Course Specification
(Postgraduate)

Course Title:	Dissertation (Ph.D. Thesis)
Course Code:	CHEM 700
Program:	Doctor of Philosophy in Chemistry (PhD)
Department:	Chemistry
College:	Science
Institution:	King Saud University (KSU)
Version:	2023
Last Revision Date:	4 December 2023

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A. General information about the course:

1. Course Identification:

1. Credit hours: 12 (12+0)				
3 Credit hours				
2. Course type				
A.	☐University	☐College	☒ Department	☐Track
B.	☒ Required		☐Elective	
3. Level/year at which this course is offered: (4th Level / 3rd year)				
4. Course general Description:				
The course will be delivered during 4th level, and will comprise of 12 learning hours. There will be no lectures. Individual dissertation projects will be self-directed under the guidance of supervisors. The dissertation will be expected to follow-on from the research/project proposal at 4th level, which will be refined based on the feedback received from the assessment of the proposal. There will be an interim review presentation to tutors and peers.				
5. Pre-requirements for this course (if any)**:**				
NA				
6. Pre-requirements for this course (if any)**:**				
NA				
7. Course Main Objective(s):				

- Following satisfactory progress in the Dissertation or Design thesis proposal in 4th level, the main aim is for the student to further develop the approved proposal, based on the feedback provided by the examiners and the continuing guidance of the assigned supervisor.
- To critically review the relevant literature in the approved topic and develop independent standpoints and arguments;
- For students following a research pathway, the course will prepare and equip them with the skills needed to explore interests and ideas further through PhD study;
- To offer insights, solutions, in-depth understanding or interpretations of matters arising from distinct, specialist subject areas; and
- To develop and improve independent thinking and core research and analytical skills.

2. Teaching Mode: (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom		
2	E-learning		
3	Hybrid • Traditional classroom • E-learning		
4	Distance learning		
5	Laboratory/Studio	2000	100%

3. Contact Hours: (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	
2.	**Laboratory/Studio**	2000
3.	**Field**	
4.	**Tutorial**	
5.	**Others (specify)……**	
	Total	2000

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods:

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	Refine a research question/hypothesis or design strategies based on identified challenges or opportunities	K1	Supervisory meeting to review the research proposal, discuss feedback received from the fourth-level submission, and	Submission of a written dissertation or design thesis, along with drawings and a design report that

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
			outline the execution plan.	encompasses design analysis.
1.2	Demonstrate autonomy, critical thinking, understanding, synthesis and active engagement with the current knowledge base in environmental architecture by critically reviewing literature that is relevant to individual interest and a defined a project scope.	K2 and K3	Supervisory meeting to discuss chapter structure and progress to date	Submission of written dissertation or design thesis drawings and a design report, including design analysis.
...				
2.0	**Skills**			
2.1	Take responsibility and leadership for undertaking a sustained period of independent study; and executing a research or design thesis project at a PhD level originality.	S1	Supervisory meeting to discuss progress and initial results	Submission of written dissertation or design thesis drawings and a design report, including design analysis.
2.2	Plan, develop and apply appropriate research methods/tools, knowledge, analytical skills and intellectual rigor in the execution of a significant research project or design thesis, whilst taking account of health, safety and ethical issues.	S2 and S3	Submission of initial chapters with discussion at supervisory meeting	Submission of written dissertation or design thesis drawings and a design report, including design analysis.
...				
3.0	**Values, autonomy, and responsibility**			
3.1	Critically interpret research findings and discuss their significances	V1 and V2	Presentation to the supervisors and peers	Submission of written dissertation or design thesis drawings and a

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
				design report, including design analysis.
3.2	Communicate concepts and individual standpoints fluently and effectively in writing or drawings in a clear, logical, concise and accurate professional style and standard citation conventions.	V1-V4	Submission of draft thesis with feedback (supervisory meeting)	Submission of written dissertation or design thesis drawings and a design report, including design analysis.

C. Course Content:

No	List of Topics	Contact Hours
1.	Students must submit a dissertation or design thesis focused on a specific area of chemistry previously covered in the course. The submission should encompass the following components: Introduction/context, Literature review and/or context, Methods, Results, Discussion, and Conclusion. The assessment of the dissertation/design thesis will be conducted by five internal examiners. The evaluation will focus significantly on originality, emphasizing an analytical approach that may involve reconfiguring material or presenting information in innovative ways. Additionally, a brief defense will precede the internal examination.	≥ 2000
2.		
3.		
4.		
5.		
Total		**≥ 2000**

D. Students Assessment Activities:

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Submission of written dissertation or design thesis drawings and a design report, including design analysis.	≥ 3-4 semesters	100%
2.			
3.			
...			

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.)

E. Learning Resources and Facilities:

1. References and Learning Resources:

Essential References	1. Groat, L. and Wang, D. (2013). Architectural research methods. 2nd ed. Oxford: John Wiley & Sons. 2. Willis, P. (1983). Dissertation Handbook: A Guide to Research and Writing. London: RIBA. 3. Fellows, R. and Liu, A. (2008). Research methods for construction. Oxford: John Wiley & Sons. 4. Knight, A. and Ruddock, L. (2008). Advanced Research Methods in the Built Environment. Oxford: Wiley-Blackwell. 5. Creswell, J. (2013). Research Design: Qualitative, Quantitative and Mixed Methods Approaches. 4th ed. London: Sage Publications. 6. Additional bibliography to be compiled by individual student based on the specific study area, with guidance from supervisor.
Supportive References	Any related books available in the library.
Electronic Materials	Through internet research
Other Learning Materials	Any software used in statistical calculations

2. Educational and Research Facilities and Equipment Required:

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Research Laboratories

Items	Resources
Technology equipment (Projector, smart board, software)	Projector and smart board are available for all students.
Other equipment (Depending on the nature of the specialty)	Specific laboratory equipment to be compiled by individual student based on the specific study area, with guidance from supervisor. Analytical chemistry instruments/Software's

F. Assessment of Course Quality:

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Supervisor and Peer Reviewer	Upon finishing the final thesis, the PI and Co-PI supervisor submit the thesis validity report to the special committee for approval. The student is required to deliver a seminar to the public, followed by a closed session with the special committee for a detailed discussion on the thesis. Finally, a formal submission of the thesis report and results must be made through established procedures.
Effectiveness of students assessment	Examiner committee	Public Seminar/Closed discussion
Quality of learning resources	Faculty and students	Quality assurance committee is available in the department for evaluation of teaching
The extent to which CLOs have been achieved	Program leaders	The course materials should be reviewed by the department and the faculty boards
Other		

Assessor (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)

Assessment Methods (Direct, Indirect)

G. Specification Approval Data:

COUNCIL /COMMITTEE	
REFERENCE NO.	
DATE	