UNIT OUTLINE

UNIT COORDINATOR
Prof. C Pattiaratchi

LECTURERS
Prof. C Pattiaratchi  chari.pattiaratchi@uwa.edu.au

GRADUATE GENERIC ATTRIBUTES
At the completion of this unit, you should have further developed the following Graduate Generic Attributes as required by Engineers Australia:

1. Ability to apply knowledge of basic science and engineering fundamentals;
2. In-depth technical competence;
3. Ability to undertake problem identification, formulation and solution;
4. Ability to use a systems approach to design and operational performance;

TECHNICAL OUTCOMES
At the completion of this unit you should be able to:

1. Identify and utilise appropriate texts within the UWA library covering surface wave processes; water level variability; sediment transport; and, coastal stability;
2. Articulate key physical concepts and processes of significance for ocean waves including surface gravity waves and tides and their impact on offshore structures and coastlines;
3. Quantify temporal and spatial scales of importance for (1) offshore wave generation and transformation to the nearshore;
4. Quantify the temporal scales of importance for water level variability;
5. Quantify temporal and spatial scales of importance for nearshore circulation and sediment transport;
6. Provide estimates of sediment transport under wave and currents on the continental shelf and on beaches;
7. Develop appropriate strategies for beach erosion control;
8. Assimilate presented data and utilise it for problem solving;
9. Work to deadlines;
### OUTCOME ASSESSMENT

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Assignment Problems</th>
<th>Group Project</th>
<th>Exam Short answers</th>
<th>Exam problems</th>
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### ASSESSMENT MECHANISMS STATEMENT

You will be expected to complete **five** assignments as shown below:

<table>
<thead>
<tr>
<th>Type</th>
<th>% of Final Mark</th>
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<tbody>
<tr>
<td>Assignment 1 (Waves1)</td>
<td>16%</td>
<td>27 March</td>
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<tr>
<td>Assignment 2 (Waves2)</td>
<td>17%</td>
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<td>Assignment 3 (Tides)</td>
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<td>Assignment 4 (Tsunami)</td>
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<td>Assignment 5 (Sediment Transport)</td>
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<td>Assignment 6 (Design)</td>
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Your unit mark is subject to the Mark Adjustment Policy within the Faculty of Engineering, Computing and Mathematics. It is in your interest to learn about this Policy at [http://www.ecm.uwa.edu.au/for/students/assess](http://www.ecm.uwa.edu.au/for/students/assess)

Note also, that there is a **2% per day penalty** for late submission of assignments. This penalty tests your ability to work to a deadline.
COURSE WEB PAGE:
http://www2.sese.uwa.edu.au/~pattiara/envt4614oe

READING LIST

Pugh D.T. 1987. Tides, surges and mean sea level: A handbook for engineers and scientists. John Wiley & Sons,
Proposed Course outline 2009

The following subjects will be covered:

**Surface gravity waves**
Wave generation and forecasting, extreme values; Linear wave theory (Airy); wave reflection, refraction and diffraction, wave breaking, nearshore circulation, waves on structures

**Water level variability**
Tides: theory, analysis and prediction; storm surges, continental shelf waves; tsunamis; seiches

**Sediment transport**
Calculation of bottom shear stress under waves and currents; Threshold; sediment transport rates under currents and waves; transport rates on beaches; Beach morphodynamics

**Design**
Conceptual design of groynes and breakwaters; Coastal protection strategies
Plagiarism

You must be aware of the definition of plagiarism, see:
http://www.ecm.uwa.edu.au/for/students/plagiarism

Instances of Plagiarism will be dealt with in accordance to the UWA Policy for Academic Conduct.

You will be reported to the Associate Dean (Students) and a record will be kept of the case and penalty given, for future reference.

Charter of student rights

This Charter of Student Rights upholds the fundamental rights of students who undertake their education at the University of Western Australia.

It recognises that excellence in teaching and learning requires students to be active participants in their educational experience. It upholds the ethos that in addition to the University's role of awarding formal academic qualifications to students, the University must strive to instil in all students independent scholarly learning, critical judgement, academic integrity and ethical sensitivity.

For the full charter of student rights, please refer to:
http://www.secretariat.uwa.edu.au/home/policies/charter

Appeals against academic assessment

If you feel you have been unfairly assessed, you have the right to appeal your mark by submitting an Appeal Against Academic Assessment form to the Head of School and Faculty Office. The procedure for Appeals, and the required forms, can be found at:
http://www.ecm.uwa.edu.au/for/students/exams

The form must be submitted within twelve working days of the formal release of your unit assessment. It is recommended that you contact the Guild Education Officers for aid in the appeals process. They can be contacted on +61 8 6488 2295 or education@guild.uwa.edu.au.