City University of Hong Kong
Course Syllabus

offered by School of Energy and Environment
with effect from Semester A 2017/18

Part I Course Overview

Course Title:	Dissertation
Course Code:	SEE 6999
Course Duration:	Two semesters (Sem A, Sem B or Summer Semester)
Credit Units:	6
Level:	P6
Medium of Instruction:	English
Medium of Assessment:	English
Prerequisites: *(Course Code and Title)*	Nil
Precursors: *(Course Code and Title)*	Nil
Equivalent Courses: *(Course Code and Title)*	Nil
Exclusive Courses: *(Course Code and Title)*	Nil

Part II Course Details

1. Abstract

The aim of the dissertation is to give the opportunity to students to demonstrate their ability to carry out an independent piece of research and development work, and to develop expertise in a chosen subject area related to the program through the application of theory and techniques provided by the program. This will take the form of a substantial study in a subject area related to energy and environment, largely through the exercise of independent inquiry. In undertaking the dissertation, the student should be able to demonstrate ability to exercise judgment, independent thought, initiative, intellectual achievement, understanding of the chosen subject matter, and the principles being applied. The student will also develop and demonstrate the ability to manage and present the dissertation in a precise and coherent manner.

2. Course Intended Learning Outcomes (CILOs)

(CILOs state what the student is expected to be able to do at the end of the course according to a given standard of performance.)

No.	CILOs	Weighting (if applicable)	Discovery-enriched curriculum related learning outcomes (please tick where appropriate)		
			A1	*A2*	*A3*
1.	Carry out a literature survey or search of a selected subject, plan the entire project and integrate the materials principles into the project selected.	20%	✓	✓	
2.	Carry out independent research and development work, analyze and interpret data professionally.	40%	✓	✓	✓
3.	Demonstrate initiative, innovative abilities, and critical thinking. Be able to write a good dissertation and present scientific findings orally.	40%	✓	✓	
		100%			

A1: Attitude
Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability
Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to self-life problems.

A3: *Accomplishments*
Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

3. Teaching and Learning Activities (TLAs)

(TLAs designed to facilitate students' achievement of the CILOs.)

TLA	Brief Description	CILO No.			Hours/week (if applicable)
		1	2	3	
Meeting with Primary Supervisor	Regular scheduled meeting with Primary Supervisor to guide student with the learning of fundamentals in the research topic and develop hypotheses	✓	✓	✓	
Survey and analytical work	Hands-on work by the student to put the fundamental knowledge into experimental practice and to verify hypotheses	✓	✓		
Report writing	Scientific writing and professional presentation of written document			✓	
Presentation	Oral presentation to disseminate research findings			✓	

4. Assessment Tasks/Activities (ATs)

(ATs are designed to assess how well the students achieve the CILOs.)

The progress of the dissertation will be closely monitored through regular meetings between the dissertation supervisor and the student.

The oral presentation is assessed by a team of assessors, appointed by the dissertation committee, according to style, structure and clarity, and response to questions. The assessment procedures are arranged to incorporate a uniformity of treatment across the student cohort.

Each dissertation report is assessed by the assessor appointed by the project committee to each particular dissertation. The report is assessed as to presentation (clarity, conciseness), technical knowledge and understanding, and accomplishment (technical competence, initiative creativity, effort).

Assessment Tasks/Activities	CILO No.						Weighting	Remarks
	1	2	3					
Continuous Assessment: 100%								
Interim report	✓						-	
Dissertation	✓	✓	✓				80%	
Oral presentation			✓				20%	
Examination: 0% (duration: N/A , if applicable)								
							100%	

5. Assessment Rubrics

(Grading of student achievements is based on student performance in assessment tasks/activities with the following rubrics.)

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
1. Interim report	Ability to perform initial survey of theoretical background in relevant research topic and building hypothesis around the topic	High	Significant	Moderate	Basic	Not even reaching marginal levels
2. Dissertation	Ability to describe relevant theoretical background and how the principles are applied to technology and management for solving energy and environment issues. Ability to demonstrate original intellectual thinking.	High	Significant	Moderate	Basic	Not even reaching marginal levels
3. Oral presentation	Ability to convey research findings orally in a convincing and systematic manner	High	Significant	Moderate	Basic	Not even reaching marginal levels

Part III Other Information (more details can be provided separately in the teaching plan)

1. Keyword Syllabus

(An indication of the key topics of the course.)

There is no fixed formal syllabus. Students will be required to undertake individually supervised research and a dissertation. A departmental publication is provided giving details of requirements, timing, and considerations necessary for the successful completion, on time, of the course.

2. Reading List

2.1 Compulsory Readings

(Compulsory readings can include books, book chapters, or journal/magazine articles. There are also collections of e-books, e-journals available from the CityU Library.)

To be advised by individual supervisor based on the topics of research.

2.2 Additional Readings

(Additional references for students to learn to expand their knowledge about the subject.)

Refer to attached *Guidelines to SEE 6999 Dissertation*.

School of Energy and Environment
MSc Energy and Environment
Guidelines to SEE 6999 Dissertation

The course comprises of three components, namely:

Interim report	satisfactory/unsatisfactory
Dissertation thesis	80 %
Oral presentation/examination	20 %

The course shall provide students with the ability to conduct research at the highest level, and more importantly to develop a sense of practical and creative science.

During the First Semester, students are required to interact with their Primary Supervisors to identify the area of research. After a thorough literature survey, students are required to present a minimum 2-page interim report (excluding references section, 1.5 spacing, font 12, Times New Roman) on the relevant literature search as well as experimental plan and methodology (after consulting with the supervisor).

The interim report will be assessed by the Primary Supervisor as well as an independent examiner (Second Examiner) nominated by the committee. Each supervisor/examiner will only grant a "satisfactory" or "unsatisfactory". Two "satisfactories" are required. For a mixed grade of satisfactory-unsatisfactory, the Supervisor, Second Examiner and Student are required to work out an amicable research plan before the start of Second Semester. In the case of two "unsatisfactories", students will not be able to carry out the Second Semester component.

Students are required to attend three short lectures in the Second Semester:

1. Facts and myths of scientific research
2. To think out of the box, where is my box?
3. To write a fine thesis

Please refer to timeline for the schedule of lectures.

Each dissertation thesis will be examined by the Primary Supervisor and the Second Examiner. Difference in the assessment mark, for the part of written Dissertation thesis

only, should not be more than 10 marks. In case the difference in mark is more than 10 marks, an adjudicative examiner (nominated by the committee) will be employed. The final mark will be taken as the average of the two closest, that is, within a 10 marks difference. Otherwise the case will be referred to the committee for arbitration.

Breakdown of assessment of Dissertation thesis is as follows, contributing to an overall 80 marks of the course component. This is based on the weighted average marks of the Primary Supervisor and Secondary Examiner.

i. Clarity in written communication (25 marks)

Includes organization of the flow of information leading to key results and discussion, conciseness in writing (no repetition of information), scientific and technical writing style, ability to reflect the strengths of experimental findings.

ii. Literature survey (15 marks)

Thoroughness in relevant literature review, both theories and the state-of-the-art achievements, leading to the identification of importance and urgency of research.

iii. Literature presentation (10 marks)

Systematic presentation of literature and professional referencing of scientifically-verified sources throughout the thesis.

iv. Experimental approach (15 marks)

Thoroughness in experimental work, systematic in approach, portrays skillfulness in experimental design, originality and innovations in the overall work as demonstrated by candidate.

v. Data analyses (15 marks)

Critical analysis of collected data and ability to extract new insights.

vi. Bonus (5 marks) – maximum mark for subcomponents i+ii+iii+iv is 80 marks

Ability of candidate to "think out of the box" in terms of experimental design, data presentation, critical analyses, or drawn conclusions. This needs to be accompanied by credible scientific justifications.

vii. Efforts (10 marks) - To be assessed solely by the Primary Supervisor based on the efforts carried out by the candidate throughout the course of the Dissertation.

Oral presentation/examination by candidate will be assessed by nominated academic members. The breakdown of the component is as follows, contributing to an overall 20 marks of the overall Dissertation:

Flows and style of presentation	(8 marks)
Ability to communicate complex findings	(6 marks)
Time keeping	(2 marks)
Response to questions	(4 marks)

Overall Dissertation marks and grading

Total marks allocated by the Primary Supervisor (M_{PS}): 90 marks (80 thesis + 10 effort).

Total marks allocated by the Second Examiner (M_{SE}): 80 marks (80 thesis).

Total marks allocated to oral presentation (M_{oral}): 20 marks

Overall Dissertation marks = $\left[\frac{M_{PS} + M_{SE}}{90+80}\right] \times 80 + M_{oral}$

Final grading of Dissertation will be given based on the overall weighted marks, based on written thesis and oral presentation/examination, as follows:

Overall Dissertation marks	Final grade
91-100	A+
86-90	A
81-85	A-
76-80	B+
71-75	B
66-70	B-

61-65	C+
56-60	C
51-55	C-
41-50	D
Below 40	Fail

Timeline

First semester (can be Semester A, B or summer semester):

- Interactions with Supervisor to identify areas of research and design experimentations. Interim report is due on academic week 13 (For semester A and B) or week 7 (for Summer semester).

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Second semester (the subsequent semester from First semester):

Only for Semester A or B

Academic week	Agenda
1	Lecture on "Facts and myths of scientific research"
5	Lecture on "To think out of the box, where is my box?"
9	Lecture on "To write a fine thesis"
14	Student revision period
15-16	Examination period
17	Dissertation thesis due
18 (Early of the week)	Oral presentation/examination

In the case of Summer semester

Academic week	Agenda

1	Lecture on “Facts and myths of scientific research”
3	Lecture on “To think out of the box, where is my box?”
5	Lecture on “To write a fine thesis”
8	Student revision period
9	Examination period
11(Early of the week)	Dissertation thesis due
11 (End of the week)	Oral presentation/examination