Acknowledgement of Country

We respectfully acknowledge the Indigenous Elders, custodians, their descendants and kin of this land past and present. The Centre for Aboriginal Studies aspires to contribute to positive social change for Indigenous Australians through higher education and research.
Syllabus

Introduction
This unit presents an overview of renewable energy sources and their engineering applications. The aim of this unit is to give students an introduction to renewable energy production, the drivers and barriers to its development and its inherent further value.

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.

On successful completion of this unit students can:

1. Discuss the current global and local energy consumption
2. Differentiate between renewable and non-renewable energy sources
3. Explain the need for renewable energy sources
4. Discuss the different types of renewable energy sources
5. Apply the engineering principles of renewable energy technologies to practical problems

Graduate Attributes addressed

<table>
<thead>
<tr>
<th>On successful completion of this unit students can:</th>
<th>Graduate Attributes addressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Discuss the current global and local energy consumption</td>
<td>☑️  ☑️  ☑️</td>
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<tr>
<td>2. Differentiate between renewable and non-renewable energy sources</td>
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<tr>
<td>3. Explain the need for renewable energy sources</td>
<td>☑️  ☑️</td>
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<tr>
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<td>☑️  ☑️</td>
</tr>
<tr>
<td>5. Apply the engineering principles of renewable energy technologies to practical problems</td>
<td>☑️  ☑️</td>
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Curtin’s Graduate Attributes

- Apply discipline knowledge
- Thinking skills (use analytical skills to solve problems)
- Information skills (confidence to investigate new ideas)
- Communication skills
- Technology skills
- Learning how to learn (apply principles learnt to new situations) (confidence to tackle unfamiliar problems)
- International perspective (value the perspectives of others)
- Cultural understanding (value the perspectives of others)
- Professional Skills (work independently and as a team) (plan own work)

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

Learning Activities
This unit is based on lectures and tutorials.

Learning Resources
Other resources
The required textbook(s) for this unit are:
Lecture materials including tutorials, are available on Blackboard.

Students are also encouraged to read further about the topics related to renewable and non-renewable energy.

Some articles on renewable energy are included on Blackboard for further reading. There is no set textbook for this course.

Other resources

Students are encouraged to read widely in this area – using media coverage, journal papers and industry reports to extend their knowledge on renewable energy.

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**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>Assignment</td>
<td>15 percent</td>
<td>Week: 9 Day: Friday Time: 23:00</td>
<td>1,2,3,4</td>
</tr>
<tr>
<td>Quizzes</td>
<td>10 percent</td>
<td>Week: 6 &amp; 14 Day: Friday Time: 23:00</td>
<td>4,5</td>
</tr>
<tr>
<td>Test</td>
<td>25 percent</td>
<td>Week: 11 Day: Tuesday Time: 14:00</td>
<td>1,2,3,4,5</td>
</tr>
<tr>
<td>Final Examination</td>
<td>50 percent</td>
<td>TBA</td>
<td>1,2,3,4,5</td>
</tr>
</tbody>
</table>

*Detailed information on assessment tasks*

1. **Group Assignment**
   - Will be confirmed in Tutorial 1.

2. **Online Quizzes**
   - Two online quizzes consisting of multiple choice and calculation questions. The first quiz will cover lectures 1 through to 5. The second quiz will cover lectures 9 and 10. The tutorial sessions will cover example problems that will be assessed in these online quizzes.

3. **Test**
   - *Closed book* assessment consisting of multiple choice, short answer and calculation questions from lectures 1 through to 8. All required formulas will be provided in the test paper.

4. **Final Examination**
   - *Closed book* assessment consisting of multiple choice, short answer and calculation questions from all lectures. All required formulas will be provided in the exam paper.

**Pass requirements**

You must score at least 50% in the group assignment and score an overall final mark of at least 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

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 (e.g. 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 (e.g. examinations, tests) or due date/time (e.g. assignments) must apply for an assessment extension using the Assessment Extension form (available from the Forms page at 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 18/07/2017 to 21/07/2017 . Notification to students will be made after the Board of Examiners’ meeting via the Official Communications Channel (OCC) in OASIS.

Supplementary assessments

Supplementary assessments are not available in this unit.

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 study period.
Referencing style
The referencing style for this unit is Chicago.
More information can be found on this style from the Library web site:

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. Assessments under investigation will not be given a mark until the matter is concluded. This may result in the unit grade being withheld or a grade of Fail Incomplete (F-IN) until a decision has been made by the Student Disciplinary Panel. This may impact on enrolment in further units/study periods.

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
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
- Values and Signature Behaviours
- 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:

Unit content has been updated from previous semester.
Program calendar

**Tuition Pattern:**
Two hours of lecture (Tuesday 14:00-16:00) and one hour of tutorial per week (Monday 08:00-09:00)

**Venue:**
Lecture 200A:220, Tutorial 203:101

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<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Type</th>
<th>Topic/Activity</th>
<th>Assessments</th>
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<tr>
<td>1</td>
<td>27-Feb</td>
<td>Tutorial</td>
<td>No tutorial</td>
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<tr>
<td></td>
<td>28-Feb</td>
<td>Lecture</td>
<td>L1: Why Renewables?</td>
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<td>7-Mar</td>
<td>Lecture</td>
<td></td>
<td></td>
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<td>3</td>
<td>13-Mar</td>
<td>Tutorial</td>
<td>Problem solutions and discussions</td>
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<td></td>
<td>14-Mar</td>
<td>Lecture</td>
<td>L3: Wind Energy</td>
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<td>20-Mar</td>
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<td>Problem solutions and discussions</td>
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<td>21-Mar</td>
<td>Lecture</td>
<td>L4: Hydro Energy</td>
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<td>Problem solutions and discussions</td>
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<td>28-Mar</td>
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<td>L5: Solar Energy</td>
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<td>3-Apr</td>
<td>Tutorial</td>
<td>Problem solutions and discussions</td>
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<td>4-Apr</td>
<td>Lecture</td>
<td>L6: Geothermal Energy</td>
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<td>8</td>
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<td>24-Apr</td>
<td>Tutorial</td>
<td>Problem solutions and discussions</td>
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<td>25-Apr</td>
<td>Lecture</td>
<td>L7: Bio Energy (iLecture only)</td>
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<td>1-May</td>
<td>Tutorial</td>
<td>Problem solutions and discussions</td>
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<td>2-May</td>
<td>Lecture</td>
<td>L8: Ocean Energy</td>
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<td>8-May</td>
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<td>Problem solutions and discussions</td>
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<td>9-May</td>
<td>Lecture</td>
<td>Test (Closed Book)</td>
<td>Test (L7-L8) on Tues 9-May 2-4pm</td>
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<td>12</td>
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<td>Tutorial</td>
<td>Test solutions</td>
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<td>16-May</td>
<td>Lecture</td>
<td>L9: Networks for Energy Distribution</td>
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<td>22-May</td>
<td>Tutorial</td>
<td>Problem solutions and discussions</td>
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<td>23-May</td>
<td>Lecture</td>
<td>L10: Energy Storage</td>
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<td>29-May</td>
<td>Tutorial</td>
<td>Problem solutions and discussions</td>
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<td>30-May</td>
<td>Lecture</td>
<td>L11: Review and Recap</td>
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<td><strong>Tuition free week</strong></td>
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