UNIT CONTENT

This unit provides an introduction to the analysis of two-dimensional determinate and indeterminate beam, truss and frame structures under the actions of external loading, thermal loading, and prescribed displacements, using the force (flexibility) and displacement (stiffness) methods, and the matrix stiffness method. Focus is on the elastic behaviour of structures. The unit comprises 39 lectures and 13 tutorial sessions.

EXPECTED OUTCOMES

It is anticipated that students who successfully complete this unit will be able to:

- Understand the role of analysis in the design process
- Analyse statically determinate and indeterminate bars, trusses, beams and rigid jointed frames
- Analyse beams and rigid jointed frames with internal hinges
- Analyse trusses, beams and rigid jointed frames under the action of thermal loading
- Include shear deformation in the analysis of beams and rigid jointed frames
- Include prescribed displacements in the analysis of trusses, beams and rigid jointed frames
- Communicate the results of an analysis by constructing bending moment, shear force and axial force diagrams
- Understand how two-dimensional analysis procedures may be extended to three-dimensions

ASSESSMENT

Assessment consists of compulsory weekly assignments, a mid-semester test and a final examination. The assignments provide continuous assessment and address the skills associated with gaining technical competence in the analysis of two-dimensional structures. The assignments, mid-semester test and final examination test students' knowledge of fundamentals and their ability to formulate and solve a range of problems in the analysis of structures.
ASSESSMENT MECHANISM

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Contribution</th>
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<tbody>
<tr>
<td>Assignments based on the lectures; accessed via the World Wide Web. For</td>
<td>15%</td>
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<tr>
<td>details of the assessment and marking procedure refer to:</td>
<td></td>
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<tr>
<td>1-hour mid-semester test (Semester week 7)</td>
<td>20%</td>
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<tr>
<td>2-hour final examination at the end of semester one</td>
<td>65%</td>
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RECOMMENDED READING


IMPORTANT INFORMATION

- Final grading of the unit is based on semester one only
- No supplementary examinations will be available for the unit
- Unit marks may be scaled in accordance with Faculty policy (see [http://www.ecm.uwa.edu.au/for/students/assess](http://www.ecm.uwa.edu.au/for/students/assess))
- Students should be aware of the University guidelines on Academic Misconduct (see [http://www.ecm.uwa.edu.au/for/students/plagiarism](http://www.ecm.uwa.edu.au/for/students/plagiarism))
- Students should be aware of the Faculty Policy for Appeals (see [http://www.ecm.uwa.edu.au/for/students/exams](http://www.ecm.uwa.edu.au/for/students/exams))
- Students should be aware of the Charter of Student Rights (see [http://www.secretariat.uwa.edu.au/home/policies/charter](http://www.secretariat.uwa.edu.au/home/policies/charter))