

## Template syllabus of the new/revised courses

**Course Name:** Environmental Management and Sustainability

**Number of credits(UTM):** 3

**Period:** Fall/spring semester (All Semester)

Coordinator	DR MOHD BADRUDDIN MOHD YUSOF
Credits	3 credits (4 ECTS)
Lecturers	DR MOHD BADRUDDIN MOHD YUSOF PROF DR KHALIDA MUDA DR NORELYZA HUSSEIN DR SHAMILA AZMAN
Level	POST GRADUATE/ MASTER
Host institution	UNIVERSITI TEKNOLOGI MALAYSIA
Course duration	14 weeks=120 hours student learning time
New/revised	Revised

### Summary

This course is designed to expose students to various aspects in environmental management and the concept of sustainability. Topics discussed include the principles of sustainable development, understanding the environmental sensitive areas particularly the natural water bodies, catchment management, development of coastal and inland areas. Current issues related to environmental problems especially on climate change and water supply are the main aspects to be addressed. Some methods and concepts of sustainable approaches are introduced in order to promote and achieve sustainable development goals. At the end of the course, the students should be able to understand the concept of environmental sustainability and present it through an effective communication. The course enables the students to understand, plan and incorporate the concept of sustainability in environmental management.

### Target student audiences

Master or PhD students majoring in Master in Engineering (Environmental Management) and other civil engineering or master program in UTM

### Prerequisites

Required courses (or equivalents): Not applicable

### Aims and objectives

The main course objective is to enable students to understand the concept of environmental sustainability plan and incorporate the concept in environmental management.

### The Authentic Tasks are:

### General learning outcomes:

By the end of the course, successful students will be:



Knowledge	-	Able to identify the importance of environmental sensitive areas, as well as analyze various environmental issues related to climate change and water supply system due to unsustainable development approaches
Comprehensive	-	Able to communicate effectively on issues pertaining to environmental management
Application	-	Able to integrate technological approaches in order to minimize adverse environmental impacts and promote sustainable development.
Analysis	-	Able to evaluate and analyze data obtained from water quality monitoring and plan mitigating and control measures for water pollution
Synthesis	-	-

### Overview of sessions and teaching methods

The course will make most of interactive and self-reflective methods of teaching and learning and, where possible, avoid standing lectures and presentations.

<b>Learning methods</b>	-	Lecture
	-	Video presentations
	-	Site visits, group work
	-	Online learning (due to Covid-19 pandemic)

### Course outline

<b>Week 1</b>	Environmental Sustainability.
<b>Week 2</b>	Environmental issues and problems: i. Global warming, ii. Water Security.
<b>Week 3</b>	Classification of natural environmental system: i. Soil, steep slopes; ii. Lake and lakefront.
<b>Week 4</b>	Classification of natural environmental system: i. Rivers; ii. Floodplains; iii. Riverine.
<b>Week 5</b>	Classification of natural environmental system: i. Swamp forest; ii. Wetlands (includes tidal and mudflats wetlands); iii. Coastline. Assignment 1
<b>Week 6</b>	Environmental Sustainable Approaches: Sustainable development goal.
<b>Week 7</b>	Integrated river management system.
<b>Week 8</b>	Mid-Semester Break
<b>Week 9</b>	Water security.
<b>Week 10</b>	Water security. Assignment 2
<b>Week 11</b>	Water footprint.
<b>Week 12</b>	Life cycle analysis
<b>Week 13</b>	Carbon footprint; carbon credit and payment for environmental services.

<b>Week 14</b>	Green building
<b>Week 15</b>	Assignment 3 and Student presentation
<b>Week 16-19</b>	Final Examination

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## Literature

### Compulsory

### Recommended:

1. Avlonas, K. and Nassos, G.P. Practical Sustainability Strategies: How to Gain a Competitive Advantage. John Wiley Publisher. 2013.
2. Biswas, A.K. and Tortajada, C. Water Security, Climate Change and Sustainable Development. Springer. 2016 Brinkmann, R. Introduction to Sustainability. Wiley Blackwell. 2016
3. Gannmon, P. Introduction to Energy, Environment and Sustainability, Kendall Hunt Publishing Company. 2013
4. Kerr, J.A. Introduction to Energy and Climate: Developing a Sustainable Environment. CRC Tailor and Francis Group. 2017.
5. Klopffer, W. and Grahl, B. Life cycle assessment (LCA). A guide to the best practice. John Wiley Publisher. 2014
6. Mehta, L. and Movik, Synne. Liquid Dynamics: Challenges for Sustainability in the Water Domain. Wiley Interdisciplinary Reviews: Water. Volume 1, Issue 4, Pages: 369–384, DOI: 10.1002/wat2.1031. 2014.
7. Theis, T. and Tomkin, J. Sustainability: A Comprehensive Foundation.  
<http://cnx.org/content/col11325/1.38/> >2012 Wheeler, H.S. and Gober, P. Water security and the science agenda. Agu Publication.10.1002/2015WR016892 2015

## Course workload

The table below summarizes course workload distribution:

Activities	Learning outcomes	Assessment	Estimated workload (hours)
<b>In-class activities (45 hours)</b>			
Lectures	Understanding theories, concepts, methodology and tools	Class participation	28
Moderated in-class discussions	Understanding various policy and management contexts and common problems in communication in environmental governance	Class participation and preparedness for discussions	4
In-class assignments, field assignment	Understanding various policy and management contexts and common problems in communication in environmental governance	Class participation and preparedness for assignments	3
Reading and discussion of assigned papers for seminars and preparation for lectures	Familiarity with and ability to critically and creatively discuss key concepts, tools and methods as presented in the literature	Class participation, creative and active contribution to discussion	5
Group presentation	Ability to interpret data, to analyze audience, and to use the concepts, tools, and methods for communicating the EDP	Quality of group assignments and	5



		individual presentations	
<b>Independent work (75 hours)</b>			
Group work: - Contribution to the group case-study projects - Contribution to the preparation and delivery of individual presentation - Contribution to the web-application	Ability to interpret data, to analyze audience, and to use the concepts, tools, and methods for communicating information to all participants  Plan and develop a energy development plan (EDP), be aware of information visualization tools and methods	Quality of group assignments and individual presentations	32
Course group assignment	Ability to conceptualize and frame an environmental governance problem, find related literature and data, interpret data, use the concepts, tools and methods covered in the course, and draw policy/management relevant conclusions	Quality of developed EDP and their presentation	30
Group presentation	Ability to interpret data, to analyze audience, and to use the concepts, tools, and methods for communicating the EDP	Quality of group assignments and individual presentations	10
Final Examination	-Identify the importance of environmental sensitive areas and various environmental issues related to climate change and water supply system due to unsustainable development approaches Bloom Taxonomy C4 - Integrate technological approaches in order to minimize adverse environmental impacts and promote sustainable development. Bloom Taxonomy C6	Individual	3
<b>Total</b>			<b>120</b>

### Grading

The students' performance will be based on the following:

- Assessment**
- Progress assessment (60%):
    - Assignment 1 (20%)
    - Assignment 2 (20%)
    - Assignment 3 (20%)
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  - Final assessment (40%):
    - Final examination (40%)

### Evaluation



90 – 100	A+	4.00	Excellent Pass
80 – 89	A	4.00	
75 – 79	A-	3.67	
70 – 74	B+	3.33	Good Pass
65 – 69	B	3.00	
60 – 64	B-	2.67	Pass
55 – 59	C+	2.33	Fail
50 – 54	C	2.00	
45 – 49	C-	1.67	
40 – 44	D+	1.33	
35 – 39	D	1.00	
30 – 34	D-	0.67	
00 – 29	E	0.00	