



浙江大學

ENGG912

Sustainability & the Environment

ENGG912

Sustainability & the Environment

Instructor Contact Details

Lecturer-in-charge: TBA

Email: wlwyxy_29@zju.edu.cn

Office location: Huajiachi Campus, Zhejiang University

Consultation Times: to be announced, and by appointment

Teaching Times and Locations

The Time and Location: TBA, Huajiachi Campus, Zhejiang University

Lecture sessions include lectures, seminars, field trip(s) as well as in-class activities.

Academic Level

Postgraduate

Units of Credit

The course is worth 6 units of credit

Contact Hours

The course contains a total of 53 contact hours, which consists of an orientation meeting, 13 lecturing seminars, a revision day, a field trip and a final exam. Each seminar is 180 minutes in length, while the field trip is 300 minutes and the final exam costs 120 minutes. Students will receive an official transcript which is issued by Zhejiang University when completing this course.

Credit Hours

The number of credit hours of this course equals to the credits of a standard semester-long Australian university course.

Course Description:

The purpose of this course is to help engineering and built environment students focus on "design thinking" and find innovative solutions to design optimal solutions by developing and experimenting with ideas and refactoring problems. Students are expected to analyze sustainable design and be able to support regional economies and populations.

Considerations include water and waste management and the supply and distribution of energy. Students will be expected to work in teams in a cooperative and collaborative manner, and they will contribute insights and skills from their knowledge. We encourage students to come up with responsible and sustainable solutions to real-world problems.

Prerequisite:

N/A

Learning Resources

Vallero, D and Brasier, C, Sustainable design : the science of sustainability and green engineering. Hoboken, N.J., John Wiley, 2008.

Hawken, P., A. B. Lovins & L.H. Lovins, Natural capitalism: creating the next industrial revolution. Little, Brown and Co. Boston., 1999.

Learning Objectives

By the end of this course you should be able to:

- Gain a deeper level of ecological literacy and capacity for life-cycle and systems thinking in the design.
- Use these modes of thinking to develop a relational systems view of people and nature mediated by the built environment.
- Engage with our industrial and natural life-support systems seeking symbiosis and resilience.

- Develop the ability to work well in multidisciplinary and multicultural teams and understand the role as team leader and player, and to manage effectively with dysfunctional teams and resolve conflicts.
- Develop project management skills including the ability to plan projects efficiently and effectively, as well as time management.
- Develop an understanding of the environmental, social and economic context in which engineering is practised.

Course Delivery:

The following course will be taught in English and it will comprise of lectures, tutorials, projects, presentations and group activities. In addition to these, there will also be guest speakers and optional field trips available for students who would like to enhance their learning experience. The course will be delivered within 13 sessions, with each session totaling 3 hours-inclusive of both the lecture and tutorial. These sessions will be running during weekdays, Monday to Friday. Students are expected to engage in class discussions and work cooperatively during group work.

Topics and Course Schedule:

Topic	Activities
Orientation	
introduction: Environment and society	Lecture; Tutorial
industrial metabolism and ecology, dematerialisation and precautionary principle	Lecture; Tutorial
Understanding and analysis of Sustainable Design	Lecture; Tutorial

Process Synthesis and Analysis Tools	Lecture; Tutorial
Energy resources, conversion, use and consequences Energy supply, demand and Distribution generation and Review of existing power sources Energy use in buildings, embodied energy & LCA	Lecture; Tutorial
Seminar	
Sustainable design for water provision, distribution and use	Lecture; Tutorial
Waste management– principles including heat and mass flows	Lecture; Tutorial
Midterm exam	
Water resources, use, consequences and control	Lecture; Tutorial
Economics of Sustainable Systems	Lecture; Tutorial
Sustainable design, engineering and management in industry	Lecture; Tutorial
Health, Risk and Safety	Lecture; Tutorial
Sustainable buildings and environment	Lecture; Tutorial
Ethics & Justice	Lecture; Tutorial
Revision	
Final exam	

Assessments:

Class participation	10%
Research and case study	20%

Group project presentation	10%
Group project report	20%
Final exam	40%

Tutorial participation (10%)

Active engagement in class activities and discussions are encouraged to consolidate what has been learnt in lectures.

Research and case study (20%):

The details will be announced in class

Group project (20%) and class presentation (10%)

Details of the sustainable design project will be announced and discussed in class. Students will be allocated into groups to complete a group project relating to course topics. They are required to work collaboratively with each other to complete this task and present it to the class through a speech.

A sustainable design project is to be developed, with:

- 8 pages maximum in A4,
- 12 point Times New Roman font
- Single line spacing
- Late submission will attract a penalty of 10% of the total weighting of the assessment task. A 10% deduction applies for EACH late day and the assessment will not be accepted after 5 working days. Extensions will only be granted upon the basis that there is reasonable medical evidence of illness or any other extreme circumstances that the university may place under consideration. Under no circumstances will extensions be granted for work or any other commitments. A request for an extension must formally submitted to the lecturer in writing prior to the due date, in accordance with the university's assessment policies. Medical certificates or other evidence of

extreme misfortune must be submitted through a special consideration form and must contain information that justifies the extension sought.

Final examination (individual) 40%

A 2 hour final exam will be conducted during the university's set examination period.

Grade Descriptors:

HD	High Distinction	85-100
D	Distinction	75-84
Cr	Credit	65-74
P	Pass	50-64
F	Fail	0-49

High Distinction 85-100

Treatment of material evidences an advanced synthesis of ideas

Demonstration of initiative, complex understanding and analysis

Work is well-written and stylistically sophisticated, including appropriate referencing, clarity, and some creativity where appropriate

All criteria addressed to a high level

Distinction 75-84

Treatment of material evidences an advanced understanding of ideas

Demonstration of initiative, complex understanding and analysis

Work is well-written and stylistically strong

All criteria addressed strongly

Credit 65-74

Treatment of material displays a good understanding of ideas

Work is well-written and stylistically sound, with a minimum of syntactical errors

All criteria addressed clearly

Pass 50-64

Treatment of material indicates a satisfactory understanding of ideas

Work is adequately written, with some syntactical errors

Most criteria addressed adequately

Fail 0-49

Treatment of ideas indicates an inadequate understanding of ideas

Written style inappropriate to task; major problems with expression

Most criteria not clearly or adequately addressed

Academic Integrity

Students are expected to uphold the university's academic honesty principles which are an integral part of the university's core values and principles. If a student fails to observe the acceptable standards of academic honesty, they could attract penalties and even disqualification from the course in more serious circumstances. Students are responsible for knowing and observing accepted principles of research, writing and any other task which they are required to complete.

Academic dishonesty or cheating includes acts of plagiarism, misrepresentation, fabrication, failure to reference materials used properly and forgery. These may include, but are not limited to: claiming the work of others as your own, deliberately applying false and inaccurate information, copying the work of others in part or whole, allowing others in the course to copy your work in part or whole, failing to appropriately acknowledge the work of other scholars/authors through acceptable referencing standards, purchasing papers or writing papers for other students and submitting the same paper twice for the same subject.

This Academic Integrity policy applies to all students of the Zhejiang University in all programmes of study, including non-graduating students. It is to reinforce the University's commitment to maintain integrity and honesty in all academic activities of the University community.

Policy

- The foundation of good academic work is honesty. Maintaining academic integrity upholds the standards of the University.

- The responsibility for maintaining integrity in all the activities of the academic community lies with the students as well as the faculty and the University. Everyone in this community must work together to ensure that the values of truth, trust and justice are upheld.
- Academic dishonesty affects the University's reputation and devalues the degrees offered.
- The University will impose serious penalties on students who are found to have violated this Policy. The following penalties may be imposed:
 - Expulsion;
 - Suspension;
 - Zero mark/fail grade;
 - Marking down;
 - Re-doing/re-submitting of assignments or reports; and
 - Verbal or written warning.