Unit Outline
314664 Advanced Electromagnetic and Potential Field Methods in Geophysics 433
Semester 1, 2013

Unit study package number: 314664
Mode of study: Internal
Tuition pattern summary: Lecture: 1 x 2 Hours Weekly
Computer Laboratory: 1 x 3 Hours Weekly
This unit contains a fieldwork component. Find out more at the fieldwork education website: (fieldworkeducation.curtin.edu.au)
Credit Value: 25.0
Pre-requisite units: Nil
Co-requisite units: Nil
Anti-requisite units: Nil
Result type: Grade/Mark
Approved incidental fees: Information about approved incidental fees can be obtained from our website. Visit fees.curtin.edu.au/incidental_fees.cfm for details.

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Learning Management System: Blackboard (lms.curtin.edu.au)
Acknowledgement of Country
We respectfully acknowledge the Indigenous Elders, custodians, their descendants and kin of this land past and present.

Syllabus

Introduction
Electromagnetic and potential field methods provide geophysical tools that are routinely applied for a broad range of exploration problems. The theory, applications and equipment design required for these methods are developed with examples.

Learning Outcomes
On successful completion of this unit students can:

<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>1</td>
<td>Evaluate a range of geophysical techniques applicable for geophysical exploration</td>
<td>20 percent</td>
<td>Week: 7</td>
</tr>
<tr>
<td>2</td>
<td>Interpret electromagnetic datasets</td>
<td>60 percent</td>
<td>Week: 11</td>
</tr>
<tr>
<td>3</td>
<td>Explain electromagnetics field propagation in the earth</td>
<td>20 percent</td>
<td>Week: 12</td>
</tr>
<tr>
<td>4</td>
<td>Verify solutions using industry-standard geophysical software</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Learning Activities
Learning activities focus on combining lectures with (i) application of computer modelling with advanced EM/potential field software plus (ii) demonstrations of field techniques along with (iii) exploration of the inner workings of modern EM equipment.

Assessment

<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>1 Mid semester test</td>
<td>20 percent</td>
<td>Week: 7</td>
<td>1,5</td>
</tr>
<tr>
<td>2 Portfolio</td>
<td>60 percent</td>
<td>Week: 11</td>
<td>5,3,2</td>
</tr>
<tr>
<td>3 Test</td>
<td>20 percent</td>
<td>Week: 12</td>
<td>1,5,2</td>
</tr>
</tbody>
</table>
Detailed information on assessment tasks

1. The first assessment will be a test spanning the first 6 weeks lectures and labs.
2. The second assessment is a portfolio of laboratory exercises spanning the hands on computer modelling and field exercises.
3. The third and assessment for EM and potential fields will be a test based on all work completed during semester.

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 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 which students are required to submit will have a due date and time specified on the Unit Outline.
2. Accepting late submission of assignments or other work will be determined by the unit coordinator or Head of School and will be specified on the Unit Outline.
3. If late submission of assignments or other work is not accepted, students will receive a penalty of 100% after the due date and time i.e. a zero mark for the late assessment.
4. If late submission of assignments or other work is accepted, students will be penalised by 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 assignment worth 20 will have two marks deducted per calendar day late. Hence if it was handed in three calendar days late and marked as 12/20, the student would receive 6/20. An assessment more than seven calendar days overdue will not be marked. Work submitted after this time (due date plus seven days) may result in a Fail - Incomplete (F-IN) grade being awarded for the unit.

Pass requirements

Students must receive an overall pass grade in this unit.

Referencing style

Students should use the SEG referencing style when preparing assignments.

More information on this referencing style can be obtained at http://www.seg.org/resources/publications/books/bookinstructionstoauthors

Plagiarism

Plagiarism occurs when work or property of another person is presented as one's own, without appropriate acknowledgement or referencing. Plagiarism is a serious offence. For more information refer to academicintegrity.curtin.edu.au.

Plagiarism Monitoring

Work submitted may be subjected to a plagiarism detection process, which may include the use of systems such as ‘Turnitin’. For further information, see academicintegrity.curtin.edu.au/students/turnitin.cfm.
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.

Supplementary/Deferred Exams:
Supplementary and deferred examinations will be held at a date to be advised. Notification to students will be made after the Board of Examiners meeting via the Official Communications Channel (OCC) in OASIS. It is the student's responsibility to check their OASIS account on a weekly basis for official Curtin correspondence. If your results show that you have been awarded a supplementary or deferred exam you should immediately check your OASIS email for details.

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.

Disability
Students with a disability or medical condition (e.g. mental health condition, chronic illness, physical or sensory disability, learning disability) are encouraged to seek advice from Disability Services www.disability.curtin.edu.au. A Disability Advisor will work with you and liaise with staff to identify strategies to assist you to meet unit (including fieldwork education) and course requirements, where possible. 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.

Recent unit changes
We welcome feedback as one way to keep improving this unit. Students are encouraged to provide unit feedback through eVALUate, Curtin's online student feedback system (see evaluate.curtin.edu.au/info). Recent changes to this unit include:

No changes

See evaluate.curtin.edu.au to find out when you can eVALUate this unit.
### Program Calendar
#### Program Calendar – Semester 1 2013

<table>
<thead>
<tr>
<th>Week</th>
<th>Begin Date</th>
<th>Lecture/ Seminar</th>
<th>Pre-readings</th>
<th>Tutorial/Other</th>
<th>Assessment Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orientation</td>
<td>25 February</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>1.</td>
<td>4 March</td>
<td>EM application &amp; theory I</td>
<td></td>
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<tr>
<td>2.</td>
<td>11 March</td>
<td>Magnetotelluric methods</td>
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<tr>
<td>3.</td>
<td>18 March</td>
<td>Marine controlled source EM methods</td>
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<tr>
<td>4.</td>
<td>25 March</td>
<td>EM application and theory II</td>
<td></td>
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<tr>
<td>5.</td>
<td>1 April</td>
<td>Tuition Free Week</td>
<td></td>
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<tr>
<td>6.</td>
<td>8 April</td>
<td>EM field acquisition / instrumentation I</td>
<td></td>
<td></td>
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<tr>
<td>7.</td>
<td>15 April</td>
<td>EM field acquisition / instrumentation II</td>
<td></td>
<td></td>
<td>TEST 1</td>
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<tr>
<td>8.</td>
<td>22 April</td>
<td>Tuition Free Week</td>
<td></td>
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<tr>
<td>9.</td>
<td>29 April</td>
<td>EM field / acquisition and instrumentation III</td>
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<tr>
<td>10.</td>
<td>6 May</td>
<td>EM in mineral exploration / EM review</td>
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<tr>
<td>11.</td>
<td>13 May</td>
<td>Potential Fields I</td>
<td></td>
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<tr>
<td>12.</td>
<td>20 May</td>
<td>Potential Fields II</td>
<td></td>
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<tr>
<td>13.</td>
<td>27 May</td>
<td>Potential Fields III</td>
<td></td>
<td></td>
<td>Portfolio</td>
</tr>
<tr>
<td>14</td>
<td>3 June</td>
<td>Semester Review</td>
<td></td>
<td></td>
<td>TEST II</td>
</tr>
<tr>
<td>15.</td>
<td>10 June</td>
<td>Study Week</td>
<td></td>
<td></td>
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<tr>
<td>16.</td>
<td>17 June</td>
<td>Examinations</td>
<td></td>
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<tr>
<td>17.</td>
<td>24 June</td>
<td>Examinations</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

*** Note that the sequence and format of lectures and laboratories may change according to availability of lecturers and equipment ***