment 5: 2nd October

You must submit assignments as PDF files. Other formats are not acceptable and will result in a zero mark - **Do not** use a proprietary file format such as .doc or .docx. We may use an automated system, e.g. TurnItIn, to check all submitted work in order to identify students submitting plagiarised work.

Model solutions to the assignments are generally posted after the assignment deadline, so that you can review and assess your own work. Comparing your work to the provided solutions is an important part of the learning. Note that this also means that assignments submitted after the solutions are posted will not generally be marked, unless you have made prior arrangements on the basis of exceptional circumstances with the course coordinator.

Laboratory Assignments.

Laboratories in the first part of the trimester will be based around a series of five computer based laboratory assignments. These laboratories will focus on practical computing skills (Objectives 6 and 7). This will be assessed primarily through brief written laboratory reports. For each of the five laboratory assignments, you will need to:

- complete the laboratory prework (marked in the laboratory, so must be completed prior to attending) [no prework necessary for week one];
- attend the laboratory session
- submit a laboratory report. (The due date for each report is the beginning of the next lab, or 6 days, 22 hours after the end of the laboratory session.)

Laboratory reports are required for all laboratories and are part of the mandatory course requirements.

Your laboratory assignments will be marked according to the following guidelines:

- 0: not attended
- 0-50: attended, but incomplete laboratory report and no prework.

- 50-59: attended but incomplete/poor prework and/or laboratory report
- 60-74: attended with prework and wrote a good laboratory report
- 75+: attended with prework and wrote an excellent laboratory report

Laboratories in the second part of the trimester will consist of a Mechatronics design exercise to build an autonomous vehicle over a 6-week group project exercise. Details will be announced in the first week after the midtrimester break. These laboratories will focus on the development of teamwork and oral communication skills (Objectives 2 and 3). Assessment will be based on the performance of the autonomous vehicle and the supporting laboratory report, and the technical quality of the resulting engineering designs (Objective 5).

The hand in for the autonomous vehicle report is Friday 5 PM 11th of October. This is set deliberately before the final competition to ensure that all testing is done prior to demonstrating the robot. Furthermore, it is considered preferable to end the challenge on an event rather than a written submission. The autonomous vehicle report is also part of the mandatory course requirements.

Tests and Exams

There are two Tests and an Exam for ENGR101. The tests and exam will assess students' mastery of both the course's technical content (Objective 1) and of engineering professionalism and ethics (Objective 4).

The tests will be held during the normal lecture times on Wednesday 24th July and Monday 16th September. If you cannot attend a test or have special requirements, please contact the [Will Browne](#) as soon as possible to make alternate arrangements

The [timetable for final examinations](#) will be available from the University web site and will be posted on a notice board outside the faculty office. The final examination will be three hours long. Paper non-English to English dictionaries will be permitted in the examination. The examination period for trimester 2 is 25 October - 16 November.

Unless we explicitly state that something is not examinable, all material presented in lectures could appear on the final exam. In particular, do not assume that something in the lectures and laboratories is not examinable because it does not appear in the printed lecture notes [Note: not all of the content in the course textbook is examinable].

Grade Computation:

Your grade for ENGR 101 will be determined based on the following assessment weightings:

<u>Item</u>	<u>Weight</u>
Written assignments (5)	15% (3% each)
Laboratory assignments (1...5)	15% (3% each)
AVC (report & robot)	10%
Tests (2)	10% (4% and 6% respectively)
Final Examination	50%

Work submitted late will be subject to a penalty of 10% of the total mark per day. However, no work will be accepted once the solutions have been posted (and we may choose to post the solutions immediately after the due date). All submissions are via the [Moodle system](#).

Bachelor of Engineering students should be aware that copies of their assessed work may be retained for inspection by an accreditation panel.

Mandatory Requirements

1. The practical skills involved in the laboratories are an essential component of ENGR 101. The assignments relate to the theory aspects of the course and are essential for a strong foundation in engineering (as well as preparing for the terms tests and final examination). There is a mandatory requirement that you attempt the work in the laboratories and assignments. To fulfil this requirement you must submit reasonable attempts for at least 8 of the written assignments and the first five laboratories. You must also submit your AVC report. Students who do not meet the mandatory requirements will receive a failing grade. Therefore, you should attempt all the laboratories - this includes handing in a reasonable attempt at the report. There will be an opportunity during the first week of the second part of the trimester to make up an earlier laboratory session that you were unable to attend. Please see [Arthur Roberts](#) as soon as you become aware that you need to use this facility. Students who have missed assignments should contact the lecturer as soon as possible to make alternative arrangements to meet the mandatory requirements - this will require you to complete an additional assignment that will meet the mandatory requirement if satisfactory, but will carry zero marks.
2. You must also get at least a **D** in the final examination (40% minimum).

Passing ENGR 101

To pass ENGR 101, a student must satisfy mandatory requirements and gain at least a **C** grade overall (50% minimum). Remember that this course is fundamental to engineering, and also that entry to the rest of the BE programme requires a 'B' average for your Part I courses; it is important that you aim for an 'A' grade.

Withdrawal

The last date for withdrawal from ENGR 101 with entitlement to a refund of tuition fees is Friday 26 July 2013. The last date for withdrawal without being regarded as having failed the course is Friday 27 September 2013 -- though later withdrawals may be approved by the Dean in special circumstances.

Plagiarism: Working Together and Plagiarism

We encourage you to discuss the principles of the course and assignments with other students, to help and seek help with programming details, problems involving the lab machines. However, any work you hand in must be your own work.

The [School policy on Plagiarism](#) (claiming other people's work as your own) is available from the course home page. Please read it. We will penalise anyone we find plagiarising, whether from students currently doing the course, or from other sources. Students who knowingly allow other students to copy their work may also be penalised. If you have had help from someone else (other than a tutor), it is always safe to state the help that you got. For example, if you had help from someone else in writing a component of your code, it is not plagiarism as long as you state (eg, as a comment in the code) who helped you in writing the method.

In ENGR 101, we may use an automated system, e.g. TurnItIn, to check all submitted work.

Use of Turnitin.com

Student work provided for assessment in this course may be checked for academic integrity by the electronic search engine <http://www.turnitin.com>. Turnitin is an online plagiarism prevention tool which compares submitted work with a very large database of existing material. Turnitin will retain a copy of submitted material on behalf of the University for detection of future plagiarism, but access to the full text of submissions is not made available to any other party.

Rules & Policies

Find key dates, explanations of grades and other useful information at <http://www.victoria.ac.nz/home/study>.

Find out about academic progress and restricted enrolment at <http://www.victoria.ac.nz/home/study/academic-progress>.

The University's statutes and policies are available at <http://www.victoria.ac.nz/home/about/policy>, except qualification statutes, which are available via the Calendar webpage at <http://www.victoria.ac.nz/home/study/calendar> (See Section C).

Further information about the University's academic processes can be found on the website of the Assistant Vice-Chancellor (Academic) at <http://www.victoria.ac.nz/home/about/avcacademic>

All students are expected to be familiar with the following regulations and policies, which are available from the school web site:

[Grievances](#)

[Student and Staff Conduct](#)

[Meeting the Needs of Students with Disabilities](#)

[Student Support](#)

[Academic Integrity and Plagiarism](#)

[Dates and Deadlines including Withdrawal dates](#)

[School Laboratory Hours and Rules](#)

[Printing Allocations](#)

[Expectations of Students in ECS courses](#)

The School of Engineering and Computer Science strives to anticipate all problems associated with its courses, laboratories and equipment. We hope you will find that your courses meet your expectations of a quality learning experience.

If you think we have overlooked something or would like to make a suggestion feel free to talk to your course organiser or lecturer.

[Course Outline as PDF](#)
