

SCHOOL OF CIVIL AND ENVIRONMENTAL ENGINEERING

THE UNIVERSITY OF
NEW SOUTH WALES

Session 2 2013



GENE 1012

TOOLS FOR IMPLEMENTING ECOLOGICALLY SUSTAINABLE DEVELOPMENT IN CORPORATIONS AND REGIONS

COURSE DETAILS

Units of Credit 3
Contact hours 3 day short course
Class Wednesday, 24 July 2013 – Friday, 26 July 2013
9:00am – 4:00pm daily
CE109 (Civil Engineering Building, H20)

**Course Coordinator
and Lecturer** **Dr Tommy Wiedmann**
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Lecturers **Mr Juan Pablo Alvarez Gaitan**
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COURSE DESCRIPTION

A brief introduction to Ecologically Sustainable Development (ESD) principles and the social, economic and political context in which they have arisen, and in which they are implemented. A non-mathematical introduction to methods, techniques and tools used by regional and corporate environmental managers to implement ESD principles in organisations and regions.

These tools include a range of environmental assessment techniques that can be applied at a product level (Life Cycle Assessment), at a corporate and regional level (Materials Flow Analysis) and at a regional and national level (Environmental Footprint and Input-Output Analysis). The social, economic and political constraints on use of information from these tools to develop improved environmental management at different economic scales will be addressed through case studies and a group project undertaken on the ecological footprint analysis at a household level.

A group site visit at UNSW will be conducted as an introduction to the environmental protection measures undertaken at the university.

OBJECTIVES

To introduce students outside the Engineering Faculty to principles of Ecologically Sustainable Development (ESD) and the contexts in which they have arisen, and in which they are implemented. To develop students' understanding of the various methods and techniques (analytical tools) used by regional and corporate environmental managers to implement ESD principles in organisations and regions.

TEACHING STRATEGIES

The following teaching strategies will be used in this course. Students are encouraged to direct their own learning to get the most out of their participation in this course.

Lectures	<ul style="list-style-type: none">• Find out what you should learn• Follow worked examples• Participate in class discussions and learning activities• Hear announcements on course changes
Tutorials	<ul style="list-style-type: none">• Be guided by tutors• Practice solving set problems• Ask questions
Private Study	<ul style="list-style-type: none">• Review lecture material and wider readings• Do assignments• Join in Blackboard discussions of problems• Reflect on class problems and assignments• Download materials from Blackboard• Keep up with course announcements on Blackboard
Assessment	<ul style="list-style-type: none">• Demonstrate your knowledge and skills• Demonstrate higher understanding and problem solving• Demonstrate ability to work effectively in a group

EXPECTED LEARNING OUTCOMES

After successfully completing this course, students should be able to:

1. List the principles of Ecologically Sustainable Development (ESD), and describe the context in which they have arisen and in which they are implemented.
2. Identify sources of information that can be used in assessing progress towards ecological sustainability.
3. Use provided data to undertake analysis of simple facilities and systems using material flow analysis, environmental life cycle assessment, and ecological footprints.
4. Work together in interdisciplinary groups to investigate the ecological footprint of households.
5. Assess a problem to know which tool(s) are appropriate in quantitatively understanding it, and describe how information from the application of these tools can be used to improve ecological sustainability outcomes in households, corporations and regions.

COURSE PROGRAM

WEEK 0 SESSION 2, 2013

Date	Time	Topic	Lecturer
Wed 24 July	9am - 12pm	Introduction and Overview. Sustainability, Environmental Management Systems (EMS) and Reporting	Wiedmann Alvarez
Wed 24 July	1pm - 4pm	Ecological Footprint Analysis (EFA)	Kobayashi
Thu 25 July	9am - 12pm	Life Cycle Assessment (LCA)	Alvarez
Thu 25 July	1pm - 4pm	Material Flow Analysis (MFA)	Wiedmann
Fri 26 July	9am - 12pm	Site visit to UNSW sustainability initiatives	Alvarez & Kobayashi
Fri 26 July	1pm - 4pm	Ecological Footprint assignment workshop	Kobayashi

There will be the possibility to post and discuss questions on the Assignment online via Blackboard.

ASSIGNMENT SCHEDULE

This course will be fully assessable by the assignment indicated below. There is no exam for this course.

Ass't	Topic	Value	Due Date & Time
1	Ecological Footprints of Households	100%	30 August 2013, 3pm

Extensions of time will only be granted in the case of medical or personal emergencies, and only if requested prior to the due date.

Late submissions will be penalised at the rate of 5% of the available marks per working day (or part thereof) after the due date and time.

ASSIGNMENT MARKING POLICY

In general terms, the assignment will be assessed against the following criteria:

- Evidence of understanding of concepts; exact correct numerical answers will rarely be required or be appropriate.
- Ability to apply concepts to real world problems, and to make judgements based on incomplete data and the need to simplify systems in order to develop solutions.
- Clarity of description, explanation and attention to the focus of the assignment.
- Ability to structure an assignment logically and limit it to a reasonable length.

Please keep a copy of all assignment work you submit for this course.

LEARNING RESOURCES

A Blackboard module has been created for this subject. Students can log onto Blackboard via

<http://lms-blackboard.telt.unsw.edu.au>

Lecture notes can be downloaded from Blackboard and marks for assignment will also be released on the web. A discussion forum is available for students to post questions related to the course and assignment.

There is no prescribed textbook for this subject. Comprehensive readings will be indicated in the lectures.

The following reference books may be useful for individual topics:

Bauman, H. and Tillman, A.-M. (2004) *The Hitch Hiker's Guide to LCA*. Studentlitteratur AB, Lund.

Brunner, P. and Rechberger, H. (2004) *Practical Handbook of Material Flow Analysis*. Lewis Publishers, Boca Raton.

Wackernagel, M. and Rees, W.E. (1996) *Our Ecological Footprint: Reducing Human Impact on the Earth*. New Society, Philadelphia.

DATES TO NOTE

Refer to MyUNSW for Important Dates: <https://my.unsw.edu.au/student/resources/KeyDates.html>

PLAGIARISM

Beware! An assignment that includes plagiarised material will receive a 0% Fail, and students who plagiarise may fail the course. Students who plagiarise are also liable to disciplinary action, including exclusion from enrolment.

Plagiarism is the use of another person's work or ideas as if they were your own. When it is necessary or desirable to use other people's material you should adequately acknowledge whose words or ideas they are and where you found them (giving the complete reference details, including page number(s)). The Learning Centre provides further information on what constitutes Plagiarism at:

<http://www.lc.unsw.edu.au/onlib/plag.html>

COMMON SCHOOL INFORMATION

For information about:

- Notes on assessments and plagiarism,
- School policy on Supplementary exams,
- Special Considerations,
- Solutions to Problems,
- Year Managers and Grievance Officer of Teaching and Learning Committee, and
- CEVSOC.

please refer to the School website:

<http://www.civeng.unsw.edu.au/information-for/current-students>