TAYLOR'S UNIVERSITY
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BACHELOR OF SCIENCE (HONOURS) IN ARCHITECTURE

ENVIRONMENTAL SUSTAINABLE DESIGN (ARC1413/BLD60203)

MODULE OUTLINE

August 2016

http://hikingartist.com/2015/02/09/tree-city-drawing/

SCHOOL OF ARCHITECTURE, BUILDING AND DESIGN
Centre for Modern Architecture Studies in Southeast Asia

Programme   Bachelor of Science (Honours) in Architecture
Module   ENVIRONMENTAL SUSTAINABLE DESIGN (ARC1413/BLD60203)
Prerequisite   None
Credit Hours   3
Classification   Core
Instructor   TamilSalvi (mtamilsalvi.m@taylors .edu.my),
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    Dr. Sivaraman Kuppusamy

Module Synopsis

This module introduces students to environmental issues and provides some in-depth understanding of the complexities and interactions that the design and construction professions have to deal with to contain some of the irreversible damage that human settlement causes to the environment. Modules also intend to instill basic ecological literacy and environmental concerns through projects that involves local environment and society.

Module Teaching Objectives

The teaching objectives of the module are to:

1. To develop awareness of local and global environmental issues and concerns
2. To explore to the local context of climate and building practices
3. To explore the various as approaches to sustainable architecture.

Module Learning Outcomes (MLO)

The objectives of the module are translated into a number of Module Learning Outcomes (MLO), mapped to Programme Learning Outcomes (PLO) and Taylor's Graduate Capabilities (TGC).

No.	MLO	PLO	TGC
1	Recognize the effect of growth on the environment.	2,3 6	1.2, 2.1
2	Identify local climatic and environmental concerns; utilizing strategies which will encourage effective local sustainable design principles and building practices.		1.3
3	Exemplify creativity in attempting to explore the current environmental circumstances		3.1, 5.1,8.1
4	Exemplify environmental strategies already adopted in the vernacular architectural language of Malaysia.		1.3
5	Exemplify and explain the concept of sustainability including environmental and ecological sustainability.		2.1
6	Recognise role and responsibility of an architect towards environment and society.		1.3,5.1,7.1,7.2

Modes of Delivery and TIMeS

This is a 3 credit hour module conducted over a period of 14 weeks. The modes of delivery will be in the form of lectures, discussion/tutorials, and self-directed study. The breakdown of the contact hours is as follows:

- Lecture: 2 hours per week
- Tutorial: 2 hours per week
- Self-directed study: 4 hours per week

TIMeS will be used as a communication tool and information portal for students to access module materials, project briefs, assignments and announcements.

Programme Learning Outcomes (PLO)*

The Bachelor of Science (Honours) in Architecture programme has as its objectives that graduates exemplify the following Programme Learning Outcomes (PLO) that will enable them to:

No.	Programme Learning Outcomes (PLO)
1	Produce designs at appropriate complexity and scales up to the schematic level using appropriate communication tools
2	Demonstrate understanding of cultural, historical and established architectural theories, philosophies and context
3	Demonstrate creativity, innovation and imagination and translate these into an architectural design solution
4	Develop design to a level for regulatory application for Building Plan submission that complies to the requirements of local authorities, including understanding of building regulations, basic building construction and materials, environmental considerations and building services
5	Translate design into construction drawings with appropriate construction details and use established architectural drawing convention
6	Work in a team and participate in the design process

*Source: The Manual of Accreditation for Architecture Programmes, Board of Architects Malaysia, 2013

Taylor's Graduate Capabilities (TGC)
The teaching and learning approach at Taylor's University is focused on developing the Taylor's Graduate Capabilities (TGC) in its students; capabilities that encompass the knowledge, cognitive capabilities and soft skills of its graduates.

Taylor's Graduate Capabilities (TGC)	
	1. Discipline Specific Knowledge **1.1** Able to put theories into practice **1.2** Understand ethical issues in the context of the field of study **1.3** Understand professional practice within the field of study
	2. Lifelong Learning **2.1** Learn independently **2.2** Locate, extract, synthesize and utilize information effectively **2.3** Be intellectual engaged
	3. Thinking and Problem Solving skills **3.1** Think critically and creatively **3.2** Define and analyze problems to arrive at effective solutions
	4. Communication Skills **4.1** Communicate appropriately in various settings and modes
	5. Interpersonal Skills **5.1** Understand team dynamics and mobilize the power of teams **5.2** Understand and assume leadership
	6. Intrapersonal Skills **6.1** Manage oneself and be self–reliant **6.2** Reflection one's action and learning **6.3** Embody Taylor's core values
	7. Citizenship and Global Perspectives **7.1** Be aware of and form opinions from diverse perspectives **7.2** Understand the value of civic responsibility and community engagement
	8. Digital Literacy **8.1** Effective use of ICT and related technology

Types of Assessments and Feedback

You will be graded in the form of formative and summative assessments. Formative assessment involves participation in discussions and feedback sessions. Summative assessment will inform you about the level of understanding and performance capabilities achieved at the end of the module.

No.	Assessment Components	Type	MLO	Weightage
1	My Community My Commitment (Environmental based life community project)	Formative	2,3.5,6	40%
2	In class Assessment	Formative	1,2,4	30%
3	Final Examination	Formative	1-6	30%
4	Taylor's Graduate Capabilities Portfolio	Summative	1-6	Pass/Fail
Total				100%

Assessment Components

1. Project : My Community My Commitment (Environmental based life community project)

The main of this project is to create environmental and community awareness and responsibility in architecture students. You are to propose and execute an environmental based community project. This community related project aims to introduce the skills necessary to use their knowledge of design and nature as a tool for addressing challenges in sustainability. Through interactive and dynamic exercises, they will gain a deeper understanding of environment and their responsibility to community, practice solving real-world challenges using creative ideas. This project presents the students with challenge linked directly to current pressing environmental issues globally. This exercise also trains the students to be aware and considerate in selecting materials for their design –even at the smallest scale.

2. In-class assessment

The purpose of this in class assessment is to assess your understanding of the concepts of sustainability and instructional strategies that we would have investigated in the module. This in class assessment is, designed to assess your understanding and knowledge. You are expected you to have understood concepts of sustainability and the relationship of between built and natural environment. You will have to demonstrate the ability to recognize and exemplify this information in order to answer the questions correctly.

3. Taylor's Graduate Capabilities Portfolio (TGCP)

The Taylor's Graduate Capabilities Portfolio is a document that collates all assessments produced in a module and reflects a student's acquisition of the Module Learning Outcomes and Taylor's Graduate Capabilities. Each student is to develop an ePortfolio, a web-based portfolio in the form of a personal academic blog. The ePortfolio is developed progressively for all modules taken throughout Semesters 1 to 5, and culminates with a final Portfolio in printed form produced in the final semester. The printed Portfolio must encapsulate the acquisition of Programme Learning Outcomes and Taylor's Graduate Capabilities, and showcase the distinctiveness and identity of the student as a graduate of the programme.

Marks and Grading Table

Assessments and grades will be returned within two weeks of your submission. You will be given grades and necessary feedback for each submission. The grading system is shown below:

Grade	Marks	Grade Points	Definition	Description
A	80 – 100	4.00	Excellent	Evidence of original thinking; demonstrated outstanding capacity to analyze and synthesize; outstanding grasp of module matter; evidence of extensive knowledge base.

A-	75 – 79	3.67	Very Good	Evidence of good grasp of module matter; critical capacity and analytical ability; understanding of relevant issues; evidence of familiarity with the literature.
B+	70 – 74	3.33	Good	Evidence of grasp of module matter; critical capacity and analytical ability, reasonable understanding of relevant issues; evidence of familiarity with the literature.
B	65 – 69	3.00		
B-	60 – 64	2.67	Pass	Evidence of some understanding of the module matter; ability to develop solutions to simple problems; benefitting from his/her university experience.
C+	55 – 59	2.33		
C	50 – 54	2.00		
D+	47 – 49	1.67	Marginal Fail	Evidence of nearly but not quite acceptable familiarity with module matter, weak in critical and analytical skills.
D	44 – 46	1.33		
D-	40 – 43	1.00		
F	0 – 39	0.00	Fail	Insufficient evidence of understanding of the module matter; weakness in critical and analytical skills; limited or irrelevant use of the literature.
WD	-	-	Withdrawn	Withdrawn from a module before census date, typically mid-semester [refer to Description 1 below].
F(W)	0	0.00	Fail	Withdrawn after census date, typically mid-semester [refer to Description 2 below].
IN	-	-	Incomplete	An interim notation given for a module where a student has not completed certain requirements with valid reason or it is not possible to finalise the grade by the published deadline.
P	-	-	Pass	Given for satisfactory completion of practicum.
AU	-	-	Audit	Given for a module where attendance is for information only without earning academic credit.

Description 1: Week 3 to week 7 (inclusive) for long semester, or week 3 to week 5 (inclusive) for short semester. A short semester is less than 14 weeks. Not applicable for audit and internship.

Description 2: After week 7 for long semester, or after week 5 for short semester. A short semester is less than 14 weeks. Not applicable for audit and internship.

Coursework Assessments and Final Examination

A student who fails to attempt all assessment components worth 20% or more, including final exam and final presentation, will result in failing the module irrespective of the marks earned, even though he/she has achieved 50% or more in the overall assessment. Student will not be allowed to resit the examination (or resubmit an assessment).

Module Schedule (subject to change at short notice)

Date/Week	Lecture/Presentation Hours	Discussion/Tutorial Hours	Self-directed Study Hours
	General introduction: Environmental Awareness, Module Outline Briefing		
Week 1 **2 sept**		2	4
	Lecture : Environmental Awareness ▪ Environment and Interactions ▪ Ecological Concepts ▪ Community and Ecosystem Interactions ▪ Population ▪ Emerging Global Issues ▪ Human Well-Being and the Environment		
Week 2 **9 sept**		2	4
	Lecture : Air Quality Issues ▪ The Atmosphere ▪ Pollution of the Atmosphere ▪ Categories of Air Pollutants ▪ Acid Deposition ▪ Ozone Depletion ▪ Global Warming and Climate Change ▪ Addressing Climate Change ▪ Indoor Air Pollution ▪ Noise Pollution		2 [Online research for project (4 hour @ 50%)f
Week 3 **16 sept**		2	4
	Lecture : Waste - Solid and Construction and LCA ▪ Kinds of Solid Waste ▪ Municipal Solid Waste ▪ Methods of Waste Disposal ▪ Construction waste ▪ Waste management in built environment		2 [Online research for project (4 hour @ 50%)
Week 4 **23 sept**		2	4
	Lecture: Sustainable planning and development ▪ The Need for Planning ▪ Factors That Contribute to Sprawl ▪ Problems Associated with Unplanned Urban Growth ▪ Special Urban Planning Issue		
Week5 **30 sept**		2	4

	Lecture : Energy-Non-renewable and Renewable Energy 1 • Major Energy Sources • Issues Related to the Use of Fossil Fuels • Issues Related to the Use of Nuclear Fuels • The Status of Renewable Energy • Major Kinds of Renewable Energy • Energy Conversion		2 [Online research for project (4 hour @ 50%)
Week 6 7 Oct		2	4
	Lecture : Water Management: Water Issue ▪ The Hydrologic Cycle ▪ Human Influences on the Hydrologic Cycle ▪ Kinds of Water Use ▪ Kinds and Sources of Water Pollution ▪ Conservation		
Week 7 14 Oct		2	4
	In Class assessment (30%)		2 [Online research for project 2 (4 hour @ 50%)
Week 8 21 Oct		2	4
	Building Rating Systems		2 [Online research for project (4 hour @ 50%)
Week 9 28 oct		2	4
MID-TERM BREAK (31/10 – 4/11/16)		
	Submission and Exhibition of Project		**Digital Upload of project by 3pm for peer and lecturers evaluation**
Week10 11 nov		2	4
	Lecture : Sustainable responses to environmental issues		
Week 11 18 nov		2	4
	Case studies discussion		
Week 12 18nov		2	4
	Portfolio Briefing		
Week 13 25 nov		2	4

	Revision		
Week 14 2 dec		2	4
	Study Week		
	Submission: TGC e-Portfolio	-	-

Main References

1. Enger and Smith. 2000. *Environmental Science: A Study on Interrelationships*
2. Chirac. 1997. *Environmental Science (A System Approach).* 5th Edition. ITP.
3. G. Tyler Miller Jr. 2003. *Environmental Science: Working with the Earth*. Wadsworth Group, Brooks/Cole.
4. Henry, J. Glynn and Hinke, Gary W. 1993. *Environmental Science and Engineering*. Prentice Hall.
5. Lyons, Arthurs. 2004. *Materials for Architects and Builders*. 2nd Edition. Butterworth Heinemann.
6. Mendler, S. Odell, W. and Lazarus, M. A. 2006. *The Guide to Sustainable Design.* 2nd Edition. USA. John Wiley
7. Aberley, D. (Editor). 1994. *Futures by Design: The Practice of Ecological Planning*. Sydney. Envirobook Publishing.
8. B. Givoni. 1976. *Man, Climate and Architecture*. 2nd Edition. Applied Science Publishers.
9. Stein, Benjamin and Reynolds, John S. 2000. *Mechanical and Electrical Equipment for Buildings*. New York. John Wiley.
10. Graham, P**.,** 2003 *Building Ecology* Blackwell Science, Oxford.

Recommended References:

1. Reducing waste in construction www.ea.gov.au/industry/waste/construction/wastewise
2. Your Home – the good residential design guide www.yourhome.gov.au
3. Building Green Bulletin http://www.buildinggreen.com/articles/
4. Overview of projects that consider the environment http://greenclips.com
5. Green architecture: http://energy-conservation.suite101.com/article.cfm/examples-of-green-architecture
6. Sustainable green architecture: http://www.re-ourish.com/?l=resources_sustainability

GENERAL RULES AND REGULATIONS

Student-centered Learning

The module uses the Student-centered Learning (SCL) approach. Utilization of SCL embodies most of the principles known to improve learning and to encourage student's participation. SCL requires students to be active, responsible participants in their own learning and instructors are to facilitate the learning process. Various teaching and learning strategies such as experiential learning, problem-based learning, site visits, group discussions, presentations, working in group and etc. can be employed to facilitate the learning process. In SCL, students are expected to be:

- active in their own learning;
- self-directed to be responsible to enhance their learning abilities;
- able to cultivate skills that are useful in today's workplace;
- active knowledge seekers;
- active players in a team.

Attendance and Student Participation

Attendance is compulsory. Any student who arrives late after the first half-hour of class will be considered as absent. The lectures and tutorials will assist you in expanding your ideas and your assessments. A minimum of 80% attendance is required to pass the module and/or be eligible for the final examination and/or presentation.

Students will be assessed based on their performance throughout the semester. Students are expected to attend and participate actively in class. Class participation is an important component of every module. Your participation in the module is encouraged. You have the opportunity to participate in the following ways:

- Your ideas and questions are welcomed, valued and encouraged.
- Your input is sought to understand your perspectives, ideas and needs in planning module revision.
- You have opportunities to give feedback and issues will be addressed in response to that feedback.
- Do reflect on your performance in Portfolios.
- Student evaluation on your views and experiences about the module are actively sought and used as an integral part of improvement in teaching and continuous improvement.

Late Submission Penalty

The School imposes a late submission penalty for work submitted late without a valid reason e.g. a medical certificate. Any work submitted after the deadline (which may have been extended) shall have the percentage grade assigned to the work on face value reduced by 10% for the first day and 5% for each subsequent day late. A weekend counts as one (1) day.

Individual members of staff shall be permitted to grant extensions for assessed work that they have set if they are satisfied that a student has given good reasons.

Absenteeism at intermediate or final presentation will result in zero mark for that presentation.

The Board of Examiners may overrule any penalty imposed and allow the actual mark achieved to be used if the late submission was for a good reason.

Plagiarism

Plagiarism, which is an attempt to present another person's work as your own by not acknowledging the source, is a serious case of misconduct which is deemed unacceptable by the University.

"Work" includes written materials such as books, journals and magazine articles or other papers and also includes films and computer programs. The two most common types of plagiarism are from published materials and other students' works.

1. Published Materials

   In general, whenever anything from someone else's work is used, whether it is an idea, an opinion or the results of a study or review, a standard system of referencing should be used. Examples of plagiarism may include a sentence or two, or a table or a diagram from a book or an article used without acknowledgement.

   Serious cases of plagiarism can be seen in cases where the entire paper presented by the student is copied from another book, with an addition of only a sentence or two by the student.

   While the former can be treated as a simple failure to cite references, the latter is likely to be viewed as cheating in an examination.

   Though most assignments require the need for reference to other peoples' works, in order to avoid plagiarism, students should keep a detailed record of the sources of ideas and findings and ensure that these sources are clearly quoted in their assignment. Note that plagiarism also refers to materials obtained from the Internet too.

2. Other Students' Works

   Circulating relevant articles and discussing ideas before writing an assignment is a common practice. However, with the exception of group assignments, students should write their own papers. Plagiarising the work of other students into assignments includes using identical or very similar sentences, paragraphs or sections. When two students submit papers that are very similar in tone and content, both are likely to be penalised.

Guide for Writing References:

- http://taylorslibrary.taylors.edu.my/user_skills/user_support_students

Prepared by: Module Coordinator	Checked by: Name of SC	Approved by: Name of PD/DD
TamilSalvi Mari ………………………. Date: 26 August 2016	………………………… Date: Stream Coordinator (Technical Studies)	……………………………. Date: Deputy Dean

Remarks:
1. The Scheme of Work is to be distributed to the students in the first week of the semester.
2. Any changes to the Scheme of Work shall be communicated (in writing) to the Programme Director and the approved revised version must be communicated to the students