Acknowledgement of Country

We respectfully acknowledge the Indigenous Elders, custodians, their descendants and kin of this land past and present.
Syllabus
An introduction to basic structural mechanics, geo-mechanics, loadings on buildings. Design of foundation and basic structural elements.

Introduction
This unit will provide students with an introduction to basic structural principles and structural design. Students will learn about loads on buildings and how to apply these loads in simple calculations for early structural design. The design focus will be on commonly used building materials in simple structural situations.

Unit Learning Outcomes
All graduates of Curtin University achieve a set of nine graduate attributes during their course of study. These tell an employer that, through your studies, you have acquired discipline knowledge and a range of other skills and attributes which employers say would be useful in a professional setting. Each unit in your course addresses the graduate attributes through a clearly identified set of learning outcomes. They form a vital part in the process referred to as assurance of learning. The learning outcomes tell you what you are expected to know, understand or be able to do in order to be successful in this unit. Each assessment for this unit is carefully designed to test your achievement of one or more of the unit learning outcomes. On successfully completing all of the assessments you will have achieved all of these learning outcomes.

Your course has been designed so that on graduating we can say you will have achieved all of Curtin’s Graduate Attributes through the assurance of learning process in each unit.

<table>
<thead>
<tr>
<th>On successful completion of this unit students can:</th>
<th>Graduate Attributes addressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Identify the principles of basic structural mechanics</td>
<td></td>
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<tr>
<td>2. Apply core principles to prepare a simple structural design</td>
<td></td>
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<tr>
<td>3. Analyse the stability of a simple structural design</td>
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<tr>
<td>4. Select appropriate forms of structural design that meet the requirements of best practice</td>
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</tbody>
</table>

Curtin’s Graduate Attributes

<table>
<thead>
<tr>
<th>Apply discipline knowledge</th>
<th>Thinking skills (use analytical skills to solve problems)</th>
<th>Information skills (confidence to investigate new ideas)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication skills</td>
<td>Technology skills</td>
<td>Learning how to learn (apply principles learnt to new situations)</td>
</tr>
<tr>
<td>International perspective (value the perspectives of others)</td>
<td>Cultural understanding (value the perspectives of others)</td>
<td>Professional Skills (work independently and as a team)</td>
</tr>
</tbody>
</table>

Find out more about Curtin’s Graduate attributes at the Office of Teaching & Learning website: ctl.curtin.edu.au

Learning Activities
The unit is a mixture of lectures, and interactive discussions and case studies. Students are strongly encouraged to actively participate in all classroom activities and/or online forums by sharing their thoughts and experiences as part of the student-centred learning process. The learning activities for this unit are all available online and are arranged into weekly modules. Each module consists of a range of resources including:

- The module content – this is provided to you as Word or PDF documents;
• Readings – you will need to refer to your text book as well as a number of journal articles and book chapters which are available online through the Curtin Library E-Reserve system;

• Practice Questions – at the end of each module it is suggested you complete the associated practice questions, you are then encouraged to discuss these with your fellow students on the discussion board. These questions will go a long way in preparing you for the exam;

• Discussion board participation – communicate with your Unit Tutor and other students in your class through the discussion board;
• Collaborate Sessions - attendance to these sessions will aid students in further understanding unit material;

• Construction Foundation Maths (CFM) - a maths based BB unit has been added to everyones BB units. This unit is designed to assist students in understanding basic math principles and is available for revision at any time.

Students will have access to these materials via a Blackboard site for this unit.

As a university degree program, there is an expectation for students to undertake a reasonable amount of self-directed learning to supplement the material provided. The notes alone cannot be considered sufficient knowledge to pass this unit and additional self directed learning will be required reading (i.e. from the recommended reading list), reading professional journals, discussion board activities with peers and other industry personnel. The Program Calendar provides the broad topics that are covered in the unit.

Learning Resources
Library Reserve
There are resources for this unit in the library Reserve collection. To access these resources, please click on the following link:
http://link.library.curtin.edu.au/primo/course?BLDG1008

Essential texts
The required textbook(s) for this unit are:


Other resources
You do not have to purchase the following book, but they are listed as suggested additional readings in this unit:


Further, at the end of each week’s module a number of required and additional readings are listed. These have come from a diverse range of sources to enhance your learning. You are strongly encouraged to access and read these materials that will be available to you electronically through the Curtin Library.
Assessment

Assessment schedule

<table>
<thead>
<tr>
<th>Task</th>
<th>Value %</th>
<th>Date Due</th>
<th>Unit Learning Outcome(s) Assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test</td>
<td>20 percent</td>
<td>Week: End of weeks 4 &amp; 7, Day: Sunday, Time: Midnight</td>
<td>1,2</td>
</tr>
<tr>
<td>Case study</td>
<td>30 percent</td>
<td>Week: End of week 10, Day: Sunday, Time: Midnight</td>
<td>2,3,4</td>
</tr>
<tr>
<td>Examination</td>
<td>50 percent</td>
<td>Week: Exam week, Day: TBA, Time: TBA</td>
<td>1,2,3,4</td>
</tr>
</tbody>
</table>

Detailed information on assessment tasks

1. **Assessment 1: Test(s) (20%)**

   **Due: end of weeks 4 & 7**

   **Test 1A (10%)**
   **Due: end of week 4 (midnight Sunday)**

   **Test 1B (10%)**
   **Due: end of week 7 (midnight Sunday)**

   These tests comprise multiple choice/short answer online tests BlackBoard. They are closed book assessment and students will have a limited time to complete all questions. The aim of the tests is for students to gauge their level of understanding of the basic principles and equations for use in CME104 Structures and subsequent structures centred units. Each test will be based on the content of module notes to that point in the study period.

   Students are permitted to use a calculator and are encouraged to have a pen and paper ready to perform calculations in order to answer some questions.

   *Full details are available under the Assessment tab in Blackboard.*

2. **Assessment 2: Case Study (30%)**

   **Due: end of week 10 (midnight Sunday)**

   As part of their overall study for this unit, students will undertake interactive discussions on the structural design of the buildings. Guidance will be provided through the Discussion Boards both with the tutor and with other students.

   The objective of the Structures Case Study Assessment is to encourage students to further reflect individually on the content of modules so that they fully understand the subject. It is designed to encourage students to undertake further research and learning in support of module material and principles provided are to apply their new knowledge to specific situations.

   Submission details will be included in the Assessment Details and must be strictly in accordance with the designated format provided in those details on Blackboard for Assessment 2.
Students will be required to submit an individual professionally formatted, structured and referenced report in accordance with the requirements outlined in APC100 Academic Professional Writing (or equivalent units – for example CME102) and other units in this program. 

Full details are available under the Assessment tab in Blackboard.

3. **Assessment 3: Examination (50%)**

**Due: TBA**

The content of this exam will be based on the materials from the whole unit. Further details of its structure, question type, duration etc. will be made available closer to the time.

In order to sit the exam, you must contact OUA and arrange where you will undertake the exam. Further details of the examination process can be found on the OUA website: [https://www.open.edu.au/exams](https://www.open.edu.au/exams).

*Please note Curtin University is not involved in the exam process and neither your Tutor or your Unit Coordinator can help with any exam queries.*

All details can be found on the OUA site.

**Pass requirements**

An overall grade of 50% is required to pass to this unit, provided the following has been adhered to.

Submission of assignment work is compulsory and a student cannot pass in this unit without having submitted all assessment tasks. Failure to complete all assessments will result in a Fail-Incomplete grade even if the overall mark is more than 50%.

**Fair assessment through moderation**

Moderation describes a quality assurance process to ensure that assessments are appropriate to the learning outcomes, and that student work is evaluated consistently by assessors. Minimum standards for the moderation of assessment are described in the Assessment and Student Progression Manual, available from [policies.curtin.edu.au/policies/teachingandlearning.cfm](policies.curtin.edu.au/policies/teachingandlearning.cfm)

**Late assessment policy**

This ensures that the requirements for submission of assignments and other work to be assessed are fair, transparent, equitable, and that penalties are consistently applied.

1. All assessments students are required to submit will have a due date and time specified on this Unit Outline.
2. Students will be penalised by a deduction of ten percent per calendar day for a late assessment submission (eg a mark equivalent to 10% of the total allocated for the assessment will be deducted from the marked value for every day that the assessment is late). This means that an assessment worth 20 marks will have two marks deducted per calendar day late. Hence if it was handed in three calendar days late and given a mark of 16/20, the student would receive 10/20. An assessment more than seven calendar days overdue will not be marked and will receive a mark of 0.

**Assessment extension**

A student unable to complete an assessment task by/on the original published date/time (eg examinations, tests) or due date/time (eg assignments) must apply for an assessment extension using the Assessment Extension form (available from the Forms page at [students.curtin.edu.au/administration/](students.curtin.edu.au/administration/)) as prescribed by the Academic Registrar. It is the responsibility of the student to demonstrate and provide evidence for exceptional circumstances beyond the student’s control that prevent them from completing/submitting the assessment task.

The student will be expected to lodge the form and supporting documentation with the unit coordinator before the assessment date/time or due date/time. An application may be accepted up to five working days after the date or due date of the assessment task where the student is able to provide an acceptable explanation as to why he or she
was not able to submit the application prior to the assessment date. An application for an assessment extension will not be accepted after the date of the Board of Examiners’ meeting.

**Deferred assessments**
If your results show that you have been granted a deferred assessment you should immediately check OASIS for details.

Deferred examinations/tests will be held from 05/10/2016 to 27/11/2016. Notification to students will be made after the Board of Examiners’ meeting via the Official Communications Channel (OCC) in OASIS.

**Supplementary assessments**
Supplementary assessments, if granted by the Board of Examiners, will have a due date or be held between 05/10/2016 and 27/11/2016. Notification to students will be made after the Board of Examiners’ meeting via the Official Communications Channel (OCC) in OASIS.

It is the responsibility of students to be available to complete the requirements of a supplementary assessment. If your results show that you have been granted a supplementary assessment you should immediately check OASIS for details.

**Reasonable adjustments for students with disabilities/health circumstances likely to impact on studies**
A Curtin Access Plan (CAP) is a document that outlines the type and level of support required by a student with a disability or health condition to have equitable access to their studies at Curtin. This support can include alternative exam or test arrangements, study materials in accessible formats, access to Curtin’s facilities and services or other support as discussed with an advisor from Disability Services (disability.curtin.edu.au). Documentation is required from your treating Health Professional to confirm your health circumstances.

If you think you may be eligible for a CAP, please contact Disability Services. If you already have a CAP please provide it to the Unit Coordinator at the beginning of each semester.

**Referencing style**
The referencing style for this unit is Chicago.

More information can be found on this style from the Library web site: http://libguides.library.curtin.edu.au/referencing.

**Copyright**
© Curtin University. The course material for this unit is provided to you for your own research and study only. It is subject to copyright. It is a copyright infringement to make this material available on third party websites.
Academic Integrity (including plagiarism and cheating)

Any conduct by a student that is dishonest or unfair in connection with any academic work is considered to be academic misconduct. Plagiarism and cheating are serious offences that will be investigated and may result in penalties such as reduced or zero grades, annulled units or even termination from the course.

Plagiarism occurs when work or property of another person is presented as one’s own, without appropriate acknowledgement or referencing. Submitting work which has been produced by someone else (e.g. allowing or contracting another person to do the work for which you claim authorship) is also plagiarism. Submitted work is subjected to a plagiarism detection process, which may include the use of text matching systems or interviews with students to determine authorship.

Cheating includes (but is not limited to) asking or paying someone to complete an assessment task for you or any use of unauthorised materials or assistance during an examination or test.

From Semester 1, 2016, all incoming coursework students are required to complete Curtin’s Academic Integrity Program (AIP). If a student does not pass the program by the end of their first study period of enrolment at Curtin, their marks will be withheld until they pass. More information about the AIP can be found at: https://academicintegrity.curtin.edu.au/students/AIP.cfm

Refer to the Academic Integrity tab in Blackboard or academicintegrity.curtin.edu.au for more information, including student guidelines for avoiding plagiarism.

Information and Communications Technology (ICT) Expectations

Curtin students are expected to have reliable internet access in order to connect to OASIS email and learning systems such as Blackboard and Library Services.

You may also require a computer or mobile device for preparing and submitting your work.

For general ICT assistance, in the first instance please contact OASIS Student Support: oasisapps.curtin.edu.au/help/general/support.cfm

For specific assistance with any of the items listed below, please contact The Learning Centre: life.curtin.edu.au/learning-support/learning_centre.htm

- Using Blackboard, the I Drive and Back-Up files
- Introduction to PowerPoint, Word and Excel
Additional information

The online unit materials comprise of the following learning resources, all of which can be accessed from the unit homepage in BlackBoard:

<table>
<thead>
<tr>
<th>Contacts</th>
<th>The contact details for your <strong>Unit Coordinator</strong> and <strong>Unit Tutor</strong> can be quickly accessed from this section. These details are also available in this Unit Outline.</th>
</tr>
</thead>
</table>
| Unit Outline (this document) | The **Unit Outline** (this document) gives you important information about the general aims of the unit, texts and references, and details about the assessment, including allocation of marks, grading criteria and submission dates.  
You should make this Unit Outline the first document that you read for the unit as it sets out the obligations to which you and the University agree. Read it carefully, paying particular attention to assessment dates and submission instructions. The dates should be transferred into your diary in the first week of the study period. |
| Unit Materials | The majority of your study materials for this unit are found within the **Unit Materials** section of the Unit’s Blackboard site.  
The unit materials are arranged into weekly modules and include the content for each module along with references to the textbook and e-Reserve readings, links to i-lectures (audio) and any other links to additional resources and websites. |
| Assessment     | In the **Assessment** section you will find information about how to submit your assessments.  
You will also find details of your assessment (the same as that contained within this Unit Outline). Please submit your assessments from within this menu item. |
| My Grades      | Once your assessments have been graded, your marks and feedback will be available in the **My Grades** section. |
| Study Period Calendar | Please be aware that the Open Universities Australia study period is different to a standard semester.  
You might like to print out a copy of the OUA **Study Period Calendar** and highlight the study period in which you are studying.  
This will help you to keep track of where you should be up to week by week and when your assessments are due. |
| Discussion Board | From time to time, your Unit Coordinator or Tutor will use the online discussion board to post items of interest. These may include:  
- Items for discussion or comment  
- Reminders for assignments due  
- Study tips  
- Frequently asked questions and answers  
- Common errors in assignments (after marking)  
- Links to new texts or websites as they become available. |
Email

You are also encouraged to use the online discussion board to introduce yourself to other students and develop online study peers with whom you can discuss assignments or share experiences. This is also where you will communicate with your tutor and ask them questions in regard to study materials and/or assessment tasks.

You might like to go to the discussion board now and introduce yourself.

| Email | Use this menu item to email others in the unit. You can choose to email all or select who you send the email to. |

Email

As an enrolled student at Curtin you are automatically given an email address. It is a free web-based e-mail - similar to Yahoo!® and Hotmail. The service is accessible through OASIS and an account is automatically generated for you when you are admitted to the University.

For help on how to use the student email service, follow this link:


A guide for email etiquette is available online at:


If you do not wish to use this e-mail address, please go into it and set an automatic forward to your preferred e-mail address.

This Curtin e-mail address allows the Unit Coordinator to send messages to all students very easily, so it is important to set up this forwarding to your preferred e-mail address.

Online Discussions

Please use the discussion board to communicate with your Unit Coordinator, tutor and other students in your unit. If you have any general questions relating to the content of the unit, or your assessments, please post them on the discussion board.

The discussions you will have with your colleagues and tutor could greatly enhance your understanding of the topic.

Guidelines for Submission:

Submission is required through the FLECS Blackboard site (no cover sheet required) – please refer to the Assessment menu within Blackboard for full details and instructions.

If you need to submit your assignment through Distance and Open Learning it must be accompanied by an Assignment Attachment Form (or cover page). Please refer to the Assessment menu within Blackboard for further details for submission in this manner.

Please note that Assignments must not be submitted direct to your Unit Coordinator or Tutor.

All assignments must be received by the deadline stated in the unit outline. Deadline extensions will not be granted without proof of illness or hardship. Contact your Unit Coordinator to discuss.

Assignment Marking

Students should allow a 2 week marking turnaround for written assignments.

Telephone Contacts:
If you have a query relating to administrative matters such as:-

- requests for deferment of study
- difficulties with accessing online study materials
- obtaining assessment results

please contact your Unit Coordinator or:

**SOBE OUA Office**
Curtin University of Technology
GPO Box U 1987
Perth. WA. 6845.

Telephone: 08 9266 9664
Fax: 08 9266 2777.

Students may telephone 08 9266 9664 at any time and leave a message. The telephone is staffed Monday to Friday between 8am and 4.45pm (Western Standard Time).

**Enrolment**

It is your responsibility to ensure that your enrolment is correct - you can check your enrolment through the eStudent option on OASIS, where you can also print an Enrolment Advice.

**Student Rights and Responsibilities**

It is the responsibility of every student to be aware of all relevant legislation, policies and procedures relating to their rights and responsibilities as a student. These include:

- the Student Charter
- the University's Guiding Ethical Principles
- the University’s policy and statements on plagiarism and academic integrity
- copyright principles and responsibilities
- the University's policies on appropriate use of software and computer facilities

Information on all these things is available through the University’s "Student Rights and Responsibilities" website at: students.curtin.edu.au/rights.

**Student Equity**

There are a number of factors that might disadvantage some students from participating in their studies or assessments to the best of their ability, under standard conditions. These factors may include a disability or medical condition (e.g. mental illness, chronic illness, physical or sensory disability, learning disability), significant family responsibilities, pregnancy, religious practices, living in a remote location or another reason. If you believe you may be unfairly disadvantaged on these or other grounds please contact Student Equity at eesj@curtin.edu.au or go to http://eesj.curtin.edu.au/student_equity/index.cfm for more information.

You can also contact Counselling and Disability services: http://www.disability.curtin.edu.au or the Multi-faith services: http://life.curtin.edu.au/health-and-wellbeing/about_multifaith_services.htm for further information.

It is important to note that the staff of the university may not be able to meet your needs if they are not informed of your individual circumstances so please get in touch with the appropriate service if you require assistance. For general wellbeing concerns or advice please contact Curtin's Student Wellbeing Advisory Service at: http://life.curtin.edu.au/health-and-wellbeing/student_wellbeing_service.htm
Recent unit changes

Students are encouraged to provide unit feedback through eVALUate, Curtin's online student feedback system. For more information about eVALUate, please refer to evaluate.curtin.edu.au/info/.

To view previous student feedback about this unit, search for the Unit Summary Report at https://evaluate.curtin.edu.au/student/unit_search.cfm. See https://evaluate.curtin.edu.au/info/dates.cfm to find out when you can eVALUate this unit.

Recent changes to this unit include:

- Changes to assessment due dates
- Changes made to online quiz questions.

Student feedback highlighted difficulty understanding some of the concepts of Structures as well as material in the later more complex modules. The unit does undoubtedly require a good understanding of basic math principles and every effort has been made to provide additional resources to assist students in these principles.

Cross reference with the Construction Foundation Maths (CFM) unit is also strongly encouraged and similarly the CFM unit has been reviewed to remove some highlighted typos etc. by former students.
<table>
<thead>
<tr>
<th>WEEK</th>
<th>MODULE:</th>
<th>ASSESSMENTS DUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Introduction to Basic Structural Principles: Part I</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Introduction to Basic Structural Principles: Part II</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Shape of Structural Components</td>
<td></td>
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<tr>
<td>4.</td>
<td>Behaviour and Properties of Materials</td>
<td>Assessment 1A - Test (10%)</td>
</tr>
<tr>
<td>5.</td>
<td>Equations of Statistics, Movements and Basic Trigonometry</td>
<td></td>
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<tr>
<td>7.</td>
<td>Force Systems: Part II</td>
<td>Assessment 1B - Test (10%)</td>
</tr>
<tr>
<td>8.</td>
<td>Pin Jointed Structures</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Beams: Part I</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Beams: Part I</td>
<td>Assessment 2 - Case Study (30%)</td>
</tr>
<tr>
<td>11.</td>
<td>Columns</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>Summary &amp; Revision</td>
<td></td>
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<tr>
<td>13.</td>
<td>Study Week</td>
<td></td>
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<tr>
<td>14.</td>
<td>Exam Week</td>
<td>Assessment 3 - Examination (50%)</td>
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</tbody>
</table>