جامعة أم القرى

كلية الهندسة والعمارة الإسلامية

الماجستير في العمارة

4. Learning and Teaching

4/1 Learning Outcomes and Graduate Specifications

4/1/1 Main Tracks or Specializations Covered by the Program:

(a) Sustainable Design

(b) To be added later (Digital Architecture)

(c) To be added later (Smart Urbanism)

4/1/2 Curriculum Study Plan Table:

Level	Course Code	Course Title	Required or Elective	Prerequisite Courses	Credit Hours
Level 1	801611-3	Research Methods	R	--	3
	801612-3	Design Visualization	R	--	3
	801613-3	Sustainable Built Environment	R	--	3
	80161##-3	Group I – Department Elective Course #1	E		3
Semester 1				Total Credit Hours	12
Level 2	801621-5	Sustainable Design Studio I	R	Sustainable built Environment	5
	801622-3	Energy Efficiency in Buildings	R	--	3
	801623-3	Building Simulation Tools & Techniques	R	Design Visualization	3
Semester 2				Total Credit Hours	11
Level 3	801631-5	Sustainable Design Studio II	R	Sustainable design studio I	5
	801632-3	Sustainability Assessment Tools and Methods	R		3
	8016##-3	Group II – Track Elective Course #1	E	--	3
Semester 3				Total Credit Hours	11
Level 4	801641-6	Capstone Research.	R	Sustainable design Studio II	6
	8016##-3	Group II – Track Elective Course #2	E	--	3
Semester 4				Total Credit Hours	9

Elective Courses:

Group I: Department Elective Courses:

Course Code	Course Title	Prerequisite Courses	Credit Hours
801651-3	Creative Architecture Techniques	--	3
801652-3	Architectural & Urban Entrepreneurship	--	3
801653-3	Computer-Based Construction Management	--	3

Group II: Track Elective courses:

Course Code	Course Title	Prerequisite Courses	Credit Hours
801661-3	Building Design in Different Climates	--	3
801662-3	Low and Zero Carbon Energy Systems	--	3
801663-3	Special topics in Renewable Energy Systems	--	3
801664-3	Environmental Impact Assessment and Sustainability	--	3
801665-3	Sustainable Urban Design	--	3
801666-3	Sustainable Conservation of the Historic Built Environment	--	3

Program Total Credit Hours:

Department compulsory courses:	(9)	Credit Hours
Track compulsory courses:	(19)	Credit Hours
Capstone Research Project:	(6)	Credit Hours
Group I – Department elective course:	(3)	Credit Hours
Group II – Track elective course:	(6)	Credit Hours
Total Credit Hours:	**(43)**	**Credit Hours**

4/1/4. Course Specification:

Kingdom of Saudi Arabia

Ministry of Education

Umm Al-Qura University

Course Specifications

(CS)

Research Methods - (801611-3)

Department Compulsory Courses

Course Specifications

Institution **Umm Al-Qura University**	Date of Report **October 2018**
College/Department **College of Islamic Architecture and Engineering / Department of Islamic Architecture.**	

A. Course Identification and General Information

1. Course title and code: **Research Methods**		**SUS 801611-3**
2. Credit hours **3**		
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **Masters of Architecture Program.**		
4. Name of faculty member responsible for the course:		
5. Level/year at which this course is offered: **Level 1 / Year 1**		
6. Pre-requisites for this course (if any): **None**		
7. Co-requisites for this course (if any**):** **None**		
8. Location if not on main campus		
9. Mode of Instruction (mark all that apply)		
a. Traditional classroom		What percentage?
b. Blended (traditional and online)	X	What percentage? **100%**
c. e-learning		What percentage?
d. Correspondence		What percentage?
f. Other		What percentage?
Comments:		

B Objectives:

1. What is the main purpose for this course?

This module provides the student with the required skills to do a dissertation or research project at postgraduate level in architecture. It is an introduction to various methods and techniques for conducting research work, and producing complete research documents (e.g. reports, papers, and dissertations). It aims to:

- Help students in building skills in developing research programs, critical thinking, data collection, analysis and organization of findings into thorough writings and well-documented papers.
- Build students' basic knowledge about the stages/processes of effective research, survey of resources, reading stage, formulation of hypotheses, building an argument, drawing conclusions, writing-up and citing of sources
- Enable students to adopt analytical and systematic thinking in solving urban design problems.
- Help Ability to apply principles of research methodology in solving urban design problems.
- Enable students to decide on the appropriate methods for diverse cases in urban issues.
-

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached)

This course addresses both qualitative and quantitative research methods designed to address architectural issues and concerns. The course emphasizes on the use of computer packages for analyzing design data. It introduces students to different research techniques and methods employed by the design profession. In order to prepare built environment user's profile, students will engage in library research as well as field investigations, interviews, simulations and surveys. In addition, the course will cover traditional research techniques. Through the research, students will be encouraged to select topics related to their academic interests in the track as a first step to their research journey.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Introduction to research methods.	1	3
Research methods in architectural design	1	3
Research methodologies	1	3
Research design approaches	1	3
Qualitative research and unobtrusive measures	1	3
Interviews, focus groups and content analysis	1	3
Quantitative methods in architecture and urban design.	1	3
Scientific approaches in testing and measuring techniques.	1	3
Statistics and case studies' sampling	1	3
Extrapolation	1	3
Interview analysis	1	3
Component analysis	1	3
Final presentations and discussion	2	6
Total	**14**	**42**

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory	Practical	Other: Blended	Total
Contact Hours					**42**	**42**
Credit					**3**	**3**

3. Additional private study/learning hours expected for students per week. **4 hours weekly**

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

Course Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning, assessment, and teaching. Every course is not required to include learning outcomes from each domain.

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Has thorough knowledge and critical understanding of the sustainable development including principal concepts, principles and theories and their current application to the sustainable design research or its professional practice.	– Direct learning (lecture) – Interactive learning (dialogue & discussion) – Self –learning (research work)	– Essay-type examination – Evaluation of research paper – Presentation
2.0	**Cognitive Skills**		
2.1	Can apply common and specialized research techniques in the creative analysis of complex issues and development of conclusions and proposals relevant to sustainable design.	– Interactive learning (creative thinking) – Self –learning (research work)	– Evaluation of research paper – Presentation
2.2	Can synthesize and apply research and scholarly publications or professional reports and can develop significant new ideas and integrate them into or challenge established knowledge.	– Interactive learning (creative thinking) – Self –learning (research work)	– Evaluation of research paper – Presentation
3.0	**Interpersonal Skills & Responsibility**		
3.1	Takes initiative in identifying and responding creatively to complex issues and problems in sustainable design.	– Interactive learning (dialogue & discussion) – Interactive learning (creative thinking) – Self –learning (research work)	– Assignments and tasks – Presentation – Evaluation of research paper
4.0	**Communication, Information Technology, Numerical**		
4.1	Communicates effectively and at appropriate levels with academic and professional audiences and the wider community through informal and formal reports and presentations and academic and professional publications, including major research project.	– Interactive learning (dialogue & discussion) – Self –learning (research work)	– Assignments and tasks – Presentation – Evaluation of research project
5.0	**Psychomotor**		
5.1	Not Applicable		

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Continuous Assessment**	**1-13**	**40 %**
2	**Mid Term Exam**	**8**	**20 %**
3	**Final Exam**	**15**	**40 %**
	Total		**100%**

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

Office hours: 2 hours/ week

E. Learning Resources

1. List Required Textbooks

- Groat, Linda N, **Architectural Research Methods,** Wiley ISBN: 0-470-90855-6, 978-0-470-90855-6, 2013.
- Robert W. Marans, Robert J. Stimson, **Investigating Quality of Urban Life - Theory, Methods, and Empirical Research,** Springer Science +Business Media B.V. 2011
- Hasso Plattner, Christoph Meinel, Larry Leifer**, Design Thinking Research Building Innovation Eco-Systems,** Larry Leifer Center for Design Research (CDR) Stanford University Stanford CA USA. 2014.

2. List Essential References Materials (Journals, Reports, etc.)

- Yin, R. K. **Case Study Research: Design and Methods.** (4th ed) Bickman, L. Applied Social Research Methods Series, (5), Sage, 2009.
- Saldaa, J. ***The Coding Manual for Qualitative Researchers***. Sage, London, UK, 2009.
- Judd, C., Smith, E., & Kidder, L.H., **Research Methods in Social Relations** (7th ed.), Holt, Rinehart and Winston; New York, 2002.
- Hay, I. (Ed.), **Qualitative Research Methods in Geography**, Oxford University Press; Melbourne, 2000.
- Sanoff, H., Visual **Research Methods in Design,** Van Nostrand Reinhold; New York, 1991.
- Belmont, C.A., **Statistics.** Fourth Edition, Brooks/Cole Thomson Learning; 2005.

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)

Websites on the internet that are relevant to the topics of the course

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

Multimedia associated with the text book and the relevant websites

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)

1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)

- **Lecture room**

2. Computing resources (AV, data show, Smart Board, software, etc.)

- **PC connected to a data show for lectures, GIS and ArcView software and internet connection**

3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching

- **Course evaluation by student.**
- **Ask students questions directly to gauge their understanding to the materials presented in the lecture.**

2. Other Strategies for Evaluation of Teaching by the Program/Department Instructor

- **Peer consultation on teaching**
- **Departmental council discussions**
- **Electronic course evaluation to be completed by students**

3. Processes for Improvement of Teaching

- **Considering students' feedback in every lecture to improve teaching processes.**
- **Meetings with other faculties and peers to discuss opinions and ideas on how to improve and to teach specific topics.**
- **Developing means of presenting the subject's material to be more attractive to students.**
- **Conducting workshops given by experts on the teaching and learning methodologies**
- **Periodical departmental revisions of its methods of teaching**
- **Monitoring of teaching activates by senior faculty members**

4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)

- **Pop-questions at the beginning of the lecture about the previous one would refer to their standard.**
- **Assigning group of faculty members teaching the same course to grade same questions for various students.**
- **Inviting a guest-lecture specialized in their subject area and stimulates a dialogue between him/her and the students to measure their responses to specific questions.**
- **Providing samples of all kind of assessment in the departmental course portfolio of each course.**
- **Check marking by an independent faculty member for students' final exam.**

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

- **The course material and learning outcomes are periodically reviewed and the changes to be taken are approved in the departmental and higher councils.**
- **The head of department and faculty take the responsibility of implementing the proposed changes.**
- **Review students course evaluation and respond to the issues presented.**
- **Advising the library with the most recent books and periodicals that discuss the subject matter.**
- **Increase the use of online facilities (discussions, answer questions, etc.)**
- **Improving the course by checking the size of the materials provided.**
- **Involving students in preparing parts of the lecture beforehand and giving their feedback about the content at the beginning of the lecture.**

Faculty or Teaching Staff: _____

Signature: _____ **Date Report Completed:** _____

Received by: _____ **Dean/Department Head**

Signature: _____ **Date:** _____

Kingdom of Saudi Arabia

Ministry of Education

Umm Al-Qura University

Course Specifications

(CS)

Design Visualization (801612-3)

Department Compulsory Courses

Course Specifications

Institution **Umm Al-Qura University**	Date of Report **October 2018**
College/Department **College of Islamic Architecture and Engineering / Department of Islamic Architecture.**	

A. Course Identification and General Information

1. Course title and code: **Design Visualization – SUS 801612-3**
2. Credit hours **3**
3. Program(s) in which the course is offered.
(If general elective available in many programs indicate this rather than list programs)
Master of Architecture Program
4. Name of faculty member responsible for the course:
5. Level/year at which this course is offered: **Level 1/ Year 1**
6. Pre-requisites for this course (if any): **None**
7. Co-requisites for this course (if any**):** **None**
8. Location if not on main campus
9. Mode of Instruction (mark all that apply)

A. Traditional classroom		What percentage?	
B. Blended (traditional and online)	X	What percentage?	100
C. e-learning		What percentage?	
D. Correspondence		What percentage?	
F. Other		What percentage?	

Comments: **The candidate will be asked to attend traditional classes and online tutorials.**

B Objectives

1. What is the main purpose for this course?
   - To develop clear understanding of what visualization on architecture is, its importance, techniques, theories and most trending software.
   - Master diverse digital design techniques to be able to communicate design ideas and concepts.
   - Ability to develop multiple visualization skills using advanced computer applications at all levels (2D and 3D, digital and physical).
   - Develop montaging approaches including all design stages: sketches, concept, analysis, design and final presentation.
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached)

This course offers students an overview of the computer visualization applications. Students will be shown different digital visualization techniques inherent throughout the design process from analysis, conceptual sketches, and presentation drawings. Throughout the term, students will be assessed based on the weekly topics. Assignments will be presented and criticized in each class. This will contribute to develop the students' digital visualization skills.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Introduction – Visualization methods as a way of understanding complex data, developing new modeling tools, and communicating research outcomes.	1	3
Differing approaches that each profession takes in the digital creative process.	1	3
Digital forms of advanced computer-based visualization techniques.	1	3
Visualization theories, most trending software and analysis systems that are integral to effective deployment in advanced spatial analysis.	1	3
Data-based visualizations using emerging web technologies, model-based visualization.	1	3
2D sketching, technical illustration and workshop based scaled model making using high level 3D processes.	1	3
The use of virtual environments and 3D modelling as flexible intellectual toolkit for future research and professional development	1	3
Competent digital design in presenting interactive media.	1	3
Core organizing concepts and techniques of Geographic Information Systems	1	3
2D and 3D software to develop the relationship between actual and virtual cities, navigating the past, present and future.	1	3
Visual communication project (advanced computer software)	4	12
Total	**14**	**42**

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory	Practical	Other: Blended	Total
Contact Hours					**42**	**42**
Credit					**3**	**3**

3. Additional private study/learning hours expected for students per week. **4 hours weekly**

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

Course Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning, assessment, and teaching. Every course is not required to include learning outcomes from each domain.

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Has thorough knowledge and critical understanding of the visualization principles, concepts, tools, and their current implementations.	– Direct learning (lecture). – Self-Learning (online tutorials).	– Multiple-Choice exams – Assignments and tasks
1.2	Demonstrates understanding of the new visualization software, the techniques and the most recent research in the field.	– Direct learning (lecture). – Self-Learning (online tutorials).	– Multiple-Choice exams – Assignments and tasks
2.0	**Cognitive Skills**		
2.1	Consistently applies practical and theoretical knowledge in dealing with a wide variety of novel and unpredictable scholarly and/or professional contexts and develops original and creative responses to issues and problems related to digital visualization.	– Interactive learning (dialogue & discussion). – Indirect learning (problem solving).	– Assignments and tasks. – Presentation.
3.0	**Interpersonal Skills & Responsibility**		
3.1	Where additional information or skills are required takes independent action to acquire and apply that information or skill.	– Indirect learning (problem solving) – Self-Learning (online assignments).	– Assignments and tasks. – Presentation
4.0	**Communication, Information Technology, Numerical**		
4.1	Obtains, critically evaluates, and makes effective use of mathematical and statistical data.	– Indirect learning (problem solving) – Self-Learning (online assignments).	– Assignments and tasks. – Presentation
5.0	**Psychomotor**		
5.1	Not Applicable		

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Continuous Assessment**	**1-13**	**40 %**
2	**Mid Term Exam**	**8**	**20 %**
3	**Final Exam**	**15**	**40 %**
	Total		**100%**

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

Office hours: 2 hours / week

E. Learning Resources

1. List Required Textbooks – Roberto Bottazzi, 2018. **Digital Architecture Beyond Computers: Fragments of a Cultural History of Computational Design**, Bloomsbury Visual Arts – Stefano Brusaporci, 2015. **Handbook of Research on Emerging Digital Tools for Architectural Surveying, Modeling, and Representation**, Science, Engineering, and Information Technology – Karen M'Closkey, Keith VanDerSys, 2017. **Dynamic Patterns: Visualizing Landscapes in a Digital Age**. Rutledge, 2 Park Squarem Milton Park, Abrigdon, OX14 4RN.
2. List Essential References Materials (Journals, Reports, etc.)
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) – Koutamanis, A., 2000. Digital architectural visualization. Automation in Construction, 9(4), pp.347-360. – Oxman, R., 2008. Digital architecture as a challenge for design pedagogy: theory, knowledge, models and medium. Design Studies, 29(2), pp.99-120.
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. **Videos provided by the instructor and relevant websites**

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) – **Lecture room**
2. Computing resources (AV, data show, Smart Board, software, etc.) – **PC connected to a data show for lectures, visualization software and internet connection**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) – **Computer lab with 15 PCs equipped with the required visualization software and internet connection.**

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching – **Regular attendance of students and complete all assignments must be noted.** – **Course evaluation by student.** – **Ask students questions directly to gauge their understanding to the materials presented in the lecture.**
2. Other Strategies for Evaluation of Teaching by the Program/Department Instructor – **Peer consultation on teaching** – **Departmental council discussions** – **Electronic course evaluation to be completed by students**

3. Processes for Improvement of Teaching – **Considering students' feedback in every lecture to improve teaching processes.**

- **Meetings with other faculties and peers to discuss opinions and ideas on how to improve and to teach specific topics.**
- **Developing means of presenting the subject's material to be more attractive to students.**

4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)

- **Pop-questions at the beginning of the lecture about the previous one would refer to their standard.**
- **Assigning group of faculty members teaching the same course to grade same questions for various students.**
- **Inviting a guest-lecture specialized in their subject area and stimulates a dialogue between him/her and the students to measure their responses to specific questions.**
- **Check marking by an independent faculty member for students' final exam.**

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

- **Advising the library with the most recent books and periodicals that discuss the subject matter.**
- **Increase the use of online facilities (discussions, answer questions, etc.)**
- **Involving students in preparing parts of the lectures beforehand and giving their feedback about the content at the beginning of the lecture.**

Faculty or Teaching Staff: _____

Signature: _____ **Date Report Completed:** _____

Received by: _____ **Dean/Department Head** _____

Signature: _____ **Date:** _____

Kingdom of Saudi Arabia
Ministry of Education
Umm Al-Qura University

Course Specifications
(CS)

Sustainable Built Environment - (801613-3)

Department Compulsory Courses

Course Specifications

Institution **Umm Al-Qura University**	Date of Report **October 2018**
College/Department **College of Islamic Architecture and Engineering / Department of Islamic Architecture.**	

A. Course Identification and General Information

1. Course title and code: **Sustainable Built Environment** **SUS 801613-3**
2. Credit hours **3**
3. Program(s) in which the course is offered.
(If general elective available in many programs indicate this rather than list programs)
Master of Architecture Program
4. Name of faculty member responsible for the course:
5. Level/year at which this course is offered: **Level 1 / Year 1**
6. Pre-requisites for this course (if any): **None**
7. Co-requisites for this course (if any**):** **None**
8. Location if not on main campus
9. Mode of Instruction (mark all that apply)

a. Traditional classroom	X	What percentage?	70%
b. Blended (traditional and online)	X	What percentage?	30%
c. e-learning		What percentage?	
d. Correspondence		What percentage?	
f. Other		What percentage?	

Comments:
The module will be delivered through:

- Lectures: The principal subject matter will be explained in lectures, assisted by visual aids, interaction with the students and, where applicable, demonstrations.
- On-line support material and reading: The module content will be accessible to students in electronic form on line. In addition, certain texts will be used as main reference sources to ensure that students are familiar with the material covered in them.
- Assignments: There will be practical exercises set to give students practice in implementing some subject-specific skills.

B. Objectives:

1. What is the main purpose for this course?

The main objectives of the course are to:

- Enable a deeper knowledge of the sustainable built environment in terms of **social, economic and built environment**.
- Build the students ability to
  - Critically and systematically integrate knowledge of long-term sustainability in complex-built environment design processes.
  - Examine and critically evaluate strengths and weaknesses of practical applications of sustainable development and its **economic, social** and environmental components in given cases, working cooperatively in field work and in presentations at seminars and in individually written papers.
  - Coherently and logically, describe, analyze and interpret one relevant area of sustainable urban development, in a written course assignment with reference to research methods' course literature and a case of choice. The research should include **social, economic and environmental** related issues
  - Recognize the relationships between different scientific disciplines that play a role in designing the built environment
- Educate students in using modern technology to solve and present problems and concepts related to the sustainable built environment.

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached)

This course emphasizes the need for a symbiotic and functional relationship in which ecology, culture and technology evolve and adapt. The course introduces the fundamental principles guiding sustainable development of the built environment including avoidance or minimization of negative impacts on the environment; conservation and efficient use of natural resources; preservation of cultural patterns; and ecological harmony and respect for biodiversity.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Introduction to sustainable built environment.	1	3
Built environment characteristics and their impacts on user's comfort in terms of social, economic and culture.	1	3
Effective environmental strategies and policies in planning.	1	3
The international context for sustainable development, energy efficiency and climate change. (SDG)	1	3
Reviews techniques for assessing the impacts of development.	1	3
Sustainable design strategies (principles of sustainable design, passive heating and cooling, day lighting, site layout, alternative building envelops)	1	3
Renovation or refurbishment of the existing building stock	1	3
Sustainable project management (project planning, site and waste management)	1	3
Facilities management, refurbishment and decommissioning	1	3
Buildings whole life value and costing	1	3
Sustainable materials and supply chain management	1	3

Risk management in the built environment in changing climates and their impact on resilience of local communities.	1	3
Building performance evaluation aspects (social, economic, culture and function)	1	3
Case studies of best practice (design and construction, use and refurbishment, demolition / end use)	1	3
Total	**14**	**42**

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory	Practical	Other: Blended	Total
Contact Hours					**42**	**42**
Credit					**3**	**3**

3. Additional private study/learning hours expected for students per week. **2 hours weekly**

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

Course Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning, assessment, and teaching. Every course is not required to include learning outcomes from each domain.

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Has thorough knowledge and critical understanding of the sustainable built environmental impact assessment including principal concepts, principles and theories and their current application to the topic.	– Direct learning (lecture) – Interactive learning (dialogue & discussion) – Self –learning (research work)	– Essay-type examination – Multiple-Choice exams – Evaluation of research paper
1.2	Is aware of recent regulatory provisions in the local and international environment that might affect sustainable built environment design and of reasons for and future implications of those changes.	– Direct learning (lecture) – Interactive learning (dialogue & discussion) – Self –learning (research work)	– Essay-type examination – Multiple-Choice exams – Evaluation of research paper
2.0	**Cognitive Skills**		
2.1	Consistently applies practical and theoretical knowledge in dealing with a wide variety of novel and unpredictable scholarly and/or professional contexts, and develops original and creative responses to issues and problems related to sustainability, Islamic Identity, etc.	– Interactive learning (dialogue & discussion) – Interactive learning (creative thinking) – Self –learning (research work)	– Assignments and tasks – Presentation – Evaluation of research paper
2.2	Can synthesize and apply research and scholarly publications or professional reports and can develop significant new ideas and integrate them into or challenge established knowledge.	– Interactive learning (creative thinking) – Indirect learning (problem solving) – Self –learning (research work)	– Assignments and tasks – Presentation – Evaluation of research paper
3.0	**Interpersonal Skills & Responsibility**		
3.1	Accepts full responsibility for own work and cooperates fully and constructively with	– Self –learning (research work)	– Assignments and tasks – Presentation

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
	others in dealing with issues and problems, exercising both informal and formal leadership skills where appropriate.	– Interactive learning (creative thinking) – Indirect learning (problem solving)	– Evaluation of research paper.
4.0	**Communication, Information Technology, Numerical**		
4.1	Communicates effectively and at appropriate levels with academic and professional audiences and the wider community through informal and formal reports and presentations and academic and professional publications, including major research project.	– Interactive learning (brain storming) – Interactive learning (dialogue & discussion) – Self –learning (research work)	– Presentation – Evaluation of research project
5.0	**Psychomotor**		
5.1	Not Applicable		

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Continuous Assessment**	**1-13**	**40 %**
2	**Mid Term Exam**	**8**	**20 %**
3	**Final Exam**	**15**	**40 %**
	Total		**100%**

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)
Office hours: 2 hours / week

E. Learning Resources

1. List Required Textbooks
- Rob Fleming , Saglinda H Roberts . **Sustainable Design for the Built Environment** 1st Edition , Routledge-Taylor&Francis Group , ISBN-13: 978-1138066175
- Parr, A. and Zaretsky, M. (eds), **New Directions in Sustainable Design**, Routledge London, 2010.
- Moore, S. A. (ed.), **Pragmatic Sustainability: Theoretical and Practical Tools**, Routledge; London, 2009.
- Lauren, C. and Susan, M. **Local Sustainable Urban Development in A Globalized World**. Ashgate publishing company, Burlington, USA, 2008

2. List Essential References Materials (Journals, Reports, etc.)
- Jenks, M. and Dempsey, N. (eds.), **Future Forms and Design For Sustainable Cities**, Architectural Press; Oxford, 2005.
- Dresner, S., **The Principles of Sustainability**, Second Edition, Earthscan; London, 2008.
- Bell, S. & Morse, S., **Sustainability Indicators. Measuring the Immeasurable***?,* Earthscan; London, 2008.
- Farr, D., **Sustainable Urbanism: Urban Design with Nature**, Wiley; Chichester, 2008.
- Wines, J., **Green Architecture**, Taschen; London, 2008.
- Ryn,S. and Cowan, S., **Ecological Design**, 10th Anniversary Edition, Island"Press; Washington, D.C, 2007.
- Steven V.Szokolay , **Introduction to Architecture Science : the basis of sustainable design**. Architecture Press,2004,0-706-58495
- TA Markus, EN Morris. **Buildings, Climate and Energy**. London, Pitman, 1980. 0-273-00268-6 Randall McMullan and Ivor H Seeley. Environmental Science in Building. Palgrave Macmillan, 2007

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

- Buchanan, P., **Ten Shades of Green: Architecture and the Natural World**, *Architectural League of New York*; New York, 2005.
- Edwards, B., **Rough Guide to Sustainability**, Second Edition, RIBA Enterprises 4; London, 2005.
- Wheeler, S., **Planning for Sustainability: Creating Livable, Equitable, and Ecological Communities**, Routledge; New York, 2004.
- Beatley, T., **Green Urbanism: Learning from European Cities**, Island Press; Washington, D.C., 2000.
- Thompson, J.W., Sorvig, K., **Sustainable Landscape Construction – A Guide to Green Building Outdoors**, Washington DC: Island Press, 2000.
- McHarg, I.L., **Design with Nature**, Wiley, London, 1995.
- Satterthwaite, D. (ed.), **The Earthscan Reader in Sustainable Cities**, Earthscan; London, 1999.
- Brooks, R.G., **Site Planning: Environmental Process and Development**, Prentice Hall, New York, 1987.

4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

Relevant websites

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)

1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)
   - **Lecture room**

2. Computing resources (AV, data show, Smart Board, software, etc.)
   - **PC connected to a data show for lectures, ArcView software and internet connection**

3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching
- **Regular attendance of students and complete all assignments must be noted.**
- **Course evaluation by student.**
- **Ask students questions directly to gauge their understanding to the materials presented in the lecture.**

2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor
- **Peer consultation on teaching**
- **Departmental council discussions**
- **Electronic course evaluation to be completed by students**

3 Processes for Improvement of Teaching
- **Periodical departmental revisions of its methods of teaching**
- **Monitoring of teaching activates by senior faculty members**
- **Considering students' feedback in every lecture to improve teaching processes.**
- **Meetings with other faculties and peers to discuss opinions and ideas on how to improve and to teach specific topics.**
- **Developing means of presenting the subject's material to be more attractive to students.**

4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)

- **Pop-questions at the beginning of the lecture about the previous one would refer to their standard.**
- **Assigning group of faculty members teaching the same course to grade same questions for various students.**
- **Inviting a guest-lecture specialized in their subject area and stimulates a dialogue between him/her and the students to measure their responses to specific questions.**
- **Check marking by an independent faculty member for students' final exam.**

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

- **Advising the library with the most recent books and periodicals that discuss the subject matter.**
- **Increase the use of online facilities (discussions, answer questions, etc.)**
- **Involving students in preparing parts of the lectures beforehand and giving their feedback about the content at the beginning of the lecture.**

Faculty or Teaching Staff: _____

Signature: _____ **Date Report Completed:** _____

Received by: _____ **Dean/Department Head:** _____

Signature: _____ **Date:** _____

Kingdom of Saudi Arabia
Ministry of Education
Umm Al-Qura University

Course Specifications
(CS)

Sustainable Design Studio I - (801621-5)

Track compulsory courses

Course Specifications

Institution **Umm Al-Qura University**	Date of Report **October 2018**
College/Department **College of Islamic Architecture and Engineering / Department of Islamic Architecture.**	

A. Course Identification and General Information

1. Course title and code: **Sustainable Design studio I**		**SUS 801621-5**
2. Credit hours **6**		
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **Master of Architecture Program**		
4. Name of faculty member responsible for the course:		
5. Level/year at which this course is offered:	**Level 2 / Year 1**	
6. Pre-requisites for this course (if any):	**Sustainable Built Environment**	
7. Co-requisites for this course (if any):	**None**	
8. Location if not on main campus		
9. Mode of Instruction (mark all that apply)		
a. Traditional classroom		What percentage?
b. Blended (traditional and online)	X	What percentage? 100%
c. e-learning		What percentage?
d. Correspondence		What percentage?
f. Other		What percentage?
Comments: **Sustainable Design Studio**		

B Objectives

1. What is the main purpose for this course?

This module provides the student with the required skills to:

- Analyze physical conditions of environmental conditions of building, assess its thermal performance, propose a sustainable architectural design.
- Assess environmental requirement and users comfort needs.
- Produce innovative design ideas and concepts that are reliable and professional,
- Enhance problem solving methods for large size and complex architectural projects,
- Produce architectural forms and plans that express professional capability,
- Express and present an understanding of the qualities of architectural materials,
- Develop professional attitude and team work spirit,
- Evaluate Impact of different forms and orientations on the building environmental performance in a complex architectural project.
- Master techniques of various computer software.

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web-based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached)

This course is a comprehensive sustainable architectural design studio. It examines particular architectural determinants in the sustainable research domain. It emphasizes a wide-ranging integration of building systems within an ordered design concept. Analysis includes thermal behaviour considerations in building design, planning and integration of building systems, building services and building envelope design as an appropriate architectural expression adopting the sustainable design approach

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
– Course Introduction - Handout of Term Project	1	10
– Location analysis & Project statement	1	10
– Project research		
– Project Functional and Environmental Requirements - **Assignment-1**	1	10
– Work Development - Discussion/Research	1	10
– Project Main Concept - **Assignment-2**	1	10
– Work development	1	10
– Work development	1	10
– **Mid Term** – Design Proposal Environmental Simulation.	1	10
– Work Development - Discussion/Research	1	10
– Environmental Impact Assessment Design Report - **Assignment-4**	1	10
– Work Development	1	10
– Project Sketch Semi-final **Assignment-5**	1	10
– Work Development	1	10
– Work Development	1	10
– **Term Project Final Submission** - [Jury & presentations]		
Total	**14**	**140**

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory	Practical	Other: **Studio**	Total
Contact Hours					**10**	**140**
Credit					**5**	**5**

3. Additional private study/learning hours expected for students per week. **20 hours weekly**

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

Course Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning, assessment, and teaching.
Every course is not required to include learning outcomes from each domain.

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Demonstrates understanding of how new knowledge is developed and applied and the effects of recent research on the store of knowledge in sustainable development and on associated professional practice.	– Interactive learning (dialogue & discussion) – Self –learning (research work)	– Oral examination – Presentation
1.2	Demonstrate understanding of the importance and the impact of Islamic values in addition to standards and professional ethics in the field of sustainable architecture design.	– Interactive learning (dialogue & discussion) – Self –learning (research work)	– Oral examination – Presentation
1.3	Demonstrates understanding of sustainable development at the forefront of theory, research and/or professional practice in sustainable design..	– Interactive learning (dialogue & discussion) – Self –learning (research work)	– Oral examination – Presentation
2.0	**Cognitive Skills**		
2.1	Consistently applies practical and theoretical knowledge in dealing with a wide variety of novel and unpredictable scholarly and/or professional contexts, and develops original and creative responses to issues and problems related to sustainability, Islamic Identity, etc.	– Interactive learning (creative thinking) – Indirect learning (problem solving) – Self –learning (research work)	– Assignments and tasks – Evaluation of projects – Presentation
2.2	Can synthesize and apply research and scholarly publications or professional reports, and can develop significant new ideas and integrate them into or challenge established knowledge.	– Interactive learning (creative thinking) – Indirect learning (problem solving) – (research work)	– Assignments and tasks – Evaluation of projects – Presentation
2.3	Can independently plan and execute a major project or piece of scholarly research applying practical and theoretical knowledge and research techniques and producing sound conclusions that add significantly to existing knowledge or professional practice in sustainable design.	– Interactive learning (creative thinking) – Indirect learning (problem solving) – Self –learning (research work)	– Assignments and tasks – Evaluation of projects – Presentation
3.0	**Interpersonal Skills & Responsibility**		
3.1	Takes initiative in identifying and responding creatively to complex issues and problems in sustainable design.	– Interactive learning (creative thinking) – Indirect learning (problem solving)	– Assignments and tasks – Evaluation of projects
3.2	In group situations acts in ways that consistently enhance the effectiveness of the group as a whole.	– Interactive learning (creative thinking) – Indirect learning (problem solving)	– Assignments and tasks – Evaluation of projects
4.0	**Communication, Information Technology, Numerical**		
4.1	Communicates effectively and at appropriate levels with academic and professional audiences and the wider community through informal and formal reports and presentations and academic and professional publications, including major research project.	– Interactive learning (brain storming) – Interactive learning (dialogue & discussion)	– Oral examination – Presentation
4.2	Uses a wide range of appropriate information and communications technology in investigating issues and in communicating conclusions and recommendations.	– Interactive learning (brain storming) – Interactive learning (dialogue & discussion)	– Oral examination – Presentation

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
5.0	**Psychomotor**		
5.1	Produce professional sketches and technical design calculations and prepare advanced simulation models illustrating design performance.	– Interactive learning (dialogue & discussion) – Self –learning (Project work)	– Presentation – Evaluation of projects

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Class Participation**	**1-15**	**20 %**
2	**Problem definition and analysis**	**4**	**10 %**
3	**Sustainable Design Strategies Assignment**	**9**	**20 %**
4	**Implementation Techniques**	**12**	**20%**
5	**Final Jury (Presentation & Oral)**	**15**	**30 %**
	Total		**100%**

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)
Office hours: 2 hours/ week

E. Learning Resources

1. List Required Textbooks
- Mohammad Dastbaz • Ian Strange Stephen Selkowitz, **Building Sustainable Futures- Design and the Built Environment,** Springer International Publishing AG Switzerland is part of Springer Science+Business Media, 2016.
- Charles J. Kibert, **Sustainable Construction: Green Building Design and Delivery,** John Wiley & Sons Inc, 2016.

2. List Essential References Materials (Journals, Reports, etc.)
- Stelmack, Annette, **Sustainable residential interiors,** Wiley, ISBN:1-118-60368-0, 978-1-118-60368-0, 2014.
- Phillip James Tabb; A. Senem Deviren, **The Greening of Architecture: A Critical History and Survey of Contemporary Sustainable Architecture and Urban Design,** Routledge Ltd, 2017.
- Sayigh, Ali, Sustainability, **Energy and Architecture: Case Studies in Realizing Green Buildings,** Academic Press, 2014.

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
–

4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)
Websites on the internet that are relevant to the topics of the course

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.
Multimedia associated with the text book and the relevant websites

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)

1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)

– **Studio and Lecture room**

2. Computing resources (AV, data show, Smart Board, software, etc.) – **PC connected to a data show for lectures, Environmental software GIS and Arc View software and internet connection**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) – **Computer room containing at least 15 PCs**

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching – **Course evaluation by student** – **Students' feedback on the specific nature and size of their projects.** – **General feedback from senior academic meetings with the faculty.** – **Ask students questions directly to gauge their understanding to the materials presented in the lecture.**
2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor – **Peer consultation on teaching** – **Departmental council discussions** – **Electronic course evaluation to be completed by students**
3 Processes for Improvement of Teaching – **Considering students' feedback in every lecture to improve teaching processes.** – **Meetings with other faculties and peers to discuss opinions and ideas on how to improve and to teach specific topics.** – **Developing means of presenting the subject's material to be more attractive to students.** – **Conducting workshops given by experts on the teaching and learning methodologies** – **Periodical departmental revisions of its methods of teaching** – **Monitoring of teaching activates by senior faculty members**
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) – **Giving samples of all kind of assessment in the departmental course portfolio of each course.** – **Check marking by an independent faculty member for students' final exam.** – **Examination of the students' design drafts development.** – **Inviting another instructor in the same area to be a critic for the students' design work.** – **Pop-questions at the beginning of the lecture about the previous one would refer to their standard.** – **Providing samples of all kind of assessment in the departmental course portfolio of each course.** – **Assigning group of faculty members teaching the same course to grade same questions for various students.** – **Inviting a guest-lecture specialized in their subject area and stimulates a dialogue between him/her and the students to measure their responses to specific questions.**

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

- **Review students course evaluation and respond to the issues presented.**
- **Advising the library with the most recent books and periodicals that discuss the subject matter.**
- **Increase the use of online facilities (discussions, answer questions, etc.)**
- **Improving the course by checking the size of the materials provided.**
- **Involving students in preparing parts of the lecture beforehand and giving their feedback about the content at the beginning of the lecture.**
- **Advising the library with the most recent books and periodicals that discuss the subject matter.**
- **Providing the necessary tools that help students to develop their work smoothly.**
- **Course materials and learning outcomes are periodically reviewed and the changes to be taken are approved in the departmental and higher councils.**
- **The head of department and faculty take the responsibility of implementing the proposed changes.**

Faculty or Teaching Staff: _____

Signature: _____ **Date Report Completed:** _____

Received by: _____ **Dean/Department Head:** _____

Signature: _____ **Date:**

Kingdom of Saudi Arabia
Ministry of Education
Umm Al-Qura University

Course Specifications
(CS)

Energy Efficiency in Buildings - (801622-3)

Track compulsory courses

Course Specifications

Institution **Umm Al-Qura University**	Date of Report **October 2018**
College/Department **College of Islamic Architecture and Engineering / Department of Islamic Architecture.**	

A. Course Identification and General Information

1. Course title and code**: Energy Efficiency in buildings**		**SUS 801622-3**
2. Credit hours **3**		
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **Masters of Architecture Program**		
4. Name of faculty member responsible for the course:		
5. Level/year at which this course is offered: **Level 2 / Year 1**		
6. Pre-requisites for this course (if any): **None**		
7. Co-requisites for this course (if any**): None**		
8. Location if not on main campus		
9. Mode of Instruction (mark all that apply)		
a. Traditional classroom		What percentage?
b. Blended (traditional and online)	X	What percentage? 100%
c. e-learning		What percentage?
d. Correspondence		What percentage?
f. Other		What percentage?

Comments:
1-Lectures. The didactic content of the module will be explained in lectures, assisted by visual aids, interaction with the students and, where applicable, demonstrations.
2- Workshops and assignments. There will be practical exercises to give students practice in implementing the requisite skills.
3- On-line support material. The module content will be accessible to students in electronic form on line. By reducing reliance on formal lectures, these increase opportunities for needs-related tuition.
4- Set texts. In addition, certain texts will be used as main reference sources to ensure that students are familiar with the material covered in them.

B Objectives

1. What is the main purpose for this course

This module provides the student with the required skills to constructing or upgrading buildings that are able to get the most out of the energy that is supplied to them by taking steps to reduce energy loss and gain such as decreasing the loss and gain of heat through the building envelope It aims to:

- To introduce the concept and benefits of energy efficiency in buildings
- Reduce the energy demand (KW) and the consumption (KWH) of all energy sources in buildings. It applies to new and existing buildings, and all of the systems of which they are comprised.
- Explain the implications of thermo-physical properties of building materials on building performance.
- To present the different opportunities and measures for reducing energy use in buildings without sacrificing comfort levels.
- To describe the different mechanisms for financing energy efficiency measures in buildings.
- Choose a fabric design strategy appropriate for a range of building types, design problems and climates.
- To give a summary of legislative and policy tools that have been successful in promoting energy efficiency in buildings
- Engage in an integrated design process in relation to fabric design.

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached)

This course is designed to provide an overview of energy efficiency in buildings. it aims to help students to understand the potential benefits, the opportunities for improving the efficiency of buildings and give them a background on the key issues to be addressed when developing suitable policies and a framework for implementation. In addition, it briefly discusses the methodology used for determining the efficiency of buildings and the mechanisms that can be used to finance energy efficiency measures. It concludes with a discussion on the process of developing and implementing policy on energy efficiency in buildings and gives a summary on policy tools that can be used to facilitate implementation of energy efficiency in buildings.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
– Introduction, Determining Energy Consumption in Buildings.	1	3
– Energy balance (the opaque fabric) Filtering light (the transparent envelope)	1	3
– Environmental Design approach	1	3
– Energy Efficiency in buildings methodology	2	6
– Financing energy efficiency in buildings	1	3

– Developing and implementing policy on energy efficiency in buildings.	1	3
– Laws and Regulation tools to promote building efficiency	1	3
– Study of the Energy code to improve energy efficiency in buildings	1	3
– Types of renewable technologies, integration.	1	3
– International technical standards and practice in energy efficiency buildings	1	3
– the methodology and the mechanisms used to finance energy efficiency measures	1	3
– Case studies of best practice in energy efficiency buildings (international context- local context in KSA)	1	3
– Seminar -Research presentation	1	3
Total	**14**	**42**

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory	Practical	Other: Blended	Total
Contact Hours					**42**	**42**
Credit					**3**	**3**

3. Additional private study/learning hours expected for students per week. **4 hours weekly**

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

Course Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning, assessment, and teaching. Every course is not required to include learning outcomes from each domain.

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Understand the potential benefits of energy efficiency in buildings.	– Direct learning (lecture) – Self–learning (research work)	– Evaluation of research paper – Essay-type examination.
1-2	Use environmental design tools to estimate the influence of fabric parameters on comfort and energy use.	– Direct learning (lecture) – Self–learning (research work)	– Evaluation of research paper – Essay-type examination.
1-3	Has thorough knowledge and critical understanding of the energy efficiency in buildings including principal concepts, principles and theories and their current application to the sustainable design research or its professional practice.	– Direct learning (lecture) – Self–learning (research work)	– Evaluation of research paper – Essay-type examination.
2.0	**Cognitive Skills**		
2.1	Consistently applies practical and theoretical knowledge in dealing with a wide variety,	– Interactive learning (dialogue &	– Assignments and tasks

	unpredictable scholarly and professional contexts, and develops original and creative responses to issues and problems related to energy efficiency and Islamic Identity.	discussion) – Interactive learning (creative thinking) – Self–learning (research work)	– Evaluation of research paper – Essay-type examination.
2.2	Can synthesize and apply research and scholarly publications or professional reports, and can develop significant new ideas and integrate them into or challenge established knowledge.	– Interactive learning (creative thinking)- – Interactive learning (problem solving) – Self–learning (research work)	– Assignments and tasks – Presentation – Evaluation of research paper
3.0	**Interpersonal Skills & Responsibility**		
3.1	Takes initiative in identifying and responding creatively to complex issues and problems in sustainable design.	– Self–learning (research work) Engage students in community field study techniques.	– Evaluation of research paper
3-2	Takes initiative in raising deficiencies in existing standards of sustainable practice for possible review and amendment.	– Interactive learning (brain storming)	– Evaluation of research paper
4.0	**Communication, Information Technology, Numerical**		
4.1	Uses a wide range of appropriate information and communications technology, in investigating issues and communicating conclusions and recommendations in energy efficiency strategies.	– Self–learning (research work)	– Presentation – Evaluation of research paper
5.0	**Psychomotor**		
	Not Applicable		

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Continuous Assessment**	**1-13**	**40 %**
2	**Mid Term Exam**	**8**	**20 %**
3	**Final Exam**	**15**	**40 %**
	Total		**100%**

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)
Office hours: 2 hours/ week

E. Learning Resources

1. List Required Textbooks
   - U. Desideri , F. Asdrubali. **Handbook of Energy Efficiency in Buildings: A Life Cycle Approach** .1st ed. Butterworth- Heinemann , 20018. 9780128128176

2. List Essential References Materials (Journals, Reports, etc.)
   - G Z Brown, M. DeKay. **Sun, wind & light; Architectural design strategies.** 2nd ed. Wiley and Sons, New York, 2001. 0-471-34877-5.
   - TA Markus, EN Morris. **Buildings, Climate and Energy.** London, Pitman, 1980. 0-273-00268-6
   - Randall McMullan and Ivor H Seeley. **Environmental Science in Building**. Palgrave

Macmillan, 2007 0- 230-52536-9
- Steven V. Szokolay**. Introduction to Architectural Science; the basis of sustainable design.**
  Architectural Press 2004 0-7506-58495
- R Thomas , **M Fordham. Environmental Design**, Taylor & Francis, 2006 0-415-36334-9
- D Watson, K Labs. **Climatic building design; energy-efficient building principles and practice**. McGraw-Hill, New York, 1983. 0-07-068488-X
- Henry Plummer**. The architecture of natural light.** Thames and Hudson, London, 2012. 0500290369 / 978-0500290361
- Peter Tregenza and Michael Wilson. **Day lighting: architecture and lighting design.** Routledge, 2011. 0419257004 / 978-0419257004
- H Awbi. **Ventilation of Buildings.** Taylor and Francis, 2003. 415270561
- ASHRAE. **Handbook - Fundamentals.** ASHRAE, 2009.
- Guzowski, M. Towards **. Zero-energy Architecture: New Solar Design.** Lawrence King Publishers, 2010. 978-1856696784

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

- Buchanan, P., **Ten Shades of Green: Architecture and the Natural World**, Architectural League of New York; New York, 2005.
- Edwards, B., **Rough Guide to Sustainability**, Second Edition, RIBA Enterprises 4; London, 2005.
- Simon, G. and Moore, S.A.(eds), **Sustainable Architectures: Cultures and Natures in Europe and North America**, Routledge; London, 2005.
- Wheeler, S., **Planning for Sustainability: Creating Livable, Equitable, and Ecological Communities**, Routledge; New York, 2004.
- Beatley, T., **Green Urbanism: Learning from European Cities**, Island Press; Washington, D.C., 2000.
- Thompson, J.W., Sorvig, K., **Sustainable Landscape Construction – A Guide to Green Building Outdoors**, Washington DC: Island Press, 2000.
- McHarg, I.L., **Design with Nature**, Wiley, London, 1995.
- Satterthwaite, D. (ed.), **The Earth Scan Reader in Sustainable Cities**, Earth scan; London, 1999.

4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)

Websites on the internet that are relevant to the topics of the course

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

Multimedia associated with the text book and the relevant websites

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)

1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)
   - **Lecture room**

2. Computing resources (AV, data show, Smart Board, software, etc.)
   - **PC connected to a data show for lectures, GIS and ArcView software and internet connection**

3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching

- **Course evaluation by student.**
- **Ask students questions directly to gauge their understanding to the materials presented in the lecture.**

2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor

- **Peer consultation on teaching**
- **Departmental council discussions**
- **Electronic course evaluation to be completed by students**

3 Processes for Improvement of Teaching

- **Considering students' feedback in every lecture to improve teaching processes.**
- **Meetings with other faculties and peers to discuss opinions and ideas on how to improve and to teach specific topics.**
- **Developing means of presenting the subject's material to be more attractive to students.**
- **Conducting workshops given by experts on the teaching and learning methodologies**
- **Periodical departmental revisions of its methods of teaching**
- **Monitoring of teaching activates by senior faculty members**

4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)

- **Pop-questions at the beginning of the lecture about the previous one would refer to their standard.**
- **Assigning group of faculty members teaching the same course to grade same questions for various students.**
- **Inviting a guest-lecture specialized in their subject area and stimulates a dialogue between him/her and the students to measure their responses to specific questions.**
- **Providing samples of all kind of assessment in the departmental course portfolio of each course.**
- **Check marking by an independent faculty member for students' final exam.**

5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

- **The course material and learning outcomes are periodically reviewed and the changes to be taken are approved in the departmental and higher councils.**
- **The head of department and faculty take the responsibility of implementing the proposed changes.**
- **Review students course evaluation and respond to the issues presented.**
- **Advising the library with the most recent books and periodicals that discuss the subject matter.**
- **Increase the use of online facilities (discussions, answer questions, etc.)**
- **Improving the course by checking the size of the materials provided.**
- **Involving students in preparing parts of the lecture beforehand and giving their feedback about the content at the beginning of the lecture.**

Faculty or Teaching Staff:
Signature: _____ **Date Report Completed:** _____

Received by: _____ **Dean/Department Head**

Signature: _____ **Date:** _____

Kingdom of Saudi Arabia
Ministry of Education
Umm Al-Qura University

Course Specifications
(CS)

Building Simulation Tools & Techniques (801623-3)

Track compulsory courses

Course Specifications

Institution **Umm Al-Qura University**	Date of Report **October 2018**
College/Department **College of Islamic Architecture and Engineering / Department of Islamic Architecture.**	

A. Course Identification and General Information

1. Course title and code: **Building Simulation Tools & Techniques – SUS 801623-3**
2. Credit hours **3**
3. Program(s) in which the course is offered.
(If general elective available in many programs indicate this rather than list programs)
Master of Architecture Program- Smart Urbanism Track
4. Name of faculty member responsible for the course:
5. Level/year at which this course is offered: **Level 2 / Year 2**
6. Pre-requisites for this course (if any): **Design Visualization**
7. Co-requisites for this course (if any**):** **None**
8. Location if not on main campus
9. Mode of Instruction (mark all that apply)

a. Traditional classroom		What percentage?		
b. Blended (traditional and online)	X	What percentage?	100	
c. e-learning		What percentage?		
d. Correspondence		What percentage?		
f. Other		What percentage?		

Comments:

B. Objectives

1. What is the main purpose for this course?
   - Recognize diverse in digital simulation techniques within the topic of thermal and environmental performance.
   - Ability to develop intelligent approaches to design build and manipulate a building decision support system.
   - Develop clear and intelligent approaches to the visual representation of base/background information, site/contextual analysis, concept sketches, design development and final proposal.
   - Recognize the importance of effectively communicating through a variety of visual tools and techniques in order to generate productive discussions and feedback on sustainable design decisions.
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached)

This course offers students an overview of the computer related applications to the sustainable design practice. Students will be shown different digital representation techniques inherent throughout the building design process from site analysis, conceptual sketches, and design development decision support system to presentation drawings. Throughout the term, students will be given an assignment based on the topic of the weekly lecture. Assignments will be presented and criticized in each class. This will contribute to developing students' digital analysis and presentation skills.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Introduction – Computer applications in supporting sustainable design.	1	3
Climatic zones, building coordination and climatic characteristics.	1	3
Building modelling and evaluation tools for environmental assessment	1	3
Modelling building components (External and internal walls, Windows, Roofs, Materials and systems); and their representation	2	6
Selecting and linking thermal characteristics databases – data Types – data manipulation.	1	3
Types of building environmental control systems.	1	3
Manipulating data & creating design alternatives.	1	3
Simulating building performance in terms of thermal, lighting, acoustical fields.	1	3
Presenting analysis information of environmental performance hrough drawings, charts, reports, graphs and tables	1	3
Using Web-Based applications in built environment analysis	1	3
Design alternatives environmental assessment and their representation	2	6
Simulation in support of full environmental impact assessment reporting.	1	3
Total	**14**	**42**

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory	Practical	Other: Blended	Total
Contact Hours					**42**	**42**
Credit					**3**	**3**

3. Additional private study/learning hours expected for students per week. **4 hours weekly**

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

Course Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning, assessment, and teaching. Every course is not required to include learning outcomes from each domain.

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Has thorough knowledge and critical understanding of the simulating buildings including principal concepts, principles and tools and their current application to the sustainable design assessment research or its professional practice.	– Direct learning (lecture) – Interactive learning (dialogue & discussion)	– Oral examination – Presentation
1.2	Demonstrates understanding of how new software is applied and the effects of recent research on the knowledge of simulating sustainable design and on associated professional practice.	– Direct learning (lecture) – Interactive learning (dialogue & discussion)	– Oral examination – Presentation
2.0	**Cognitive Skills**		
2.1	Consistently applies practical and theoretical knowledge in dealing with a wide variety of novel and unpredictable scholarly and/or professional contexts, and develops original and creative responses to issues and problems related to simulation, sustainability, etc.	– Interactive learning (dialogue & discussion) – Indirect learning (problem solving)	– Assignments and tasks. – Oral examination
3.0	**Interpersonal Skills & Responsibility**		
3.1	Where additional information or skills are required takes independent action to acquire and apply that information or skill.	– Interactive learning (problem solving) – Self –learning	– Oral examination – Presentation
4.0	**Communication, Information Technology, Numerical**		
4.1	Obtains, critically evaluates, and makes effective use of mathematical and statistical data.	– Interactive learning (problem solving) – Self –learning.	– Oral examination – Presentation
5.0	**Psychomotor**		
5.1	Not Applicable		

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Continuous Assessment**	**1-13**	**40 %**
2	**Mid Term Exam**	**8**	**20 %**
3	**Final Exam**	**15**	**40 %**
	Total		**100%**

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

Office hours: 2 hours / week

E. Learning Resources

1. List Required Textbooks
   - Delgado, João M. P. Q, **Sustainable Construction : Building Performance Simulation and Asset and Maintenance Management, Building Pathology and Rehabilitation,** Springer, 2016.
   - **Computational Simulation in Architectural and Environmental Acoustics,** Springer Verlag, 2014.
   - Shan K. Wang: **Handbook of Air Conditioning and Refrigeration,** 2/e. ENERGY MANAGEMENT AND GLOBAL WARMING, Chapter (McGraw-Hill Professional, 2001),
   - Andreas Athienitis; William O'Brien, **Modeling, Design, and Optimization of Net-Zero Energy Buildings,** John Wiley & Sons Inc, 2015.

2. List Essential References Materials (Journals, Reports, etc.)
   -

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
   - Dall'O', Giuliano, **Green Energy Audit of Buildings: A guide for a sustainable energy audit of buildings,** Green Energy and Technology, Springer London, 2103.
   - Hall, Matthew R, **Materials for Energy Efficiency and Thermal Comfort in Buildings,** Woodhead publishing series in energy, Woodhead Publishing, Elsevier Science & Technology, 2010.

4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)
   - Stranks, J. (2008) **'Environmental Impact Assessments', A-Z of the Environment,** pp. 142–144. Available at: http://search.ebscohost.com/login.aspx?direct=true&db=eih&AN=39449422&site=ehost-live (Accessed: 26 October 2018)

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

   Videos provided by the instructor and relevant websites

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)

1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)
   - **Lecture room**

2. Computing resources (AV, data show, Smart Board, software, etc.)
   - **PC connected to a data show for lectures, ArcView software and internet connection**

3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)
   - **Computer lab with 15 PCs equipped with the required simulation software and internet connection.**

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching
   - **Regular attendance of students and complete all assignments must be noted.**
   - **Course evaluation by student.**
   - **Ask students questions directly to gauge their understanding to the materials presented in the lecture.**

2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor
   - **Peer consultation on teaching**
   - **Departmental council discussions**
   - **Electronic course evaluation to be completed by students**

3 Processes for Improvement of Teaching
   - **Considering students' feedback in every lecture to improve teaching processes.**
   - **Meetings with other faculties and peers to discuss opinions and ideas on how to improve**

and to teach specific topics.
- **Developing means of presenting the subject's material to be more attractive to students.**

4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)
- **Pop-questions at the beginning of the lecture about the previous one would refer to their standard.**
- **Assigning group of faculty members teaching the same course to grade same questions for various students.**
- **Inviting a guest-lecture specialized in their subject area and stimulates a dialogue between him/her and the students to measure their responses to specific questions.**
- **Check marking by an independent faculty member for students' final exam.**

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.
- **Advising the library with the most recent books and periodicals that discuss the subject matter.**
- **Increase the use of online facilities (discussions, answer questions, etc.)**
- **Involving students in preparing parts of the lectures beforehand and giving their feedback about the content at the beginning of the lecture.**

Faculty or Teaching Staff:

_____

Signature: _____ **Date Report Completed:** _____

Received by: _____ **Dean/Department Head**

Signature: _____ **Date:** _____

Kingdom of Saudi Arabia
Ministry of Education
Umm Al-Qura University

Course Specifications
(CS)

Sustainable Design studio II - (801631-5)

Track compulsory courses

Course Specifications

Institution **Umm Al-Qura University**	Date of Report **October 2018**
College/Department **College of Islamic Architecture and Engineering / Department of Islamic Architecture.**	

A. Course Identification and General Information

1. Course title and code: **Sustainable Design studio II**		**SUS 801631-5**
2. Credit hours **6**		
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **Master of Architecture Program**		
4. Name of faculty member responsible for the course:		
5. Level/year at which this course is offered**:**		**Level 3/ Year 2**
6. Pre-requisites for this course (if any):		**Sustainable design studio I**
7. Co-requisites for this course (if any**):**		**None**
8. Location if not on main campus		
9. Mode of Instruction (mark all that apply)		
a. Traditional classroom	What percentage?	
b. Blended (traditional and online)	X What percentage?	100%
c. e-learning	What percentage?	
d. Correspondence	What percentage?	
f. Other	What percentage?	
Comments: **Design Studios**		

B Objectives

1. What is the main purpose for this course?

This module provides the student with the required skills to:

- Produce innovative design ideas and concepts that are sustainable conscious.
- Evaluate Impact of different forms and orientations on the building environmental performance in a complex architectural project.
- Simulate environmental conditions of building, evaluate design decisions impact on its performance.
- Evaluate environmental conditions and their impacts on users' comfort.
- Experiment impact of forms, materials and systems of architectural design.
- Produce architectural forms and plans that express professional capability,
- Express and present an understanding of the qualities of architectural materials,
- Develop professional attitude and team work spirit.
- Master techniques of various computer software.
- Analyze new and existing buildings that express professional capability through a defined philosophical direction
- Deal with the selected topic in his selected concentration climatic area of study.
- Able to presents the final architectural design project and report to a Jury committee, representing the student's area of concentration, to evaluate the student's work.

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web-based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached)

This course is an advanced sustainable architectural design studio. It emphasizes a wide-ranging integration of building systems within an ordered design concept. Moreover, it aims at utilizing the simulation tools to test the impact of different form on environmental performance of the produced architecture design, new materials, construction technology, and assembly details. Students will investigate different designs as an appropriate architectural expression adopting the sustainable design approach.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Course Introduction - Handout of Term Project	1	10
Project research - Site analysis & concept development - Project statement	1	10
Project Scope & Restrictions- **Assignment-1**		
Work Development	1	10
Work Development	1	10
Project Conceptual alternatives - **Assignment-2**	1	10
Work development	1	10
Work development	1	10
Mid Term - design alternatives environmental assessment.	1	10
Work Development	1	10
Design Modification Based on Assessment- **Assignment-4**	1	10
Work Development	1	10
Design technical report & Semi-final Sketch **Assignment-5**	1	10
Work Development	1	10
Work Development	1	10
Term Project Final Submission - **[Jury & presentations]**		
Total	**14**	**140**

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory	Practical	Studio	Total
Contact Hours					**140**	**140**
Credit					**5**	**5**

3. Additional private study/learning hours expected for students per week. **20 hours weekly**

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

Course Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning, assessment, and teaching. Every course is not required to include learning outcomes from each domain.

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Has thorough knowledge and critical understanding of the sustainable development including principal concepts, principles and theories and their current application to the sustainable design research and/or its professional practice.	– Interactive learning (brain storming) – Interactive learning (dialogue & discussion) – Self –learning (research work)	– Oral examination – Presentation
1.2	Demonstrate understanding of the importance and the impact of Islamic values in addition to standards and professional ethics in the field of sustainable architecture design.	– Interactive learning (brain storming) – Interactive learning (dialogue & discussion) – Self –learning (research work)	– Oral examination – Presentation
1.3	Demonstrates understanding of how new knowledge is developed and applied and the effects of recent research on the store of knowledge in sustainable development and on associated professional practice.	– Interactive learning (brain storming) – Interactive learning (dialogue & discussion) – Self –learning (research work)	– Oral examination – Presentation
2.0	**Cognitive Skills**		
2.1	Consistently applies practical and theoretical knowledge in dealing with a wide variety of novel and unpredictable scholarly and/or professional contexts, and develops original and creative responses to issues and problems related to sustainability, Islamic Identity, etc.	– Interactive learning (creative thinking) – Indirect learning (problem solving)	– Evaluation of projects – Presentation
2.2	Can synthesize and apply research and scholarly publications or professional reports, and can develop significant new ideas and integrate them into or challenge established knowledge.	– Interactive learning (creative thinking) – Indirect learning (problem solving)	– Evaluation of projects – Presentation
2.3	Can independently plan and execute a major project or piece of scholarly research applying practical and theoretical knowledge and research techniques and producing sound conclusions that add significantly to existing knowledge or professional practice in sustainable design.	– Interactive learning (creative thinking) – Indirect learning (problem solving)	– Evaluation of projects – Presentation
3.0	**Interpersonal Skills & Responsibility**		
3.1	Takes initiative in identifying and responding creatively to complex issues and problems in sustainable design.	– Interactive learning (creative thinking) – Indirect learning (problem solving)	– Assignments and tasks – Evaluation of projects

	Deals consistently and sensitively with complex ethical issues in academic and or professional contexts.	– Interactive learning (creative thinking) – Indirect learning (problem solving)	– Assignments and tasks – Evaluation of projects
3.2	Takes initiative in raising deficiencies in existing standards of sustainable practice for possible review and amendment.	– Interactive learning (creative thinking) – Indirect learning (problem solving)	– Assignments and tasks – Evaluation of projects
4.0	**Communication, Information Technology, Numerical**		
4.1	Communicates effectively and at appropriate levels with academic and professional audiences and the wider community through informal and formal reports and presentations and academic and professional publications, including major research project.	– Interactive learning (brain storming) – Interactive learning (dialogue & discussion)	– Oral examination – Presentation
4.3	Uses a wide range of appropriate information and communications technology in investigating issues and in communicating conclusions and recommendations.	Self –learning (research work)	- Evaluation of projects - Presentation
5.0	**Psychomotor**		
5.1	Produce professional sketches and technical design calculations and prepare advanced simulation models illustrating design performance.	– Interactive learning (dialogue & discussion) – Self –learning (Project work)	– Presentation – Evaluation of projects

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Continuous Assessment**	**1-13**	**50 %**
2	**Mid Term Exam**	**8**	**20 %**
3	**Final Presentation**	**15**	**30 %**
	Total		**100%**

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)
Office hours: 2 hours/ week

E. Learning Resources

1. List Required Textbooks
   - Mohammad Dastbaz • Ian Strange Stephen Selkowitz, **Building Sustainable Futures- Design and the Built Environment,** Springer International Publishing AG Switzerland is part of Springer Science+Business Media, 2016.
   - Charles J. Kibert, **Sustainable Construction: Green Building Design and Delivery,** John Wiley & Sons Inc, 2016

2. List Essential References Materials (Journals, Reports, etc.)
   - Stelmack, Annette, **Sustainable residential interiors,** Wiley, ISBN:1-118-60368-0, 978-1-118-60368-0, 2014.
   - Phillip James Tabb; **A. Senem Deviren, The Greening of Architecture: A Critical History and Survey of Contemporary Sustainable Architecture and Urban Design,** Routledge Ltd, 2017.
   - Sayigh, Ali, Sustainability, **Energy and Architecture: Case Studies in Realizing Green Buildings,** Academic Press, 2014.

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.) **Websites on the internet that are relevant to the topics of the course**
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. **Multimedia associated with the text book and the relevant websites**

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) – **Lecture room**
2. Computing resources (AV, data show, Smart Board, software, etc.) – **PC connected to a data show for lectures, GIS and ArcView software and internet connection**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list): **Computer room containing at least 15 PCs**

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching – **Course evaluation by student** – **Students' feedback on the specific nature and size of their projects.** – **General feedback from senior academic meetings with the faculty.** – **Ask students questions directly to gauge their understanding to the materials presented in the lecture.**
2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor – **Peer consultation on teaching** – **Departmental council discussions** – **Electronic course evaluation to be completed by students**
3 Processes for Improvement of Teaching – **Considering students' feedback in every lecture to improve teaching processes.** – **Meetings with other faculties and peers to discuss opinions and ideas on how to improve and to teach specific topics.** – **Developing means of presenting the subject's material to be more attractive to students.** – **Conducting workshops given by experts on the teaching and learning methodologies** – **Periodical departmental revisions of its methods of teaching** – **Monitoring of teaching activates by senior faculty members**
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) – **Giving samples of all kind of assessment in the departmental course portfolio of each course.** – **Check marking by an independent faculty member for students' final exam.** – **Examination of the students' design drafts development.** – **Inviting another instructor in the same area to be a critic for the students' design work.** – **Pop-questions at the beginning of the lecture about the previous one would refer to their standard.** – **Providing samples of all kind of assessment in the departmental course portfolio of each course.**

– **Assigning group of faculty members teaching the same course to grade same questions for various students.** – **Inviting a guest-lecture specialized in their subject area and stimulates a dialogue between him/her and the students to measure their responses to specific questions.**
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. – **Review students course evaluation and respond to the issues presented.** – **Advising the library with the most recent books and periodicals that discuss the subject matter.** – **Increase the use of online facilities (discussions, answer questions, etc.)** – **Improving the course by checking the size of the materials provided.** – **Involving students in preparing parts of the lecture beforehand and giving their feedback about the content at the beginning of the lecture.** – **Advising the library with the most recent books and periodicals that discuss the subject matter.** – **Providing the necessary tools that help students to develop their work smoothly.** – **Course materials and learning outcomes are periodically reviewed and the changes to be taken are approved in the departmental and higher councils.** – **The head of department and faculty take the responsibility of implementing the proposed changes.**

Faculty or Teaching Staff:

_____

Signature: _____ **Date Report Completed:** _____

Received by: _____ **Dean/Department Head:** _____

Signature: _____ **Date:** _____

Kingdom of Saudi Arabia
Ministry of Education
Umm Al-Qura University

Course Specifications
(CS)

Sustainability Assessment Tools and Methods (801632-3)

Track compulsory courses

Course Specifications

Institution **Umm Al-Qura University**	Date of Report **October 2018**
College/Department **College of Islamic Architecture and Engineering / Department of Islamic Architecture.**	

A. Course Identification and General Information

1. Course title and code: **Sustainability Assessment Tools and Methods**				**SUS 801632-3**
2. Credit hours **3**				
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **Masters of Architecture Program**				
4. Name of faculty member responsible for the course:				
5. Level/year at which this course is offered: **Level 3 / Year 2**				
6. Pre-requisites for this course (if any): **None**				
7. Co-requisites for this course (if any): **None**				
8. Location if not on main campus				
9. Mode of Instruction (mark all that apply)				
a. Traditional classroom			What percentage?	
b. Blended (traditional and online)	X		What percentage?	100%
c. e-learning			What percentage?	
d. Correspondence			What percentage?	
f. Other			What percentage?	

Comments:
1-Lectures. The didactic content of the module will be explained in lectures, assisted by visual aids, interaction with the students and, where applicable, demonstrations.
2- Workshops and assignments. There will be practical exercises to give students practice in implementing the requisite skills.
3- On-line support material. The module content will be accessible to students in electronic form on line. By reducing reliance on formal lectures, these increase opportunities for needs-related tuition.
4- Set texts. In addition, certain texts will be used as main reference sources to ensure that students are familiar with the material covered in them.

B Objectives

1. What is the main purpose for this course

The objectives of the course is to:

- The student will be conversant with the subject of high-performance green building design and delivery systems.
- Assess energy use in domestic and commercial buildings using standard methodologies and develop appropriate interventions to reduce carbon and energy.
- .Examine the situation and the possibilities for introduction and developing building assessment methods in KSA.
- Analyses and apply sustainability metrics to determine sustainable building performance and to inform the development of building design strategies.
- Integrate sustainability assessment into the sustainable building design process.
- Develop and apply expert judgment in the selection, implementation and development of sustainability assessment tools that meet project needs

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached)

This module gives an overview of the policy issues, various planning aids and assessment methods available to quantify energy efficiency and sustainability in buildings. Students will be able to use different tools to investigate building energy performance of existing buildings and new building designs as well as to critically assess the results given by the various rating systems. Student will be exposed to a wide range of assessment tools currently being used in the building industry, and will be able to analyze the strengths and weaknesses of each. During the course student will perform sustainability assessments, using selected tools, such as - (LEED), (BREEAM), and Green star rating system, CASBEE and SBTool.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
• Introduction to high-performance green buildings, Impacts of building construction, operation, and disposal	1	3
• An overview of the following regulations and assessment tools • Methods and tools for building assessment	1	3
• Sustainable Building Assessment Tools and rating system (LEED- Leadership in Energy and Environmental Design).	1	3
• Sustainable Building Assessment Tools and rating system (BREEAM - Building Research Establishment Environmental Assessment Method).	1	3
• Sustainable Building Assessment Tools and rating system (CASBEE – Comprehensive Assessment System for Built Environment Efficiency).	1	3
• Sustainable Building Assessment Tools and rating system (SBTool – Sustainable Building Tool)	1	3

• Sustainable Building Assessment Tools and rating system (Green star rating system).	1	3
• Economic issues and analysis (Life Cycle Costing Business-Case for Green Buildings)	1	3
• Green building codes and standards (National and International Green Construction Code)	2	6
• Future directions in green high performance building technologies	1	3
• Analytical study of best international models based on the standards used to raise the environmental performance efficiency	2	6
• Seminar Research presentation	1	3
Total	**14**	**42**

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory	Practical	Other: Blended	Total
Contact Hours					**42**	**42**
Credit					**3**	**3**

3. Additional private study/learning hours expected for students per week. **4 hours weekly**

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

Course Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning, assessment, and teaching. Every course is not required to include learning outcomes from each domain.

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Has thorough knowledge and critical understanding of the sustainable development including principal concepts, principles and theories and their current application to the sustainable design research or its professional practice.	Direct learning (lecture)	Essay-type examination
1.2	Demonstrates understanding of sustainable development at the forefront of theory, research or professional practice in sustainable design.	Direct learning (lecture)	Essay-type examination
1.3	Demonstrates understanding of how new knowledge is developed and applied and the effects of recent research on the store of knowledge in sustainable development and on associated professional practice..	Interactive learning (dialogue & discussion)	Essay-type examination
1.4	Is aware of recent regulatory provisions in the local and international environment that might affect sustainable design and of reasons for and future implications of those changes.	Interactive learning (dialogue & discussion) Self –learning (research work)	Presentation
2.0	**Cognitive Skills**		

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
2.2	Makes informed and defensible judgments in circumstances where there is an absence of complete or consistent information.	Indirect learning (problem solving)	Evaluation of research paper
2.5	Can independently plan and execute a major project or piece of scholarly research applying practical and theoretical knowledge and research techniques and producing sound conclusions that add significantly to existing knowledge or professional practice in sustainable design.	Interactive learning (dialogue & discussion) Indirect learning (problem solving)	Assignments and tasks
3.0	**Interpersonal Skills & Responsibility**		
3.4	In-group situations acts in ways that consistently enhance the effectiveness of the group as a whole.	Interactive learning (brain storming) Self–learning(research work)	Presentation
3.5	Deals consistently and sensitively with complex ethical issues in academic and or professional contexts.	Self –learning (research work)	Direct observation
3.6	Where issues are not adequately dealt with in current ethical codes of practice or regulations, makes informed, fair, and valid judgments based on sound principles and values.	Interactive learning (dialogue & discussion)	Direct observation
3.7	Takes initiative in raising deficiencies in existing standards of sustainable practice for possible review and amendment.	Interactive learning (dialogue & discussion) Self –learning (research work)	Direct observation
4.0	**Communication, Information Technology, Numerical**		
4.1	Communicates effectively and at appropriate levels with academic and professional audiences and the wider community through informal and formal reports and presentations and academic and professional publications, including major research .	Research work	Research presentation
5.0	**Psychomotor**		
	Not Applicable		

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Continuous Assessment**	**1-13**	**40 %**
2	**Mid Term Exam**	**8**	**20 %**
3	**Final Exam**	**15**	**40 %**
	Total		**100%**

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)
Office hours: 2 hours/ week

E. Learning Resources

1. List Required Textbooks
   1. Masego Leburu. (2017), **The Impact of Rating Systems on the Development of Green Building**, Lambert Academic publishing .

2. Linda Reeder, (2010). **Guide to Green Building Rating Systems** (Wiley Series in Sustainable Design), John Wiley& Sons, New Jersey .
3. Brett Dillon (2015) **Home Energy Rating Systems**, Skaldic Media, Dillon Group, Inc.

2. List Essential References Materials (Journals, Reports, etc.)

1. Steven V. Szokolay. **Introduction to Architectural Science; the basis of sustainable design.** Architectural Press 2004 0-7506-58495
2. R Thomas , M Fordham. **Environmental Design**, Taylor & Francis, 2006 0-415-36334-9
3. D Watson, K Labs. **Climatic building design; energy-efficient building principles and practice**. McGraw-Hill, New York, 1983. 0-07-068488-X
4. Buchanan, P., **Ten Shades of Green: Architecture and the Natural World**, *Architectural League of New York*; New York, 2005.
5. Edwards, B., **Rough Guide to Sustainability**, Second Edition, RIBA Enterprises 4; London, 2005.

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

1. **The Whole Building Design Guide** website: http://www.wbdg.org
2. **The World Business Council on Sustainable Development (WBCSD)** website: http://www.wbcsd.org
3. **The website of the U.S**. branch of the Natural Step: http://www.naturalstep.org
4. **The International Institute for a Sustainable Built Environment (IISBE)** website at • http://www.iisbe.org
5. **The website of Building Green**, Inc.: http://www.buildinggreen.com
6. **The BREEAM** website: http://products/bre.co.uk/breeam
7. **The Florida Green Building Coalition** website: http://www.floridagreenbuilding.org

4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)

Websites on the internet that are relevant to the topics of the course

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

Multimedia associated with the text book and the relevant websites

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)

1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)
   - **Lecture room**

2. Computing resources (AV, data show, Smart Board, software, etc.)
   - **PC connected to a data show for lectures, and internet connection**

3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching
- **Course evaluation by student.**
- **Ask students questions directly to gauge their understanding to the materials presented in the lecture.**

2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor
- **Peer consultation on teaching**
- **Departmental council discussions**
- **Electronic course evaluation to be completed by students**

3 Processes for Improvement of Teaching
- **Considering students' feedback in every lecture to improve teaching processes.**
- **Meetings with other faculties and peers to discuss opinions and ideas on how to improve and to teach specific topics.**

- **Developing means of presenting the subject's material to be more attractive to students.**
- **Conducting workshops given by experts on the teaching and learning methodologies**
- **Periodical departmental revisions of its methods of teaching**
- **Monitoring of teaching activates by senior faculty members**

4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)

- **Pop-questions at the beginning of the lecture about the previous one would refer to their standard.**
- **Assigning group of faculty members teaching the same course to grade same questions for various students.**
- **Inviting a guest-lecture specialized in their subject area and stimulates a dialogue between him/her and the students to measure their responses to specific questions.**
- **Providing samples of all kind of assessment in the departmental course portfolio of each course.**
- **Check marking by an independent faculty member for students' final exam.**

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

- **The course material and learning outcomes are periodically reviewed and the changes to be taken are approved in the departmental and higher councils.**
- **The head of department and faculty take the responsibility of implementing the proposed changes.**
- **Review students course evaluation and respond to the issues presented.**
- **Advising the library with the most recent books and periodicals that discuss the subject matter.**
- **Increase the use of online facilities (discussions, answer questions, etc.)**
- **Improving the course by checking the size of the materials provided.**
- **Involving students in preparing parts of the lecture beforehand and giving their feedback about the content at the beginning of the lecture.**

Faculty or Teaching Staff:

_____

Signature: _____ **Date Report Completed:** _____

Received by: _____ **Dean/Department Head:** _____

Signature: _____ **Date:** _____

Kingdom of Saudi Arabia
Ministry of Education
Umm Al-Qura University

Course Specifications
(CS)

Capstone Research - (801641-6)

Research Project

Course Specifications

Institution **Umm Al-Qura University**	Date of Report **October 2018**
College/Department **College of Islamic Architecture and Engineering / Department of Islamic Architecture.**	

A. Course Identification and General Information

1. Course title and code: **Capstone Research - SUS 801641-6**			
2. Credit hours **3**			
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **Masters of Architecture Program**			
4. Name of faculty member responsible for the course: **NA**			
5. Level/year at which this course is offered: **Fourth Semester**			
6. Pre-requisites for this course (if any): **Students must finish 34 Credit Hours**			
7. Co-requisites for this course (if any**):** **None**			
8. Location if not on main campus			
9. Mode of Instruction (mark all that apply)			
a. Traditional classroom	X	What percentage?	20%
b. Blended (traditional and online)	X	What percentage?	60%
c. e-learning	X	What percentage?	20%
d. Correspondence		What percentage?	
f. Other		What percentage?	
Comments:			

B Objectives:

1. What is the main purpose for this course?

This module offers the student an opportunity to submit a design thesis with supporting documentation on an approved topic or brief of their choice. It should respond to current research agendas in the field of sustainable design. It aims to develop and practice academic skills in identifying a research topic, formulating a research design, managing the extended research process and achieving milestones, and, drawing relevant policy conclusions from the research findings. The course aims to:

- To develop skills for analyzing and shaping the influence of ideas — not just the ideas themselves — in varied contexts and situations (policy advocacy, implementation advice, practice norms, etc.);
- To enhance writing and research formulation skills with academic and non-academic audiences in mind;
- To explore the value of "scientific" vs. other forms of knowledge;
- To reflect on the ethical obligations of researchers in their multiple roles as inquirers, advocates, educators, policy experts, and more, as media markets, political partisanship, and other forces demand more and more "point-of-view research"; and to help students examine their career choices and assumptions in light of the knowledge influence and impact themes.

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached)

In this course students undertake and complete design research topic that they have engaged in their design courses under the supervision of a graduate faculty member. The students will update the research in order to investigate in-depth a specific problem in design field to match with topics of design problems for a specific design field.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Introduction: Overview of the course - the faculty, objectives, format, and requirements.	2	12
Literature review - **Assignment#1**	1	6
Research case study (experiments and/or data collection).	4	24
Result and Analysis - **Assignment#2**	3	18
Discussion and recommendations - **Assignment#3**	2	12
Research writing	2	12
Final Presentation and Viva.		
Total	**14**	**84**

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours				**42**	**42**	**84**
Credit				**3**	**3**	**6**

3. Additional private study/learning hours expected for students per week. **8 hours weekly**

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

Course Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning, assessment, and teaching.

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Has thorough knowledge and critical understanding of the sustainable development including principal concepts, principles and theories and their current application to the sustainable design research or its professional practice.	– Interactive learning (dialogue & discussion) – Self –learning (research work)	– Essay-type examination – Evaluation of research paper
1.2	Demonstrates understanding of sustainable development at the forefront of theory, research or professional practice in sustainable design.	– Interactive learning (dialogue & discussion) – Self –learning (research work)	– Essay-type examination – Evaluation of research paper
1.3	Demonstrates understanding of how new knowledge is developed and applied and the	– Interactive learning (dialogue & discussion)	– Essay-type examination

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
	effects of recent research on the store of knowledge in sustainable development and on associated professional practice.	– Self –learning (research work)	– Evaluation of research paper
1.4	Demonstrate understanding of the importance and the impact of Islamic values in addition to standards and professional ethics in the field of sustainable architecture design.	– Interactive learning (dialogue & discussion) – Self –learning (research work)	– Essay-type examination – Evaluation of research paper
2.0	**Cognitive Skills**		
2.1	Consistently applies practical and theoretical knowledge in dealing with a wide variety of novel and unpredictable scholarly and/or professional contexts, and develops original and creative responses to issues and problems related to sustainability, Islamic Identity, etc.	– Interactive learning (dialogue & discussion) – Self –learning (research work)	– Presentation – Evaluation of research paper
2.2	Makes informed and defensible judgments in circumstances where there is an absence of complete or consistent information.	– Interactive learning (dialogue & discussion) – Self –learning (research work)	– Presentation – Evaluation of research paper
2.3	Can synthesize and apply research and scholarly publications or professional reports, and can develop significant new ideas and integrate them into or challenge established knowledge.	– Interactive learning (dialogue & discussion) – Self –learning (research work)	– Presentation – Evaluation of research paper
2.4	Can apply common and specialized research techniques in the creative analysis of complex issues and development of conclusions and proposals relevant to sustainable design.	– Interactive learning (dialogue & discussion) – Self –learning (research work)	– Presentation – Evaluation of research paper
2.5	Can independently plan and execute a major project or piece of scholarly research applying practical and theoretical knowledge and research techniques and producing sound conclusions that add significantly to existing knowledge or professional practice in sustainable design.	– Interactive learning (dialogue & discussion) – Self –learning (research work)	– Presentation – Evaluation of research paper
3.0	**Interpersonal Skills & Responsibility**		
3.1	Takes initiative in identifying and responding creatively to complex issues and problems in sustainable design.	– Self –learning (research work)	– Evaluation of research paper
3.2	Where additional information or skills are required takes independent action to acquire and apply that information or skill.	– Self –learning (research work)	– Evaluation of research paper
3.3	Accepts full responsibility for own work and cooperates fully and constructively with others in dealing with issues and problems, exercising both informal and formal leadership skills where appropriate.	– Self –learning (research work)	– Evaluation of research paper
3.4	Deals consistently and sensitively with complex ethical issues in academic and or professional contexts.	– Self –learning (research work)	– Evaluation of research paper
3.5	Where issues are not adequately dealt with in current ethical codes of practice or regulations, makes informed, fair, and valid judgments on the basis of sound principles and values.	– Self –learning (research work)	– Evaluation of research paper

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
4.0	**Communication, Information Technology, Numerical**		
4.1	Communicates effectively and at appropriate levels with academic and professional audiences and the wider community through informal and formal reports and presentations and academic and professional publications, including major research project.	– Interactive learning (brain storming) – Interactive learning (dialogue & discussion)	– Oral examination – Presentation
4.2	Obtains, critically evaluates, and makes effective use of mathematical and statistical data.	– Interactive learning (brain storming) – Interactive learning (dialogue & discussion)	– Oral examination – Presentation
5.0	**Psychomotor**		
5.1	Not Applicable		

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Continuous Assessment**	**1-13**	**40 %**
2	**Final Presentation and Viva**	**15**	**60 %**
	Total		**100%**

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

a. An academic advisor is assigned for each student.
b. Each faculty member has four office hours per week during which he should be present in his office in the college. (Office hours: 6 hours/ week)
c. Urge the students to visit the faculty member in his office or contract him through other types of communication.
d. Communication between students and faculty members can be done through social media.

E. Learning Resources

1. List Required Textbooks

- **Students will read assigned material guided by specific study materials. The materials are linked to the case (or other discussion topic), which is linked in turn to the larger course objectives.**
- **Bell, J. (2010) Doing Your Own Research Project: A Guide for First Time Researchers in Education and Social sciences, 5th ed. (London, open University Press)**
- **Creswell, J. (2013). Research Design: Qualitative, Quantitative and Mixed Methods Approaches. 4th ed. London: Sage Publications.**
- **Cryer, P. (2006) The Research Student's Guide to Success. Open University. Maidenhead**
- **Yin, Robert (2013), Case Study Research: Design and Methods, 5th Edition, Sage Publications, Newbury Park.**
- **Additional bibliography to be compiled by individual student based on the specific study area, with guidance from supervisor.**
-

2. List Essential References Materials (Journals, Reports, etc.)

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

- **All architectural design books in university library**

– **E-journals, College Library.**
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.) – **All available sources online**
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. – **Multimedia associated with the text book and the relevant websites**

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) **a. Lecture room equipped with the necessary facilities enough to accommodate the number of students.** **b. Number of seats in the Lecture room should not exceeded (15) seats.**
2. Computing resources (AV, data show, Smart Board, software, etc.) **a. PC connected to a data show for lectures** **b. Access to the internet.**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching **a. Effectiveness of teaching in this course depends on the development of the student's research skills in order to monitor the level of teaching and act immediately to improve it.** **b. Electronic course evaluation to be completed by students.**
2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor **a. Application of self-assessment questionnaire.** **b. Assessment of the teaching process and giving proposals for the development of the syllabus through course report.** **c. The course undergoes periodical review by the internal specialized committees.** **d. Head of department receives assessment and suggestions of the faculty members and presents to the board of the department.**
3 Processes for Improvement of Teaching **a. Providing specialized training sessions for faculty members to promote their teaching skills and improve their academic performance through specialized deaneries.** **b. Organizing workshops to exchange experiences and views between faculty members.** **c. diversification and modernization of the methods used in the educational process.** **d. Follow-up recent scientific research related to curriculum development.** **e. Organizing regular meetings at the beginning of each semester to discuss the previous semester's problems and to propose solutions.** **f. Considering the students' response through their meeting with the supervisor to improve instruction processes.** **g. Meetings with other faculties and peers to discuss opinions and ideas on how to improve and to develop specific research processes.** **h. Attending workshops considering the improvement and development of research methods.**

4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)

a. Analysis of the results of the quarterly and the final tests to know the weakness points of the students and work on them and providing the department with analysis of the students results and plans for improving the curriculum.
b. reviewing a random sample of students' answers by a committee of faculty members other than the curriculum teacher.
c. Allowing students to review the answer sheets via the subject teacher if there is doubt or objection by the student.
d. Examination of the students' research drafts development.
e. Inviting another instructor in the same area to be a jury for the students' research work.

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

a. Review of course specification and components periodically based on regular feedback.
b. Continuous updating of teaching methods and urging the students to actively participate in classroom activities.
c. Scientific Committee together with the Department Quality Committee review the study plan of the course and update it regularly in the light of the developments and needs of society.
d. Periodic meetings of faculty members in the area of specialization to take advantage of their proposals views.
e. Advising the library with the most recent books and periodicals that discuss the subject matter.

Faculty or Teaching Staff:

_____

Signature: _____ **Date Report Completed:** _____

Received by: _____ **Dean/Department Head:** _____

Signature: _____ **Date:** _____

Kingdom of Saudi Arabia
Ministry of Education
Umm Al-Qura University

Course Specifications
(CS)

Creative Architecture Techniques (801651- 3)

Group I – Department elective course

Course Specifications

Institution **Umm Al-Qura University**	Date of Report **October 2018**
College/Department **College of Islamic Architecture and Engineering / Department of Islamic Architecture.**	

A. Course Identification and General Information

1. Course title and code: **Creative Architecture Techniques SUS 801651- 3**
2. Credit hours : **3**
3. Program(s) in which the course is offered.
(If general elective available in many programs indicate this rather than list programs)
Masters of Architecture Program
4. Name of faculty member responsible for the course:
5. Level/year at which this course is offered: **Level 1/ Year 1**
6. Pre-requisites for this course (if any): **None**
7. Co-requisites for this course (if any**):** **None**
8. Location if not on main campus
9. Mode of Instruction (mark all that apply)

a. Traditional classroom		What percentage?		
b. Blended (traditional and online)	X	What percentage?	100%	
c. e-learning		What percentage?		
d. Correspondence		What percentage?		
f. Other		What percentage?		

Comments:

B Objectives

1. What is the main purpose for this course?

The purpose of this course is to explore importance of creativity in architectural design and other creative courses such as site landscape and urban design. The course focuses on the nature of creativity, its theories & various techniques, adding to recognize its concepts which related to thinking development processes. So, this course aims to:

- Help building basic knowledge based on creativity in architecture.
- Make students able to understand methods of logical analysis of architectural innovation processes.
- Contributes to build the students' ability to apply the bases, rules and methods to reach creative problem solutions, using of sustainable Design concept &its Aspects.
- Adds to the student the various theories related to thinking and problem solving.
- Supports students' presentation skills for creative Thinking.
- Emphasizes possibility of thinking and reaching solutions through teamwork.

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached)

The course presents effective techniques of creative processes in the field of urban and architectural design, and how to encourage, activate and maximize creative abilities of the architectural professionality. The course also presents the famous methods in supporting and developing creative thinking among architects such as: Brainstorming, Style lists or Morphological analysis, Etc. Adding to Generate Solutions related to sustainable Design as resources of Decision making in creative design. This course ends with Various Seminars which explain applications for one or more methods of supporting creative thinking to determine researcher's understanding of creative processes and ability to apply one of them.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Introduction of creativity	1	3
Types of Thinking - Concept & definitions	1	3
Creative Thinking guidelines in architecture	1	3
Strategies of Creativity	1	3
Techniques for creative thinking	1	3
Creative Problem-solving Methods	1	3
Generating Solutions related to sustainable Design.(Exercise)	3	9
Architectural Design Thinking: Case Studies	1	3
Seminar 1: Model of Design problem.	1	3
Seminar 2: Selecting for Creative Technique	1	3
Seminar 3: Criteria & Evaluation (Related to sustainability)	1	3
Seminar 4: Final presentations and discussion	1	3
Total	**14**	**42**

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	**42**					**42**
Credit	**3**					**3**

3. Additional private study/learning hours expected for students per week. **4 hours weekly**

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

Course Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning, assessment, and teaching. Every course is not required to include learning outcomes from each domain.

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Has thorough knowledge and critical understanding of the sustainable development including principal concepts, principles and theories and their current application to the sustainable design research or its professional practice.	– Direct learning (lecture) – Interactive learning (brain storming) – Interactive learning (dialogue & discussion)	– Multiple-Choice exams – Oral examination – Presentation
1.2	Demonstrates understanding of how new knowledge is developed and applied and the effects of recent research on the store of knowledge in sustainable development and on associated professional practice.	– Direct learning (lecture) – Interactive learning (brain storming) – Interactive learning (dialogue & discussion)	– Multiple-Choice exams – Oral examination – Presentation
2.0	Cognitive Skills		
2.1	Makes informed and defensible judgments in circumstances where there is an absence of complete or consistent information.	– Interactive learning (dialogue & discussion) – Interactive learning (creative thinking)	– Oral examination – Presentation
2.2	Consistently applies practical and theoretical knowledge in dealing with a wide variety of novel and unpredictable scholarly and/or professional contexts, and develops original and creative responses to issues and problems related to sustainability, Islamic Identity, etc.	– Interactive learning (dialogue & discussion) – Interactive learning (creative thinking)	– Oral examination – Presentation
3.0	Interpersonal Skills & Responsibility		
3.1	Where additional information or skills are required takes independent action to acquire and apply that information or skill.	– Self –learning (research work)	– Presentation – Evaluation of research paper
4.0	Communication, Information Technology, Numerical		
4.1	Communicates effectively and at appropriate levels with academic and professional audiences and the wider community through informal and formal reports and presentations and academic and professional publications, including major research project.	– Interactive learning (brain storming) – Interactive learning (dialogue & discussion) – Self –learning (research work)	– Presentation – Evaluation of research project
5.0	Psychomotor		
5.1	Not Applicable		

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Continuous Assessment	1-13	40 %
2	Mid Term Exam	8	20 %
3	Final Exam	15	40 %
	Total		**100%**

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)
Office hours: 2 hours/ week

E. Learning Resources

1. List Required Textbooks - H. Scoot , S. E. LeBlanc, **Strategies for Creative Problem Solving**, Prentise Hall PTI, NJ ,2015 – Jonne Ceserani, **Creative Problem Solving ,Taking Imaginations through Action** ,2014 – Adey P. **Thinking Science**, Kings Collage, London ,1989.
2. List Essential References Materials (Journals, Reports, etc.) - Charles, A. and Cooper, W.W.W **Creativity and Innovative Management**, - Gibb, J. R. **Managing for Creativity in the Organization**. 1972. - Wolf, M. W. **Managing the creative Engineer**, 1977. - Jonathan Hill, **Action in Architectures, Architects and Creative users**, Routledge, London, 2003. - Roland A. Finke & others, **Theory, Research & Applications**, warwick.ac.uk PDF.
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.) **Websites on the internet that are relevant to the topics of the course**
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. **Multimedia associated with the text book and the relevant websites**

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) **Lecture room**
2. Computing resources (AV, data show, Smart Board, software, etc.) **PC connected to a data show for lectures, GIS and ArcView software and internet connection**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching **Course evaluation by student.** **Ask students questions directly to gauge their understanding to the materials presented in the lecture.**
2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor **Peer consultation on teaching** **Departmental council discussions** **Electronic course evaluation to be completed by students**
3 Processes for Improvement of Teaching **Considering students' feedback in every lecture to improve teaching processes.** **Meetings with other faculties and peers to discuss opinions and ideas on how to improve and to teach specific topics.** **Developing means of presenting the subject's material to be more attractive to students.** **Conducting workshops given by experts on the teaching and learning methodologies** **Periodical departmental revisions of its methods of teaching** **Monitoring of teaching activates by senior faculty members**

4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)

- **Pop-questions at the beginning of the lecture about the previous one would refer to their standard.**
- **Assigning group of faculty members teaching the same course to grade same questions for various students.**
- **Inviting a guest-lecture specialized in their subject area and stimulates a dialogue between him/her and the students to measure their responses to specific questions.**
- **Providing samples of all kind of assessment in the departmental course portfolio of each course.**
- **Check marking by an independent faculty member for students' final exam.**

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

- **The course material and learning outcomes are periodically reviewed and the changes to be taken are approved in the departmental and higher councils.**
- **The head of department and faculty take the responsibility of implementing the proposed changes.**
- **Review students course evaluation and respond to the issues presented.**
- **Advising the library with the most recent books and periodicals that discuss the subject matter.**
- **Increase the use of online facilities (discussions, answer questions, etc.)**
- **Improving the course by checking the size of the materials provided.**
- **Involving students in preparing parts of the lecture beforehand and giving their feedback about the content at the beginning of the lecture.**

Faculty or Teaching Staff:

_____

Signature: _____ **Date Report Completed:** _____

Received by: _____ **Dean/Department Head:** _____

Signature: _____ **Date:** _____

Kingdom of Saudi Arabia
Ministry of Education
Umm Al-Qura University

Course Specifications
(CS)

Architecture & Urban Entrepreneurship (801652-3)

Group I – Department elective course

Course Specifications

Institution **Umm Al-Qura University**	Date of Report **October 2018**
College/Department **College of Islamic Architecture and Engineering / Department of Islamic Architecture.**	

A. Course Identification and General Information

1. Course title and code: **Architecture and Urban Entrepreneurship**		**SUS 801652-3**
2. Credit hours **3**		
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **Master of Architecture Program**		
4. Name of faculty member responsible for the course:		
5. Level/year at which this course is offered: **First Semester**		
6. Pre-requisites for this course (if any): **None**		
7. Co-requisites for this course (if any**):** **None**		
8. Location if not on main campus		
9. Mode of Instruction (mark all that apply)		
a. Traditional classroom		What percentage?
b. Blended (traditional and online)	X	What percentage? 40%
c. e-learning		What percentage?
d. Correspondence	X	What percentage? 20%%
f. Other	X	What percentage? 40%
Comments:		

B Objectives

1. What is the main purpose for this course?

   The main objective of this course: is to emphasis the trending entrepreneurship importance in architecture practice side by side with revealing the fundamental entrepreneurial skills and principles. This is to match the 2030 Saudi vision objectives.

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web-based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached)

The course is focusing on developing an Entrepreneurship ethos and way of thinking. It provides students with a crucial entrepreneurial principle which cover the main three pillars which are mind-set, knowledge-set, and skills-set. The course also helps enhancing the startups making skills which is desirable at the newly graduated level generations.

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact Hours
To be an Entrepreneur	2	6
Successful Archi-perineural	2	6
Entrepreneur mind-set	2	6
Entrepreneur knowledge-set	2	6
Entrepreneur skills-set	2	6
Marketing fundamentals	2	6
Startups making	2	6
Total	**14**	**42**

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory	Practical	Other: Blended	Total
Contact Hours					**42**	**42**
Credit					**3**	**3**

3. Additional private study/learning hours expected for students per week. **4 hours weekly**

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

Course Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning, assessment, and teaching. Every course is not required to include learning outcomes from each domain.

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Has thorough knowledge and critical understanding of the architectural and perineural principles including concepts, theories, and their current application in research and professional practices.	– Direct learning (lecture) – Interactive learning (brain storming) – Interactive learning (dialogue & discussion)	– Multiple-Choice exams – Oral examination – Presentation
1.2	Demonstrates understanding of how start up making is processed at the forefront of theory, research or professional practices in architectural design.	– Direct learning (lecture) – Interactive learning (brain storming) – Interactive learning (dialogue & discussion)	– Multiple-Choice exams – Oral examination – Presentation
2.0	**Cognitive Skills**		
2.1	Consistently applies practical and theoretical knowledge in dealing with a wide variety of novel and unpredictable scholarly and/or professional contexts, and develops original and creative responses to issues and problems related to entrepreneurial and innovative ideas, within the Islamic community, etc.	– Interactive learning (dialogue & discussion) – Interactive learning (creative thinking) – Indirect learning (problem solving)	– Assignments and tasks – Evaluation of projects – Presentation

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
3.0	**Interpersonal Skills & Responsibility**		
3.1	Takes initiative in identifying and responding creatively to complex issues and problems in Entrepreneur mind-set, knowledge -set and skills -set.	– Self –learning (research work)	– Evaluation of research paper
3.2	Where additional information or skills are required takes independent action to acquire and apply that information or skill.	– Self –learning (research work)	– Evaluation of research paper
4.0	**Communication, Information Technology, Numerical**		
4.1	Communicates effectively and at appropriate levels with academic and professional audiences and the wider community through informal and formal reports and presentations and academic and professional publications, including major research project.	– Self –learning (research work)	– Evaluation of research paper
4.2	Uses a wide range of appropriate information and communications technology in investigating issues and in communicating conclusions and recommendations.	– Self –learning (research work)	– Evaluation of research paper
5.0	**Psychomotor**		
5.1	Not Applicable		

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Continuous Assessment**	**1-13**	**40 %**
2	**Mid Term Exam**	**8**	**20 %**
3	**Final Exam**	**15**	**40 %**
	Total		**100%**

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)
Office hours: 2 hours/ week

E. Learning Resources

1. List Required Textbooks

- **Eric W. Reinholdt, (2015). Architect + Entrepreneur: A Field Guide to Building, Branding, and Marketing Your Startup Design Business. 30X40 design workshop, Mount Desert Island, Maine.**
- **Eric W. Reinholdt, (2015). Architect + Entrepreneur: How to Stabilize Your Revenue Streams With "Passive Income", 30X40 design workshop, Mount Desert Island, Maine.**

2. List Essential References Materials (Journals, Reports, etc.)

- Keith Granet, **The Business of Creativity: How to Build the right team for success,** Pricton Architectural Press, A McEVOY Group Company, New York, 2017.
- **Kiran Gandhi, Business Planning for Architects (Marketing for Architects - A Practical Guide), Kiran Gandh, 2017.**

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
https://entrearchitect.com/
https://archipreneur.com/thinking-of-archipreneurship-how-to-overcome-your-initial-fears-in-7-steps/
https://archipreneur.com/

4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) **- An open space classroom with Wi-Fi connection.**
2. Computing resources (AV, data show, Smart Board, software, etc.) – **PC connected to a data show for lectures, GIS and ArcView software and internet connection**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) **- data show.**

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching – **Course evaluation by student.** – **Ask students questions directly to gauge their understanding to the materials presented in the lecture.**
2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor – **Peer consultation on teaching** – **Departmental council discussions** – **Electronic course evaluation to be completed by students**
3 Processes for Improvement of Teaching – **Considering students' feedback in every lecture to improve teaching processes.** – **Meetings with other faculties and peers to discuss opinions and ideas on how to improve and to teach specific topics.** – **Developing means of presenting the subject's material to be more attractive to students.** – **Conducting workshops given by experts on the teaching and learning methodologies** – **Periodical departmental revisions of its methods of teaching** – **Monitoring of teaching activates by senior faculty members**
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) – **Pop-questions at the beginning of the lecture about the previous one would refer to their standard.** – **Assigning group of faculty members teaching the same course to grade same questions for various students.** – **Inviting a guest-lecture specialized in their subject area and stimulates a dialogue between him/her and the students to measure their responses to specific questions.** – **Providing samples of all kind of assessment in the departmental course portfolio of each course.** – **Check marking by an independent faculty member for students' final exam.**

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

- **The course material and learning outcomes are periodically reviewed and the changes to be taken are approved in the departmental and higher councils.**
- **The head of department and faculty take the responsibility of implementing the proposed changes.**
- **Review students course evaluation and respond to the issues presented.**
- **Advising the library with the most recent books and periodicals that discuss the subject matter.**
- **Increase the use of online facilities (discussions, answer questions, etc.)**
- **Improving the course by checking the size of the materials provided.**
- **Involving students in preparing parts of the lecture beforehand and giving their feedback about the content at the beginning of the lecture.**

Faculty or Teaching Staff:

_____

Signature: _____ **Date Report Completed:** _____

Received by: _____ **Dean/Department Head:** _____

Signature: _____ **Date:** _____

Kingdom of Saudi Arabia
Ministry of Education
Umm Al-Qura University

Course Specifications
(CS)

Computer-Based Construction Management (801653-3)

Group I – Department elective course

Course Specifications

Institution **Umm Al-Qura University**	Date of Report **November 2018**
College/Department **College of Islamic Architecture and Engineering / Department of Islamic Architecture.**	

A. Course Identification and General Information

1. Course title and code: **Computer-Based Construction Management – SUS 801653-3**
2. Credit hours **3**
3. Program(s) in which the course is offered.
(If general elective available in many programs indicate this rather than list programs)
Master of Architecture Program- Sustainable Design Track
4. Name of faculty member responsible for the course:
5. Level/year at which this course is offered: **Semester two (elective course)**
6. Pre-requisites for this course (if any): **None**
7. Co-requisites for this course (if any**):** **None**
8. Location if not on main campus
9. Mode of Instruction (mark all that apply)

a. Traditional classroom		What percentage?	
b. Blended (traditional and online)	X	What percentage?	100 %
c. e-learning		What percentage?	
d. Correspondence		What percentage?	
f. Other		What percentage?	

Comments:
The candidate will be asked to attend traditional classes and apply exercises on computers.

B Objectives

1. What is the main purpose for this course?
   - Develop clear understanding of computer-based construction management, techniques, and most trending applications.
   - Ability to develop multiple construction management skills using advanced computer applications at all levels (3D and 4D etc.).
   - Recognize the significance of BIM in the fields of construction management.
   - Apply the course material on a real-life project.
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web-based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached)

The course aims at applying computer-based tools and techniques of construction management on variety of topics including planning, scheduling (critical path analysis), resource management (resource leveling and allocation), and project control. Optimization, decision-making techniques, building-related economics are provided during the course as an essential part of the course. BIM-based project control is introduced through methodology, process and real-life case studies.

Construction management applications such as Primavera and MS Project are elaborated throughout the course.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Project Planning: concept - steps - network diagrams.	1	3
Project Planning: Time and Cost Estimation	1	3
Project Scheduling: concept and analysis	1	3
Project Scheduling: applications on critical path method (CPM)	1	3
Resource Management: Leveling and Allocation	1	3
Practical applications on scheduling using Primavera and MS Project: assignment of activities, resources and materials	1	3
Building-related Economics: Decision Making and Analysis	2	6
BIM: Definition, Best Practices, Processes, and Methodology	1	3
Design Coordination, Clash Detection and the RFI Process	1	3
Drawings and Schedules Extraction from the BIM	1	3
Construction BIM Model – Data requirements Using BIM to manager construction (4D, 5D, Lean, etc.	2	6
Planning / Schedule Simulation (4D Workflows)	1	3
Total	**14**	**42**

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory	Practical	Other: Blended	Total
Contact Hours					**42**	**42**
Credit					**3**	**3**

3. Additional private study/learning hours expected for students per week. **4 hours weekly**

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

Course Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning, assessment, and teaching. Every course is not required to include learning outcomes from each domain.

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Has thorough knowledge and critical understanding of the computer-based construction management including principal concepts, principles and theories and their current application to the sustainable design research or its professional practice.	– Direct learning (lecture) – Interactive learning (dialogue & discussion)	– Oral examination – Presentation

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.3	Demonstrates understanding of how new knowledge is developed and applied and the effects of recent research on the store of knowledge in computer-based construction management and on associated professional practice.	– Direct learning (lecture) – Interactive learning (dialogue & discussion)	– Oral examination – Presentation
1.4	Is aware of recent regulatory provisions in the local and international environment that might affect construction management and of reasons for and future implications of those changes.	– Direct learning (lecture) – Interactive learning (dialogue & discussion)	– Oral examination – Presentation
2.0	**Cognitive Skills**		
2.1	Consistently applies practical and theoretical knowledge in dealing with a wide variety of novel and unpredictable scholarly and/or professional contexts, and develops original and creative responses to issues and problems related to sustainability, Islamic Identity, etc.	– Interactive learning (dialogue & discussion) – Indirect learning (problem solving)	– Assignments and tasks. – Oral examination
2.4	Can apply common and specialized research techniques in the creative analysis of complex issues and development of conclusions and proposals relevant to sustainable design.	– Interactive learning (dialogue & discussion) – Indirect learning (problem solving)	– Assignments and tasks. – Oral examination
2.5	Can independently plan and execute a major project or piece of scholarly research applying practical and theoretical knowledge and research techniques and producing sound conclusions that add significantly to existing knowledge or professional practice in sustainable design.	– Interactive learning (dialogue & discussion) – Indirect learning (problem solving)	– Assignments and tasks. – Oral examination
3.0	**Interpersonal Skills & Responsibility**		
3.1	Takes initiative in identifying and responding creatively to complex issues and problems in sustainable design.	– Interactive learning (problem solving) – Self –learning	– Oral examination – Presentation
3.2	Where additional information or skills are required takes independent action to acquire and apply that information or skill.	– Interactive learning (problem solving) – Self –learning. (Project development)	– Oral examination – Presentation
3.6	Where issues are not adequately dealt with in current ethical codes of practice or regulations, makes informed, fair, and valid judgments on the basis of sound principles and values.	– Interactive learning (problem solving) – Self –learning. (Project development)	– Oral examination – Presentation
4.0	**Communication, Information Technology, Numerical**		
4.1	Communicates effectively and at appropriate levels with academic and professional audiences and the wider community through informal and formal reports and presentations and academic and professional publications, including major research project.	– Interactive learning (problem solving) – Self –learning. (Project development)	– Oral examination – Presentation
5.0	**Psychomotor**		
5.1	Not Applicable		

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	**Week Due**	**Proportion of Total Assessment**
1	Continuous Assessment	1-14	40%
3	Mid-Term Exam	7	20%
4	Final Exam	14	40 %
	Total		**100%**

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)
Office hours: 2 hours / week

E. Learning Resources

1. List Required Textbooks

- Hegazy, T. (2002). **Computer-based construction project management**. Pearson Education, New Jersey: Prentice Hall Inc.
- Harris, F. and McCaffer, R. (2013). **Modern Construction Management**. 7th ed. Wiley-Blackwell
- Halpin, D. W. and Senior, B. A. (2011). **Construction Management**. 4th ed. John Wiley & Sons.
- Liebing, R. W. (2008). **Construction of Architecture: From Design to Built**. John Wiley & Sons.
- Fraser, N. M. (2009). **Global Engineering Economics**. 4th ed. Pearson Education Canada.

2. List Essential References Materials (Journals, Reports, etc.)

- **AIA (2007). Integrated Project Delivery: A Guide. Version 01.**

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

- Paul, E. H. (2008). **Project Planning and Scheduling using Primavera P6**. Eastwood Harris pty ltd.
- Tunstall, G. (2000). **Managing the Building Design Process**. Reed Educational and Professional Publishing Ltd, Oxford: Butterworth-Heinemann.

4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.
Videos provided by the instructor and relevant websites

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)

1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)
   - **Lecture room**
2. Computing resources (AV, data show, Smart Board, software, etc.)
   - **PC connected to a data show for lectures, visualization software and internet connection**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)
   - **Computer lab with 15 PCs equipped with the required software and internet connection.**

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching – **Regular attendance of students and complete all assignments must be noted.** – **Course evaluation by student.** – **Ask students questions directly to gauge their understanding to the materials presented in the lecture.**
2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor – **Peer consultation on teaching** – **Departmental council discussions** – **Electronic course evaluation to be completed by students**
3 Processes for Improvement of Teaching – **Considering students' feedback in every lecture to improve teaching processes.** – **Meetings with other faculties and peers to discuss opinions and ideas on how to improve and to teach specific topics.** – **Developing means of presenting the subject's material to be more attractive to students.**
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) – **Pop-questions at the beginning of the lecture about the previous one would refer to their standard.** – **Assigning group of faculty members teaching the same course to grade same questions for various students.** – **Inviting a guest-lecture specialized in their subject area and stimulates a dialogue between him/her and the students to measure their responses to specific questions.** – **Check marking by an independent faculty member for students' final exam.**
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. – **Advising the library with the most recent books and periodicals that discuss the subject matter.** – **Increase the use of online facilities (discussions, answer questions, etc.)** – **Involving students in preparing parts of the lectures beforehand and giving their feedback about the content at the beginning of the lecture.**

Faculty or Teaching Staff:

_____

Signature: _____ **Date Report Completed:** _____

Received by: _____ **Dean/Department Head:** _____

Signature: _____ **Date:** _____

Kingdom of Saudi Arabia
Ministry of Education
Umm Al-Qura University

Course Specifications
(CS)

Building Design in Different Climate - (801661-3)

Group II – Track elective course

Course Specifications

Institution **Umm Al-Qura University**	Date of Report **October 2018**
College/Department **College of Islamic Architecture and Engineering / Department of Islamic Architecture.**	

A. Course Identification and General Information

1. Course title and code: **Building Design in Different Climate** **801661-3**
2. Credit hours **3**
3. Program(s) in which the course is offered.
(If general elective available in many programs indicate this rather than list programs)
Master of Architecture Program
4. Name of faculty member responsible for the course:
5. Level/year at which this course is offered:
6. Pre-requisites for this course (if any): **None**
7. Co-requisites for this course (if any**):** **None**
8. Location if not on main campus
9. Mode of Instruction (mark all that apply)

a. Traditional classroom		What percentage?	
b. Blended (traditional and online)	X	What percentage?	100%
c. e-learning		What percentage?	
d. Correspondence		What percentage?	
f. Other		What percentage?	

Comments:

B Objectives

2. What is the main purpose for this course?

This module provides the student with the required skills to:

- Analyze physical conditions of environmental design of building, assess its thermal performance, might affect a sustainable architectural design.
- Assess all environments & built environment requirements and needs of users comfort.
- Produce innovative knowledge and apply research and scholarly publications or professional reports, and can develop significant new ideas.
- Enhance and apply common and specialized research techniques in the creative analysis of complex issues, solving methods for architectural projects.
- Express and present an understanding of the impact of climate change on the environmental design of buildings
- Use and analysis of climatic data collected in building design and development of conclusions and proposals relevant to sustainable design.
- Express and present an understanding of the qualities of architectural materials to evaluates, and makes effective use of mathematical and statistical data.
- Evaluate Impact of different forms and orientations on the building environmental performance of buildings.
- Express techniques of computer software with a wide range of appropriate information and communications technology related to environmental enhancement.

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web-based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached)

This course describes that Climate is one of the most important factors that affect both architectural design and urban planning. Local climate conditions such as temperature, humidity, wind, rain and solar position and intensity in different climatic zones should be considered in the early design stages. The identification, understanding and control of the climatic effects at the location of the building are crucial even before design decisions.

Moreover, it aims at understanding and utilizing the unique characteristics of new materials, construction technology, and assembly details in the expression of architectural ideas. Analysis includes thermal behaviour considerations in building design, the planning and integration of building systems, building services and building envelope design as an appropriate architectural expression adopting the sustainable design approach

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Course Introduction – brief description of course topics- marks and evaluation	1	3
Environmental components definitions and terminologies - research statement and the required report.	1	3
Different climatic zone and features, its impact to the building design process.	1	3
Passive design requirements- advantage of climate as a tool to achieve human comfort.	2	6
To be continued: Passive design requirements and how to collect and analysis data	1	3
Design for climate: Passive cooling and Passive heating techniques.	1	3
Thermal mass and thermal transmission- method and treatment.	1	3
Thermal mass and material characteristics and impacts to the building thermal design.	1	3
Thermal comfort- psychometric chart and its components	1	3
Analysis of the required climatic data in building design.	2	6
Zero-energy building in different climate, definition, strategies and applications, to achieve human comfort.	1	3
Research seminar	1	3
Total	**14**	**42**

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours		**42**				**42**
Credit		**3**				**3**

3. Additional private study/learning hours expected for students per week. **2 hours weekly**

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

Course Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning, assessment, and teaching.
Every course is not required to include learning outcomes from each domain.

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge:**		
1.1	Has thorough knowledge and critical understanding of the requirements of designing in different climatic zones including principal concepts, principles and theories and their current application to the sustainable design research or its professional practice.	– Direct learning (lecture) – Self –learning (research work)	– Essay-type examination – Evaluation of research paper
1.2	Is aware of recent regulatory provisions in the local and international environment that might affect sustainable design and of reasons for and future implications of those changes.	– Direct learning (lecture) – Self –learning (research work)	– Essay-type examination – Evaluation of research paper
2.0	**Cognitive Skills:**		
2.1	Can synthesize and apply research and scholarly publications or professional reports, and can develop significant new ideas and integrate them into or challenge established knowledge.	– Indirect learning (problem solving) – Self –learning (research work)	– Assignments and tasks – Evaluation of research paper
2.2	Can apply common and specialized research techniques in the creative analysis of complex issues and development of conclusions and proposals relevant to sustainable design.	– Indirect learning (problem solving) – Self –learning (research work)	– Assignments and tasks – Evaluation of research paper
3.0	**Interpersonal Skills & Responsibility:**		
3.1	Where additional information or skills are required takes independent action to acquire and apply that information or skill.	– Self –learning (research work)	– Presentation – Evaluation of research paper
3.2	Accepts full responsibility for own work and cooperates fully and constructively with others in dealing with issues and problems, exercising both informal and formal leadership skills where appropriate.	– Self –learning (research work)	– Presentation – Evaluation of research paper
3.3	Deals consistently and sensitively with complex ethical issues in academic and or professional contexts.	– Self –learning (research work)	– Presentation – Evaluation of research paper
4.0	**Communication, Information Technology, Numerical**		
4.1	Communicates effectively and at appropriate levels with academic and professional audiences and the wider community through informal and formal reports and presentations and academic and professional publications, including major research project.	– Self –learning (research work)	– Presentation
4.2	Obtains, critically evaluates, and makes effective use of mathematical and statistical data.	– Self –learning (research work)	– Presentation

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
5.0	**Psychomotor**		
5.1	Not Applicable		

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Continuous Assessment**	**1-13**	**40 %**
2	**Mid Term Exam**	**8**	**20 %**
3	**Final Exam**	**15**	**40 %**
	Total		**100%**

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)
Office hours: 2 hours/ week

E. Learning Resources

1. List Required Textbooks
- Grondzik, Walter, Kwok, Alison, **Mechanical and Electrical Equipment for Buildings,** Published by John Wiley & Sons, Hoboken, 2015.
- Lechner Norbert, **Heating, Cooling, Lighting, Sustainable Design Method for Architect,** Published by John Wiley & Sons, Hoboken, 2015.

2. List Essential References
- Stelmack, Annette**, Sustainable residential interiors,** Wiley, ISBN:1-118-60368-0, 978-1-118-60368-0, 2014.
- Phillip James Tabb; A. Senem Deviren, **The Greening of Architecture: A Critical History and Survey of Contemporary Sustainable Architecture and Urban Design,** Routledge Ltd, 2017.
- Sayigh, Ali, Sustainability, **Energy and Architecture: Case Studies in Realizing Green Buildings,** Academic Press, 2014.

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)
Websites on the internet that are relevant to the topics of the course

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.
Multimedia associated with the text book and the relevant websites

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)

1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)
- **Lecture room**

2. Computing resources (AV, data show, Smart Board, software, etc.)
- **PC connected to a data show for lectures, GIS and ArcView software and internet connection**

3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)
- **Computer room containing at least 15 PCs**

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching

- **Course evaluation by student**
- **Students' feedback on the specific nature and size of their projects.**
- **General feedback from senior academic meetings with the faculty.**
- **Ask students questions directly to gauge their understanding to the materials presented in the lecture.**

2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor

- **Peer consultation on teaching**
- **Departmental council discussions**
- **Electronic course evaluation to be completed by students**

3 Processes for Improvement of Teaching

- **Considering students' feedback in every lecture to improve teaching processes.**
- **Meetings with other faculties and peers to discuss opinions and ideas on how to improve and to teach specific topics.**
- **Developing means of presenting the subject's material to be more attractive to students.**
- **Conducting workshops given by experts on the teaching and learning methodologies**
- **Periodical departmental revisions of its methods of teaching**
- **Monitoring of teaching activates by senior faculty members**

4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)

- **Giving samples of all kind of assessment in the departmental course portfolio of each course.**
- **Check marking by an independent faculty member for students' final exam.**
- **Examination of the students' design drafts development.**
- **Inviting another instructor in the same area to be a critic for the students' design work.**
- **Pop-questions at the beginning of the lecture about the previous one would refer to their standard.**
- **Providing samples of all kind of assessment in the departmental course portfolio of each course.**
- **Assigning group of faculty members teaching the same course to grade same questions for various students.**
- **Inviting a guest-lecture specialized in their subject area and stimulates a dialogue between him/her and the students to measure their responses to specific questions.**

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

- **Review students course evaluation and respond to the issues presented.**
- **Advising the library with the most recent books and periodicals that discuss the subject matter.**
- **Increase the use of online facilities (discussions, answer questions, etc.)**
- **Improving the course by checking the size of the materials provided.**
- **Involving students in preparing parts of the lecture beforehand and giving their feedback about the content at the beginning of the lecture.**
- **Advising the library with the most recent books and periodicals that discuss the subject matter.**
- **Providing the necessary tools that help students to develop their work smoothly.**

- **Course materials and learning outcomes are periodically reviewed and the changes to be taken are approved in the departmental and higher councils.**
- **The head of department and faculty take the responsibility of implementing the proposed changes.**

Faculty or Teaching Staff:

_____

Signature: _____ Date Report Completed: _____

Received by: _____ Dean/Department Head :_____

Signature: _____ Date: _____

Kingdom of Saudi Arabia
Ministry of Education
Umm Al-Qura University

Course Specifications
(CS)

Low and Zero Carbon Energy Systems- (801662-3)

Group II – Track elective course

Course Specifications

Institution **Umm Al-Qura University**	Date of Report **October 2018**
College/Department **College of Islamic Architecture and Engineering / Department of Islamic Architecture.**	

A. Course Identification and General Information

1. Course title and code: **Low and Zero Carbon Energy Systems**				**SUS 801662-3**
2. Credit hours **3**				
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **Masters of Architecture Program**				
4. Name of faculty member responsible for the course:				
5. Level/year at which this course is offered: **Graduates**				
6. Pre-requisites for this course (if any): **None**				
7. Co-requisites for this course (if any): **None**				
8. Location if not on main campus				
9. Mode of Instruction (mark all that apply)				
a. Traditional classroom		What percentage?		
b. Blended (traditional and online)	X	What percentage?	100%	
c. e-learning		What percentage?		
d. Correspondence		What percentage?		
f. Other		What percentage?		

Comments:

1. Lectures. The didactic content of the module will be explained in lectures, assisted by visual aids, interaction with the students and, where applicable, demonstrations.
2. Workshops and assignments. There will be practical exercises to give students practice in implementing the requisite skills.
3. On-line support material. The module content will be accessible to students in electronic form on line. By reducing reliance on formal lectures, these increase opportunities for needs-related tuition.
4. Set texts. In addition, certain texts will be used as main reference sources to ensure that students are familiar with the material covered in them.

B Objectives

1. What is the main purpose for this course

This module provides the student with tools to reducing the environmental impact of buildings. Attendees at this course will learn how to reduce building carbon footprint and will get a good grounding in the architecture projects. It aims to:

- Introduce the ways buildings, use energy.
- Introduce methods of matching these demands through renewables and low Energy systems.
- Introduce techniques for assessing the energy footprint and sustainable performance of the building using benchmarking and monitoring.
- Show a basic knowledge of the concept of embodied energy.
- Show an understanding of assessment tools for sustainable design.
- Explain the benefits monitoring and calculate benchmarks for buildings.
- Show an understanding of zero-carbon buildings.
- Evaluate how well a building attains low carbon design.

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web-based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached)

Low carbon design requires a holistic approach to the energy use of a building. The designer needs to understand in principle how buildings use energy and to supplement this understanding with evidence on energy use from the field. Students need to be able to work with goals for building design, such as zero carbon standards, and with ways of off-setting energy consumption with renewable technologies.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
– Introduction, explain the science and consequences of climate change and the background to our use of energy .	1	3
– Energy resources – Embodied energy of building materials – Energy consumption for erection, maintenance and demolition of the building.	1	3
– Overview of greenhouse gases	1	3
– Low carbon building	1	3
– Economical challenges of renewable energy development.	1	3
– Using sustainable material- material cycle (Pre- building phase, Building phase, post-building phase).	1	3
– Environmental design techniques.	2	6
– Smart buildings and advanced systems.	1	3
– Types of renewable technologies, integration, Low Carbon and Renewable energy solutions and its economic impact.	1	3
– Green rating systems and CO2 reduction	1	3
– Strategic design of building services, Loads, demands, and provision (Lighting, HVAC), Efficient control and use of services.	1	3

– Describes some actual examples (international , local text) of extensively retrofitted and purpose-built low-carbon buildings	1	3
– Seminar Research presentation	1	3
Total	**14**	**42**

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory	Practical	Other: Blended	Total
Contact Hours					**42**	**42**
Credit					**3**	**3**

3. Additional private study/learning hours expected for students per week. **4 hours weekly**

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

Course Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning, assessment, and teaching. Every course is not required to include learning outcomes from each domain.

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Demonstrates understanding of sustainable Architecture at the forefront of theory, research or professional practice in sustainable design and low energy systems.	– Direct learning (lecture) – Self –learning (research work)	– Essay-type examination – Evaluation of research paper
1-2	The student will be aware of recent regulatory provisions in the local and international environment that might affect sustainable design and of reasons for and future implications of those changes .	– Direct learning (lecture) – Self –learning (research work)	– Essay-type examination – Evaluation of research paper
2.0	**Cognitive Skills**		
2.1	Can synthesize and apply research and scholarly publications or professional reports, and can develop significant new ideas and integrate them into or challenge established knowledge.	– Interactive learning (dialogue & discussion) – Self –learning (research work)	– Oral examination – Presentation
2.2	Can apply common and specialized research techniques in the creative analysis of complex issues and development of conclusions and proposals relevant to sustainable design and low energy systems.	– Interactive learning (dialogue & discussion) – Self –learning (research work)	– Oral examination – Presentation
3.0	**Interpersonal Skills & Responsibility**		
3.1	Accepts full responsibility for own work and cooperates fully and constructively with others in dealing with issues and problems, exercising both informal and formal leadership skills where appropriate.	– Self –learning (research work)	– Presentation – Evaluation of research paper
3.2	Accepts full responsibility for own work and cooperates fully and constructively with others in dealing with issues and problems, exercising both informal and formal leadership skills where appropriate.	– Self –learning (research work)	– Presentation – Evaluation of research paper
	In group situations acts in ways that consistently	– Self –learning (research	– Presentation

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
	enhance the effectiveness of the group as a whole.	work)	– Evaluation of research paper
4.0	**Communication, Information Technology, Numerical**		
4.1	Communicates effectively and at appropriate levels with academic and professional audiences and the wider community through informal and formal reports and presentations and academic and professional publications, including major research project.	– Self –learning (research work)	– Presentation – Evaluation of research paper
4.2	Uses a wide range of appropriate information and communications technology in investigating issues and in communicating conclusions and recommendations.	– Self –learning (research work)	– Presentation – Evaluation of research paper
5.0	**Psychomotor**		
	Not Applicable		

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Continuous Assessment**	**1-13**	**40 %**
2	**Mid Term Exam**	**8**	**20 %**
3	**Final Exam**	**15**	**40 %**
	Total		**100%**

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)
Office hours: 2 hours/ week

E. Learning Resources

1. List Required Textbooks
- C. Williams. **Biodiversity for Low and Zero Carbon Buildings :A Technical Guide for New Build,** London,Riba publishing ,2010
- **U. Desideri , F. Asdrubali, Handbook of Energy Efficiency in Buildings: A Life Cycle Approach .1st ed. Butterworth- Heinemann , 20018. 9780128128176**

2. List Essential References Materials (Journals, Reports, etc.)
- Greenhouse gases . **Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements**, ISO14064-2
- G Z Brown, M. DeKay. **Sun, wind & light; Architectural design strategies**. 2nd ed. Wiley and Sons, New York, 2001. 0-471-34877-5.
- TA Markus, EN Morris. **Buildings, Climate and Energy**. London, Pitman, 1980. 0-273-00268-6
- Randall McMullan and Ivor H Seeley. **Environmental Science in Building**. Palgrave Macmillan,2007 0- 230-52536-9
- Steven V. Szokolay. **Introduction to Architectural Science; the basis of sustainable design,** Architectural Press 2004 0-7506-58495
- R Thomas , M Fordham. **Environmental Design**, Taylor & Francis, 2006 0-415-36334-9
- D Watson, K Labs. **Climatic building design; energy-efficient building principles**

and practice. McGraw-Hill, New York, 1983. 0-07-068488-X
- Henry Plummer. **The architecture of natural light**. Thames and Hudson, London, 2012. 0500290369 / 978-0500290361
- Peter Tregenza and Michael Wilson. **Day lighting: architecture and lighting design**. Routledge, 2011. 0419257004 / 978-0419257004
- H Awbi. **Ventilation of Buildings**. Taylor and Francis, 2003. 415270561
- ASHRAE. **Handbook - Fundamentals**. ASHRAE, 2009.
- Guzowski, M. Towards . **Zero-energy Architecture: New Solar Design**. Lawrence King Publishers, 2010. 978-1856696784

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)
Websites on the internet that are relevant to the topics of the course

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.
Multimedia associated with the text book and the relevant websites

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)

1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)
   - **Lecture room**

2. Computing resources (AV, data show, Smart Board, software, etc.)
   - **PC connected to a data show for lectures, GIS and ArcView software and internet connection**

3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching
- **Course evaluation by student.**
- **Ask students questions directly to gauge their understanding to the materials presented in the lecture.**

2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor
- **Peer consultation on teaching**
- **Departmental council discussions**
- **Electronic course evaluation to be completed by students**

3 Processes for Improvement of Teaching
- **Considering students' feedback in every lecture to improve teaching processes.**
- **Meetings with other faculties and peers to discuss opinions and ideas on how to improve and to teach specific topics.**
- **Developing means of presenting the subject's material to be more attractive to students.**
- **Conducting workshops given by experts on the teaching and learning methodologies**
- **Periodical departmental revisions of its methods of teaching**
- **Monitoring of teaching activates by senior faculty members**

4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)

- **Pop-questions at the beginning of the lecture about the previous one would refer to their standard.**
- **Assigning group of faculty members teaching the same course to grade same questions for various students.**
- **Inviting a guest-lecture specialized in their subject area and stimulates a dialogue between him/her and the students to measure their responses to specific questions.**
- **Providing samples of all kind of assessment in the departmental course portfolio of each course.**
- **Check marking by an independent faculty member for students' final exam.**

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

- **The course material and learning outcomes are periodically reviewed and the changes to be taken are approved in the departmental and higher councils.**
- **The head of department and faculty take the responsibility of implementing the proposed changes.**
- **Review students course evaluation and respond to the issues presented.**
- **Advising the library with the most recent books and periodicals that discuss the subject matter.**
- **Increase the use of online facilities (discussions, answer questions, etc.)**
- **Improving the course by checking the size of the materials provided.**
- **Involving students in preparing parts of the lecture beforehand and giving their feedback about the content at the beginning of the lecture.**

Faculty or Teaching Staff:

_____

Signature: _____ Date Report Completed: _____

Received by: _____ Dean/Department Head: _____

Signature: _____ Date: _____

Kingdom of Saudi Arabia
Ministry of Education
Umm Al-Qura University

Course Specifications
(CS)

Special Topics on Renewable Energy Systems (801663-3)

Group II – Track elective course

Course Specifications

Institution **Umm Al-Qura University**	Date of Report **October 2018**
College/Department **College of Islamic Architecture and Engineering / Department of Islamic Architecture.**	

A. Course Identification and General Information

1. Course title and code**: Special topics on Renewable Energy systems**		**801663-3**
2. Credit hours : **3**		
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **Masters of Architecture Program**		
4. Name of faculty member responsible for the course:		
5. Level/year at which this course is offered: **Graduates**		
6. Pre-requisites for this course (if any): **None**		
7. Co-requisites for this course (if any**):** **None**		
8. Location if not on main campus		
9. Mode of Instruction (mark all that apply)		
a. Traditional classroom	X	What percentage? 40%
b. Blended (traditional and online)	X	What percentage? 60%
c. e-learning		What percentage?
d. Correspondence		What percentage?
f. Other		What percentage?

Comments:
1-Lectures: The course contain number of fundamental lectures of RES assisted by visual means of presentation to give fair ground of these technologies and their implementations on building industry and their contribution to overall energy consumption
2- Seminars: The topics are covered by students in a seminar technique to practically allow students search for topic concerned with RES, technologies implemented, and project applying those systems and presented to the rest of students
3- On-line support material: The module content will be accessible to students in electronic form on line. By reducing reliance on formal lectures, these increase opportunities for needs-related tuition.
4- Set texts: In addition, certain texts will be used as main reference sources to ensure that students are familiar with the material covered in them.

B Objectives

This module provides the student with the required information of various Renewable energy systems, technologies and their implementation in building industry. Number of criteria issues associated to this are covered including climate, cost , risk management and other environmental issues. To reach this, number of objectives are set for this course including:

Outline and brief description, including fundamentals of the various renewable energy sources and their contribution to building industry

- General overview of renewable energy technologies and applications
- Corresponding consideration to climatic and topographical zones and suitable technologies; wind, solar, bioenergy, hydro, and geothermal energy..etc.
- Information on the costs of different renewable energy technologies
- Discussion regarding common technical and non-technical barriers and issues limiting wide spread use/dissemination of renewable energy.
- Ability to coherently and logically, describe, analyze and interpret one relevant area of RES, in a written course assignment with reference to research methods, course literature and a case of choice.
- Ability to examine and critically evaluate strengths and weaknesses of practical applications of RES and its economic and environmental components in given cases, working cooperatively in field work and in presentations at seminars and in individually written papers.

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached)

This course is designed to provide an overview of renewable energy systems and technologies implemented in building industry and aim to assist students to understand the potential benefits, the opportunities for improving these technologies and give them a background on the key issues to be addressed when developing suitable policies and a framework for implementation. Ability to examine and critically evaluate strengths and weaknesses of practical applications of RES and its economic and environmental components in given cases, working cooperatively in field work and in presentations at seminars and in individually written papers

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Introduction to Renewable energy systems (RES)	1	3
Green Building and Passive Energy	1	3
Renewable energy systems (RES) and Life Cycle Assessment (LCA)	1	3
Integration of sustainable design and renewable technologies to various geographical scales	1	3
Issues and challenges of renewable energy development	1	3
Sustainable Built environment characteristics	1	3
Energy crises and climate change impacts of Built Environment	1	3
KPIs Governmental strategies to RES Sophistications	1	3
Renewable sources on scales of built Environment	1	3

Overview of RE Technologies and infrastructure; Wind Energy. Seminar I: RE Strategies in KSA VISION 2030.	1	3
Overview of RE Technologies and infrastructure; hydro Seminar II: RES of Built Environment.	1	3
Overview of RE Technologies and infrastructure; Solar Power Seminar III: Equilibrium Balance of Economy vs Technology on RES.	1	3
Overview of RE Technologies and infrastructure; Geothermal Seminar IV: Impact of Climatic Zones and Topography on RE Technologies implementation on Saudi geographical map.	1	3
Overview of RE Technologies and infrastructure; Biomass and Bioenergy Seminar V: Future Trends and Innovations on RES.	1	3
Total	**14**	**42**

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	**28**			**14**		**42**
Credit	**2**			**1**		**3**

3. Additional private study/learning hours expected for students per week. **4 hours weekly**

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

Course Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning, assessment, and teaching. Every course is not required to include learning outcomes from each domain.

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Has thorough knowledge and critical understanding of the renewable energy sources and systems including principal concepts, principles and theories and their current application to the renewable systems research or its professional practice.	– Direct learning (lecture) – Self –learning (research work)	– Essay-type examination – Evaluation of research paper
1.2	Is aware of recent regulatory provisions in the local and international environment that might affect renewable energy systems and of reasons for and future implications of those changes.	– Direct learning (lecture) – Self –learning (research work)	– Essay-type examination – Evaluation of research paper
2.0	**Cognitive Skills**		
2.1	Can synthesize and apply research and scholarly publications or professional reports, and can develop significant new ideas and integrate them into or challenge established knowledge.	– Interactive learning (dialogue & discussion) – Self –learning (research work)	– Oral examination – Presentation
2.2	Makes informed and defensible judgments in circumstances where there is an absence of complete or consistent information.	– Interactive learning (dialogue & discussion) – Self –learning (research work)	– Oral examination – Presentation

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
3.0	**Interpersonal Skills & Responsibility**		
3.1	Takes initiative in identifying and responding creatively to complex issues and problems in sustainable design and various applications of renewable energy systems that could integrate with this context.	– Self –learning (research work)	– Presentation – Evaluation of research paper
3.2	Accepts full responsibility for own work and cooperates fully and constructively with others in dealing with issues and problems, exercising both informal and formal leadership skills where appropriate.	– Self –learning (research work)	– Presentation – Evaluation of research paper
3.3	In group situations acts in ways that consistently enhance the effectiveness of the group as a whole.	– Self –learning (research work)	– Presentation – Evaluation of research paper
4.0	**Communication, Information Technology, Numerical**		
4.1	Uses a wide range of appropriate information and communications technology in investigating issues and in communicating conclusions and recommendations.	– Self –learning (research work)	– Presentation – Evaluation of research paper
4.2	Communicates effectively and at appropriate levels with academic and professional audiences and the wider community through informal and formal reports and presentations and academic and professional publications, including major research project.	– Self –learning (research work)	– Presentation – Evaluation of research paper
5.0	**Psychomotor**		
5.1	Not Applicable		

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Continuous Assessment**	**1-13**	**40 %**
2	**Mid Term Exam**	**8**	**20 %**
3	**Final Exam**	**15**	**40 %**
	Total		**100%**

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)
Office hours: 2 hours/ week

E. Learning Resources

1. List Required Textbooks
   - Peake, Stephen. **Renewable Energy: Power for a Sustainable Future**. 4th ed. Oxford University Press. 2018. 0198759754

2. List Essential References Materials (Journals, Reports, etc.)
   - **Sustainable Development Goals**. 1st Voluntary National Review Kingdom of Saudi Arabia
   - UN High-Level Political Forum 2018 "**Transformation towards sustainable and**

resilient societies" July 9-18, 2018 New York
- KSA Vision 2030 **Strategic Objectives and Vision Realization Programs**
- Peter O. Akadiri, Ezekiel A. Chinyio and Paul O. Olomolaiye. **Design of A Sustainable Building: A Conceptual Framework for Implementing Sustainability in the Building Sector**, Buildings 2012, 2, 126-152; doi:10.3390/buildings2020126
- Cho, Gyu-Jung & Kim, Chul-Hwan & Oh, Yun-Sik & Kim, Min-Sung & Kim, Ji-Soo. (2018). **Planning for the Future: Optimization-Based Distribution Planning Strategies for Integrating Distributed Energy Resources**. IEEE Power and Energy Magazine. 16. 77-87. 10.1109/MPE.2018.2864228.
- Koray ALTINTAS1 , Tugba TURK2 , Ozalp VAYVAY1(2016). **Renewable Energy for Sustainable Future**. Marmara Journal of Pure and Applied Sciences 2016, Special Issue-1: 7-13 DOI:10.7240/mufbed.97723

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

PLANNING SUSTAINABLE CITIES. GLOBAL REPORT ON HUMAN SETTLEMENTS 2009. 1st Ed. "United Nations Human Settlements Programme"

4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)

Websites on the internet that are relevant to the topics of the course

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

Multimedia associated with the text book and the relevant websites

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)

1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)
   - **Lecture room**

2. Computing resources (AV, data show, Smart Board, software, etc.)
   - **PC connected to a data show for lectures, GIS and ArcView software and internet connection**

3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching
- **Course evaluation by student.**
- **Ask students questions directly to gauge their understanding to the materials presented in the lecture.**

2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor
- **Peer consultation on teaching**
- **Departmental council discussions**
- **Electronic course evaluation to be completed by students**

3 Processes for Improvement of Teaching
- **Considering students' feedback in every lecture to improve teaching processes.**
- **Meetings with other faculties and peers to discuss opinions and ideas on how to improve and to teach specific topics.**
- **Developing means of presenting the subject's material to be more attractive to students.**

- **Conducting workshops given by experts on the teaching and learning methodologies**
- **Periodical departmental revisions of its methods of teaching**
- **Monitoring of teaching activates by senior faculty members**

4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)

- **Pop-questions at the beginning of the lecture about the previous one would refer to their standard.**
- **Assigning group of faculty members teaching the same course to grade same questions for various students.**
- **Inviting a guest-lecture specialized in their subject area and stimulates a dialogue between him/her and the students to measure their responses to specific questions.**
- **Providing samples of all kind of assessment in the departmental course portfolio of each course.**
- **Check marking by an independent faculty member for students' final exam.**

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

- **The course material and learning outcomes are periodically reviewed and the changes to be taken are approved in the departmental and higher councils.**
- **The head of department and faculty take the responsibility of implementing the proposed changes.**
- **Review students course evaluation and respond to the issues presented.**
- **Advising the library with the most recent books and periodicals that discuss the subject matter.**
- **Increase the use of online facilities (discussions, answer questions, etc.)**
- **Improving the course by checking the size of the materials provided.**
- **Involving students in preparing parts of the lecture beforehand and giving their feedback about the content at the beginning of the lecture.**

Faculty or Teaching Staff:

_____

Signature: _____ **Date Report Completed:** _____

Received by: _____ **Dean/Department Head:** _____

Signature: _____ **Date:** _____

Kingdom of Saudi Arabia
Ministry of Education
Umm Al-Qura University

Course Specifications
(CS)

Environmental Impact Assessment and Sustainability - (801664-3)

Group II – Track elective course

Course Specifications

Institution **Umm Al-Qura University**	Date of Report **October 2018**
College/Department **College of Islamic Architecture and Engineering / Department of Islamic Architecture.**	

A. Course Identification and General Information

2. Course title and code: **Environmental Impact Assessment and Sustainability SUS 801664-3**

2. Credit hours **3**

3. Program(s) in which the course is offered.
(If general elective available in many programs indicate this rather than list programs)
Master of Architecture Program

4. Name of faculty member responsible for the course:

5. Level/year at which this course is offered:

6. Pre-requisites for this course (if any): **None**

7. Co-requisites for this course (if any): **None**

8. Location if not on main campus

9. Mode of Instruction (mark all that apply)

a. Traditional classroom	X	What percentage?	70%
b. Blended (traditional and online)	X	What percentage?	30%
c. e-learning		What percentage?	
d. Correspondence		What percentage?	
f. Other		What percentage?	

Comments: **Elective Course**

B. Objectives

1. What is the main purpose for this course?

This course aim is to identify likely effects and possible mitigation measures at an early stage and thus improve the quality of both project planning and decision-making. Specifically, it aims to:

- Provide a background outlining the principles and practice of the EIA process.
- Provide training in undertaking EIA projects, including the communication of outcomes via final written report.
- Promote development of a wide range of transferable skills that are an integral part of the specialist ability to contribute to the EIA process.

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached)

The Environmental Impact Assessment (EIA) course will allow students to know the process of defining the likely effects of a proposed development on the natural and man-made environment. This course will provide a background to the principles and practice of the EIA

process and hands-on experience and skills training with realistic environmental impact scenarios. It aims to help students to identify likely effects and possible mitigation measures at an early stage and thus improve the quality of both project planning and decision-making.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Introduction. What is EIA and how does it work?	1	3
Approaches to developing effective EIA procedures; strategic EIA (SEA); trans-boundary issues	2	6
Stages in the project cycle: Project screening; initial environmental evaluation; scoping studies; baseline studies; impact prediction and significance; mitigating measures; monitoring requirements	2	6
Techniques used in the EIA process. Checklists; matrices; mapping techniques; assessing social, fiscal and human health impacts; risk analysis.	2	6
Historical and regional overview of EIA practices; case studies and cost-benefit analysis	2	6
Case study exercises	2	6
EIA project	3	9
Total	**14**	**42**

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	**42**					**42**
Credit	**3**					**3**

3. Additional private study/learning hours expected for students per week. **2 hours weekly**

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

Course Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning, assessment, and teaching.
Every course is not required to include learning outcomes from each domain.

- Developing a general understanding of Sustainable Urban Design and interactions between theory and practices.

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Has thorough knowledge and critical understanding of the sustainable urban design and environmental impact assessment including principal concepts, principles and theories and their current application to the topic.	– Direct learning (lecture) – Self –learning (research work)	– Multiple-Choice exams – Evaluation of research paper – Presentation
1.2	Is aware of recent regulatory provisions in the local and international environment that might affect sustainable built environment design and of reasons for and future implications of those changes.	– Direct learning (lecture) – Self –learning (research work)	– Multiple-Choice exams – Evaluation of research paper – Presentation

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
2.0	**Cognitive Skills**		
2.1	Consistently applies practical and theoretical knowledge in dealing with a wide variety of novel and unpredictable scholarly and/or professional contexts, and develops original and creative responses to issues and problems related to sustainability, Islamic Identity, etc.	– Self –learning (research work)	– Evaluation of research paper
2.2	Can synthesize and apply research and scholarly publications or professional reports and can develop significant new ideas and integrate them into or challenge established knowledge.	– Self –learning (research work)	– Evaluation of research paper
3.0	**Interpersonal Skills & Responsibility**		
3.1	Accepts full responsibility for own work and cooperates fully and constructively with others in dealing with issues and problems, exercising both informal and formal leadership skills where appropriate.	– Self –learning (research work)	– Presentation – Evaluation of research paper.
3.2	Takes initiative in raising deficiencies in existing standards of sustainable practice for possible review and amendment.	– Self –learning (research work)	– Presentation – Evaluation of research paper.
4.0	**Communication, Information Technology, Numerical**		
4.1	Communicates effectively and at appropriate levels with academic and professional audiences and the wider community through informal and formal reports and presentations and academic and professional publications, including major research project.	– Interactive learning (dialogue & discussion) – Self –learning (research work)	– Presentation
5.0	**Psychomotor**		
5.1	Not Applicable		

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Continuous Assessment**	**1-13**	**40 %**
2	**Mid Term Exam**	**8**	**20 %**
3	**Final Exam**	**15**	**40 %**
	Total		**100%**

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

Office hours: 2 hours / week

E. Learning Resources

1. List Required Textbooks
   - Bettyb Bowers Marriout . **Environmental impact Assessment A Practical Guide.** 1st ed, Published by McGraw-Hill , 1997 .
   - Zohn Glasson . **Introduction To Environmental Impact Assessment (Natural and Built**

Environment Series) 3th Edition , Routledge London, 2005. – James T. Maighan**.** **Environment Impact Analysis: Process and Methods.** Routledge London, 2010.
2. List Essential References Materials (Journals, Reports, etc.) – Jenks, M. and Dempsey, N. (eds.), **Future Forms and Design For Sustainable Cities,** Architectural Press; Oxford, 2005. – Dresner, S**., The Principles of Sustainability, Second Edition, Earthscan;** London, 2008**.**
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) – Moore, S. A. (ed.), **Pragmatic Sustainability: Theoretical and Practical Tools,** Routledge; London, 2009. – Lauren, C. and Susan, **M. Local Sustainable Urban Development in A Globalized World.** Ashgate publishing company, Burlington, USA, 2008 – Bell, S. & Morse, S., **Sustainability Indicators. Measuring the Immeasurable,** Earthscan; London, 2008. – Ritchie, A. and Thomas, R. (eds.), **Sustainable Urban Design: An Environmental Approach,** 2nd edition, Taylor and Francis; London, 2008. – Farr, D., **Sustainable Urbanism: Urban Design with Nature,** Wiley; Chichester, 2008. – Wines, J., **Green Architecture,** Taschen; London, 2008. – Tanzer, K. and Longoria, R., **The Green Braid: Towards an Architecture of Ecology, Economy and Equity,** Routledge; London, 2007. – Ryn,S. and Cowan, S., **Ecological Design,** 10th Anniversary Edition, Island"Press; Washington, D.C, 2007. – Buchanan, P., **Ten Shades of Green: Architecture and the Natural World,** *Architectural League of New York*; New York, 2005. – Edwards, B., **Rough Guide to Sustainability,** Second Edition, RIBA Enterprises 4; London, 2005. – Simon, G. and Moore, S.A.(eds), **Sustainable Architectures: Cultures and Natures in Europe and North America,** Routledge; London, 2005. – Wheeler, S., ***Planning for Sustainability: Creating Livable, Equitable, and Ecological Communities,*** Routledge; New York, 2004. – Beatley, T., *Green Urbanism:* ***Learning from European Cities,*** Island Press; Washington, D.C., 2000. – Thompson, J.W., Sorvig, K., **Sustainable Landscape Construction – A Guide to Green Building Outdoors,** Washington DC: Island Press, 2000. – McHarg, I.L., **Design with Nature,** Wiley, London, 1995. – Satterthwaite, D. (ed.), **The Earthscan Reader in Sustainable Cities,** Earthscan; London, 1999. Brooks, R.G., **Site Planning: Environmental Process and Development,** Prentice Hall, New York, 1987.
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. **Relevant websites**

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) – **Lecture room**
2. Computing resources (AV, data show, Smart Board, software, etc.)

– **PC connected to a data show for lectures, ArcView software and internet connection**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching – **Regular attendance of students and complete all assignments must be noted.** – **Course evaluation by student.** – **Ask students questions directly to gauge their understanding to the materials presented in the lecture.**
2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor – **Peer consultation on teaching** – **Departmental council discussions** – **Electronic course evaluation to be completed by students**
3 Processes for Improvement of Teaching – **Periodical departmental revisions of its methods of teaching** – **Monitoring of teaching activates by senior faculty members** – **Considering students' feedback in every lecture to improve teaching processes.** – **Meetings with other faculties and peers to discuss opinions and ideas on how to improve and to teach specific topics.** – **Developing means of presenting the subject's material to be more attractive to students.**
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) – **Pop-questions at the beginning of the lecture about the previous one would refer to their standard.** – **Assigning group of faculty members teaching the same course to grade same questions for various students.** – **Inviting a guest-lecture specialized in their subject area and stimulates a dialogue between him/her and the students to measure their responses to specific questions.** – **Check marking by an independent faculty member for students' final exam.**
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. – **Advising the library with the most recent books and periodicals that discuss the subject matter.** – **Increase the use of online facilities (discussions, answer questions, etc.)** – **Involving students in preparing parts of the lectures beforehand and giving their feedback about the content at the beginning of the lecture.**

Faculty or Teaching Staff:

_____

Signature: _____ **Date Report Completed:** _____

Received by: _____ **Dean/Department Head :** _____

Signature: _____ **Date:** _____

Kingdom of Saudi Arabia
Ministry of Education
Umm Al-Qura University

Course Specifications
(CS)

Sustainable Urban Design (801665-3)

Group II – Track elective course

Course Specifications

Institution **Umm Al-Qura University**	Date of Report **October 2018**
College/Department **College of Engineering and Islamic Architecture / Department of Islamic Architecture.**	

A. Course Identification and General Information

1. Course title and code: **Sustainable Urban Design / SUS 801665-3**			
2. Credit hours **3**			
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **Master of Architecture Program**			
4. Name of faculty member responsible for the course:			
5. Level/year at which this course is offered:			
6. Pre-requisites for this course (if any): **None**			
7. Co-requisites for this course (if any**):** **None**			
8. Location if not on main campus			
9. Mode of Instruction (mark all that apply)			
a. Traditional classroom	X	What percentage?	**70%**
b. Blended (traditional and online)	X	What percentage?	**30%**
c. e-learning		What percentage?	
d. Correspondence		What percentage?	
f. Other		What percentage?	
Comments: **Elective Course**			

B Objectives

1. What is the main purpose for this course?

The aims of this course are to:

- Equip students with knowledge, skills and values in sustainable urban design in terms of social, economic and physical.
- Provide students with humanistic perspectives, professional qualifications, which will contribute to the processes of urban change, nationally and internationally.
- Establishes a broad theoretical basis of debate related to the practice of sustainable urban design in fields related to environment, social and economy.
- Provides an opportunity for students to develop an understanding of the core concepts involved in Sustainable urban design.
- Introduce students to case studies of innovative projects in urban design and place making will provide some hands-on experience of the principles discussed in the classroom sessions.

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web-based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached)

This course focuses on developing a general understanding of urban design specifically on its related environmental, ecological, economic and social ramifications. The course provides a profound understanding of urban development from the perspective of sustainability. It encourages students to think deeply, critically and coherently about the complexity of sustainable urban development. Through this, It helps students in developing their knowledge, skills and judgment in the field of sustainable urban design.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Introduction to sustainable urban design	1	3
Urban design theory and practice.	1	3
Principles, concepts, trends of sustainability in urban design.	1	3
Sustainable urbanism: theory and application	1	3
Place-making - dimensions of sustainability, environment, livability & social.	1	3
Public realm design - sustainable open spaces and their impact on socio-economy activities.	1	3
Sustainable dimension in urban conservation and regeneration issues in addition to public participation.	1	3
Environmental recourses: Solid waste recycling, water recycling, renewable energy, sustainable transportation.	1	3
Innovative sustainable urban travel mobility. Local community cultural impact on use pattern.	1	3
Urban resilience and climate changes in terms of urban management and community resilience..	1	3
Global sustainability urban indicators & low carbon initiatives.	1	3
Successful sustainable urban projects, Case Studies.	3	9
Total	**14**	**42**

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory	Practical	Other: Blended	Total
Contact Hours					**42**	**42**
Credit					**3**	**3**

3. Additional private study/learning hours expected for students per week. **2 hours weekly**

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

Course Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning, assessment, and teaching. Every course is not required to include learning outcomes from each domain.

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Has thorough knowledge and critical understanding of the sustainable development including principal concepts, principles and theories and their current application to the sustainable Urban design research or its professional practice.	– Direct learning (lecture) – Self –learning (research work)	– Multiple-Choice exams – Evaluation of research paper
1.4	Is aware of recent regulatory provisions in the local and international environment that might affect sustainable Urban design and of reasons for and future implications of those changes.	– Direct learning (lecture) – Self –learning (research work)	– Multiple-Choice exams – Evaluation of research paper
1.5	Demonstrate understanding of the importance and the impact of Islamic values in addition to standards and professional ethics in the field of sustainable Urban design.	– Direct learning (lecture) – Self –learning (research work)	– Multiple-Choice exams – Evaluation of research paper
2.0	**Cognitive Skills**		
2.1	Consistently applies practical and theoretical knowledge in dealing with a wide variety of novel and unpredictable scholarly and/or professional contexts, and develops original and creative responses to issues and problems related to sustainable Urban design, Islamic Identity, etc.	– Indirect learning (problem solving) – Self –learning (research work)	– Assignments and tasks – Presentation – Evaluation of research paper
2.4	Can apply common and specialized research techniques in the creative analysis of complex issues and development of conclusions and proposals relevant to sustainable Urban design.	– Indirect learning (problem solving) – Self –learning (research work)	– Assignments and tasks – Presentation – Evaluation of research paper
2.5	Can synthesize and apply research and scholarly publications or professional reports, and can develop significant new ideas and integrate them into or challenge established knowledge.	– Indirect learning (problem solving) – Self –learning (research work)	– Assignments and tasks – Presentation – Evaluation of research paper
3.0	**Interpersonal Skills & Responsibility**		
3.1	Takes initiative in identifying and responding creatively to complex issues and problems in sustainable Urban design.	– Interactive learning (brain storming) – Interactive learning (creative thinking) – Self –learning (research work)	– Assignments and tasks – Presentation – Evaluation of research paper
3.3	Accepts full responsibility for own work and cooperates fully and constructively with others in dealing with issues and problems, exercising both informal and formal leadership skills where appropriate.	– Interactive learning (brain storming) – Interactive learning (creative thinking) – Self –learning (research work)	– Assignments and tasks – Presentation – Evaluation of research paper

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
3.6	Where issues are not adequately dealt with in current ethical codes of practice or regulations, makes informed, fair, and valid judgments on the basis of sound principles and values.	– Interactive learning (brain storming) – Interactive learning (creative thinking) – Self –learning (research work)	– Assignments and tasks – Presentation – Evaluation of research paper
4.0	**Communication, Information Technology, Numerical**		
4.1	Communicates effectively and at appropriate levels with academic and professional audiences and the wider community through informal and formal reports and presentations and academic and professional publications, including major research project.	– Interactive learning (dialogue & discussion) – Self –learning (research work)	– Presentation – Evaluation of research project
4.2	Obtains, critically evaluates, and makes effective use of mathematical and statistical data in sustainable urban design.	– Interactive learning (dialogue & discussion) – Self –learning (research work)	– Presentation – Evaluation of research project
4.3	Uses a wide range of appropriate information and communications technology in investigating issues and in communicating conclusions and recommendations.	– Interactive learning (dialogue & discussion) – Self –learning (research work)	– Presentation – Evaluation of research project
5.0	**Psychomotor**		
5.1	Not Applicable		

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Continuous Assessment**	**1-13**	**40 %**
2	**Mid Term Exam**	**8**	**20 %**
3	**Final Exam**	**15**	**40 %**
	Total		**100%**

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)
Office hours: 2 hours / week

E. Learning Resources

1. List Required Textbooks
- Adam Ritchie and Randall Thomas, 2009. **Sustainable Urban Design: An Environmental Approach**, Taylor & Francis, London and New York.
- Farr, D., **Sustainable Urbanism: Urban Design with Nature**, Wiley; Chichester, 2008.
- Wines, J., Green Architecture, Taschen; London, 2008.
- Wong, T. and Belinda, Y. **Eco-City Planning, Policies, Practice and Design**. 1st ed, Springer, London, UK, 2011.

2. List Essential References Materials (Journals, Reports, etc.)
- Parr, A. and Zaretsky, M. (eds**), New Directions in Sustainable Design**, Routledge London, 2010.

- Moore, S. A. (ed.), **Pragmatic Sustainability: Theoretical and Practical Tools**, Routledge; London, 2009.
- Lauren, C. and Susan, M**. Local Sustainable Urban Development in A Globalized World**. Ashgate publishing company, Burlington, USA, 2008
- McGranahan, G. & Morcotullio, P.J., **Scaling Urban Environmental Challenges: From Local to Global and Back**. Earthscan, 2007.
- Wolch, J. R., Byrne, J., & Newell, *J. P. (2014).* **Urban green space, public health, and environmental justice: The challenge of making cities 'just green enough'. Landscape and Urban Planning***, 125, 234-244.*
- Wheeler, S. and Beatley, T. 2014, (3rd Edition) **Sustainable Urban Development Reader**, Routledge.
- Jenks, M. and Dempsey, N. (eds.), **Future Forms and Design For Sustainable Cities**, Architectural Press; Oxford, 2005.

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

- Blewitt, J., 2018 **Understanding Sustainable Development**. Routledge, New York
- Sanderson, D., Kayden, J. S., & Leis, J. 2016, **Urban Disaster Resilience: New Dimensions from International Practice in the Built Environment**, Routledge, New York
- Wheeler, S. M., & Beatley, T. (Eds.). (2004). **The sustainable urban development reader**. Psychology Press. (Reading from Peter Calthorpe, and Section on Transportation, pp. 87-110, Section of Green Architecture and Building, pp. 179-198, and Case Studies of Sustainability at the Building and Site Scale, at the Neighborhood or District Scale, and at the City and Regional Scale, pp. 297-316).

4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

Relevant websites

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)

1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)
   - **Lecture room**

2. Computing resources (AV, data show, Smart Board, software, etc.)
   - **PC connected to a data show for lectures and internet connection**

3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching
- **Regular attendance of students and complete all assignments must be noted.**
- **Course evaluation by student.**
- **Ask students questions directly to gauge their understanding to the materials presented in the lecture.**

2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor
- **Peer consultation on teaching**
- **Departmental council discussions**
- **Course evaluation to be completed by students**

3 Processes for Improvement of Teaching
- **Periodical departmental revisions of its methods of teaching**
- **Monitoring of teaching activates by senior faculty members**
- **Considering students' feedback in every lecture to improve teaching processes.**

– **Meetings with other faculties and peers to discuss opinions and ideas on how to improve and to teach specific topics.** – **Developing means of presenting the subject's material to be more attractive to students.**
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) – **Pop-questions at the beginning of the lecture about the previous one would refer to their standard.** – **Assigning group of faculty members teaching the same course to grade same questions for various students.** – **Check marking by an independent faculty member for students' final exam.**
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. – **Advising the library with the most recent books and periodicals that discuss the subject matter.** – **Increase the use of online facilities (discussions, answer questions, etc.)** – **Involving students in preparing parts of the lectures beforehand and giving their feedback about the content at the beginning of the lecture.**

Faculty or Teaching Staff:

_____

Signature: _____ **Date Report Completed:** _____

Received by: _____ **Dean/Department Head :** _____

Signature: _____ **Date:** _____

Kingdom of Saudi Arabia
Ministry of Education
Umm Al-Qura University

Course Specifications
(CS)

Sustainable Conservation of the Historic Built Environment (801666-3)

Group II – Track elective course

Course Specifications

Institution **Umm Al-Qura Universi**	Date of Report **October 2018**
College/Department **College of Islamic Architecture and Engineering / Department of Islamic Architecture.**	

A. Course Identification and General Information

1. Course title and code**:**
   Sustainable Conservation of the Historic Built Environment SUS 801666-3
2. Credit hours **3**
3. Program(s) in which the course is offered.
   (If general elective available in many programs indicate this rather than list programs)
   Masters of Architecture Program – Sustainable Design Track
4. Name of faculty member responsible for the course:
5. Level/year at which this course is offered: **Graduates**
6. Pre-requisites for this course (if any):
7. Co-requisites for this course (if any**):** **None**
8. Location if not on main campus
9. Mode of Instruction (mark all that apply)

a. Traditional classroom		What percentage?	
b. Blended (traditional and online)	X	What percentage?	100%
c. e-learning		What percentage?	
d. Correspondence		What percentage?	
f. Other		What percentage?	

Comments:
1-Lectures. The didactic content of the module will be explained in lectures, assisted by visual aids, interaction with the students and, where applicable, demonstrations.
2- Workshops and assignments. There will be practical exercises to give students practice in implementing the requisite skills.
3- On-line support material. The module content will be accessible to students in electronic form on line. By reducing reliance on formal lectures, these increase opportunities for needs-related tuition.
4- Set texts. In addition, certain texts will be used as main reference sources to ensure that students are familiar with the material covered in them.

B Objectives

1. What is the main purpose for this course

This course aims to:

- Explores the intersection between the heritage conservation and green building movements, both of which contribute to sustainable development.
- Heritage conservation promotes the ethos of stewardship; defining what is significant about the built environment.
- Be aware of the methods of extending the service-life of buildings; the value of maintenance and repair; and effective means for adaptively re-using buildings.
- Explain green building promotes holistic design; responds to the urgency of climate change
- Awareness of the need to reduce greenhouse gases; and encourages us to look at new systems and technology.
- By exploring the variety of approaches to conserving the built and natural environments, students will be able to
    - Identify and differentiate between methods for assessing sustainability.
    - Develop appropriate metrics, apply evaluation tools, and determine appropriate treatments to improve projects.

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached)

In the first decades of the 21century, the theories and practice of heritage conservation relate increasingly to ideas of environmental, social and economic sustainability. How does this shift expand conservation objectives based on safeguarding historic places and their cultural values? Although it helps connect stewardship of the historic built environment to nature conservation, it also forces us to recognize that the past has left us with many landscapes, sites and buildings that are difficult to value and problematic to conserve.

How does an ever-expanding abundance of heritage places challenge our basic ideas of conservation? This course will examine the significance, opportunities and dilemmas inherent in this shift, building on the discourses of the historic urban landscape, values-based conservation, and dissonant.

Heritage and critical heritage studies. We will consider how the idea of natural and cultural heritage as separate spheres is entrenched in different doctrines and practices of conservation and planning, and study ways that more holistic thinking can help integrate disparate objectives. We will discuss the synergies and gaps between heritage and conservation as ecological or social processes in relation to a wide range of disciplines, including cultural ecology, environmental history, sustainable design, and urban studies. Lessons to be learned from organically evolved cultural landscapes, traditional environmental knowledge and stewardship will be considered, as will the strategies emerging from recent scientific research and technological developments for addressing climate change, and the need for renewable energy sources.

1. Topics to be Covered		
List of Topics	**No. of Weeks**	**Contact Hours**
– Introduction	1	3
– Sustainability and Natural/Cultural Heritage	1	3
– Key Concepts in Heritage Conservation and Sustainability	1	3
– Traditional Environmental Knowledge and Cultural – Landscapes	1	3
– Climate Change and Resilience in Historic Cities and – Landscapes	1	3
– Advocacy, Policy and Regulation: Heritage, Environment, Land Use	1	3
– Measuring Sustainability in Buildings and Collections	2	6
– Historic Urban Landscapes and Environmental History	1	3
– Economics, Global Tourism and Local Walkability	1	3
– Sustainable Heritage Conservation Case Studies	1	3
– Describes some actual examples (international, local text) of extensively retrofitted and purpose-built low-carbon buildings.	1	3
– Presentation workshop	1	3
– Seminar & research presentation	1	3
Total	**14**	**42**

2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	**42**					**42**
Credit	**3**					**3**

3. Additional private study/learning hours expected for students per week.	**4 hours weekly**

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

Course Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning, assessment, and teaching. Every course is not required to include learning outcomes from each domain.

	NQF Learning Domains And Course Learning Outcomes	**Course Teaching Strategies**	**Course Assessment Methods**
1.0	**Knowledge**		
1.1	Demonstrates understanding of how new knowledge is developed and applied and the effects of recent research on the store of knowledge in sustainable development and on associated professional practice.	– Direct learning (lecture)	– Essay-type examination

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.2	Is aware of recent regulatory provisions in the local and international environment that might affect sustainable design and of reasons for and future implications of those changes.	– Direct learning (lecture)	– Essay-type examination
1.3	Demonstrate understanding of the importance and the impact of Islamic values in addition to standards and professional ethics in the field of sustainable architecture design.	– Direct learning (lecture)	– Essay-type examination
2.0	**Cognitive Skills**		
2.1	Can synthesize and apply research and scholarly publications or professional reports, and can develop significant new ideas and integrate them into or challenge established knowledge.	– Indirect learning (problem solving)	– Evaluation of research paper
2.2	Can apply common and specialized research techniques in the creative analysis of complex issues and development of conclusions and proposals relevant to sustainable design.	– Interactive learning (dialogue & discussion) – Indirect learning (problem solving)	– Assignments and tasks
2.3	Can independently plan and execute a major project or piece of scholarly research applying practical and theoretical knowledge and research techniques and producing sound conclusions that add significantly to existing knowledge or professional practice in sustainable design.	– Interactive learning (dialogue & discussion) – Indirect learning (problem solving)	– Assignments and tasks
3.0	**Interpersonal Skills & Responsibility**		
3.1	Takes initiative in identifying and responding creatively to complex issues and problems in sustainable design.	– Interactive learning (brain storming) – Self –learning (research work)	– Presentation
3.2	Where additional information or skills are required takes independent action to acquire and apply that information or skill.	– Self –learning (research work)	– Direct observation
3.3	Accepts full responsibility for own work and cooperates fully and constructively with others in dealing with issues and problems, exercising both informal and formal leadership skills where appropriate.	– Interactive learning (dialogue & discussion)	– Direct observation
3.4	Where issues are not adequately dealt with in current ethical codes of practice or regulations, makes informed, fair, and valid judgments on the basis of sound principles and values	– Interactive learning (dialogue & discussion) – Self –learning (research work)	– Direct observation
4.0	**Communication, Information Technology, Numerical**		
4.1	Communicates effectively and at appropriate levels with academic and professional audiences and the wider community through informal and formal reports and presentations and academic and professional publications, including major research project.	– Research work	– Research presentation
4.2	Obtains, critically evaluates, and makes effective use of mathematical and statistical data.	– Research work	– Research presentation
5.0	**Psychomotor**		
	Not Applicable		

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Continuous Assessment**	**1-13**	**40 %**
2	**Mid Term Exam**	**8**	**20 %**
3	**Final Exam**	**15**	**40 %**
	Total		**100%**

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)
Office hours: 2 hours/ week

E. Learning Resources

1. List Required Textbooks

2. List Essential References Materials (Journals, Reports, etc.)

1. Carleton University Library, Archives and Research Collections, "**Student Social life**,", 2014.
2. Avrami, Erica, 2011, "**Sustainability and the Built Environment: Forging a Role for Heritage Conservation**," Conservation Perspectives the GCI Newsletter, Heritage & Sustainability .
3. Clark, Kate, 2008, "**Only Connect: Sustainable Development and Cultural Heritage**," in Fairclough, Graham, et al, The Heritage Reader, New York: Routledge,
4. Harrison, Rodney and Donal O'Donnell, 2010, "**Natural Heritage**" in West, Susie, editor, Understanding Heritage in Practice, Manchester University Ball, Cynthia, et al, 2012.
5. Buggey, Susan and Nora Mitchell, 2008, "**Cultural Landscapes: Venues for Community-Based Conservation**" in Longstreth, Richard W., editor, Cultural Landscapes: Balancing Nature and Heritage in Preservation Practice. Minneapolis.
6. Berenfeld, Michelle L., 2008, "Climate Change and Cultural Heritage: Local Evidence, Global Responses," George Wright Forum.
7. Crew, Rebecca, 2011, "**Tree Preservation and the Cultural Effects of Climate Change**," in Longstreth, Richard, editor, Sustainability & Historic Preservation, Towards a Holistic View, University of Delaware Press, Lanham, Maryland, The Standards for the Conservation of Historic Places," in Parks Canada, 2010, The Standards and Guidelines for the Conservation of Historic Places in Canada,
8. Tandon, Sumeet, 2011, "**The evolution and contradiction of Ontario's land-use oversight mechanisms and their implications for urban sprawl**," Carleton University, Centre for Urban Research and Education (CURE) Policy Brief no.2, May 2011, accessed August 25, 2014.
9. Uchiyama, Christienne, 2012, "**Waste of Place: Heritage Conservation and Environmental Assessment**," The Many Voices of Heritage, Canadian Studies Heritage Conservation Programme Symposium.
10. Carroon, Jean, 2010, "**1.2 Historically Green – What Makes Existing Buildings Green**," in Sustainable Preservation, Greening Existing Buildings, Wiley.

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.) **Websites on the internet that are relevant to the topics of the course**
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. **Multimedia associated with the text book and the relevant websites**

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) – **Lecture room**

2. Computing resources (AV, data show, Smart Board, software, etc.) – **PC connected to a data show for lectures, and internet connection**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching – **Course evaluation by student.** – **Ask students questions directly to gauge their understanding to the materials presented in the lecture.**
2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor – **Peer consultation on teaching** – **Departmental council discussions** – **Electronic course evaluation to be completed by students**
3 Processes for Improvement of Teaching – **Considering students' feedback in every lecture to improve teaching processes.** – **Meetings with other faculties and peers to discuss opinions and ideas on how to improve and to teach specific topics.** – **Developing means of presenting the subject's material to be more attractive to students.** – **Conducting workshops given by experts on the teaching and learning methodologies** – **Periodical departmental revisions of its methods of teaching** – **Monitoring of teaching activates by senior faculty members**
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) – **Pop-questions at the beginning of the lecture about the previous one would refer to their standard.** – **Assigning group of faculty members teaching the same course to grade same questions for various students.** – **Inviting a guest-lecture specialized in their subject area and stimulates a dialogue between him/her and the students to measure their responses to specific questions.** – **Providing samples of all kind of assessment in the departmental course portfolio of each course.** – **Check marking by an independent faculty member for students' final exam.**

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

- **The course material and learning outcomes are periodically reviewed and the changes to be taken are approved in the departmental and higher councils.**
- **The head of department and faculty take the responsibility of implementing the proposed changes.**
- **Review students course evaluation and respond to the issues presented.**
- **Advising the library with the most recent books and periodicals that discuss the subject matter.**
- **Increase the use of online facilities (discussions, answer questions, etc.)**
- **Improving the course by checking the size of the materials provided.**
- **Involving students in preparing parts of the lecture beforehand and giving their feedback about the content at the beginning of the lecture.**

Faculty or Teaching Staff:

_____

Signature: _____ Date Report Completed: _____

Received by: _____ Dean/Department Head: _____

Signature: _____ Date: _____

4/1/5 Learning Outcomes in Domains of Learning, Assessment Methods and Teaching Strategy:

4/1/5/1 Matrix of Learning Outcomes, Teaching Strategies and Assessment Methods

	NQF Learning Domains and Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge**		
1.1	Has thorough knowledge and critical understanding of the sustainable development including principal concepts, principles and theories and their current application to the sustainable design research or its professional practice.	Direct learning (lecture) Interactive learning (brain storming) Interactive learning (dialogue & discussion) Self –learning (research work)	Essay-type examination Multiple-Choice exams Evaluation of research paper Oral examination Presentation
1.2	Demonstrates understanding of sustainable development at the forefront of theory, research or professional practice in sustainable design..	Direct learning (lecture) Interactive learning (brain storming) Interactive learning (dialogue & discussion) Self –learning (research work)	Essay-type examination Multiple-Choice exams Evaluation of research paper Oral examination Presentation
1.3	Demonstrates understanding of how new knowledge is developed and applied and the effects of recent research on the store of knowledge in sustainable development and on associated professional practice.	Direct learning (lecture) Interactive learning (brain storming) Interactive learning (dialogue & discussion) Self –learning (research work)	Essay-type examination Multiple-Choice exams Evaluation of research paper Oral examination Presentation
1.4	Is aware of recent regulatory provisions in the local and international environment that might affect sustainable design and of reasons for and future implications of those changes.	Direct learning (lecture) Interactive learning (brain storming) Interactive learning (dialogue & discussion) Self –learning (research work)	Essay-type examination Multiple-Choice exams Evaluation of research paper Oral examination Presentation
1.5	Demonstrate understanding of the importance and the impact of Islamic values in addition to standards and professional ethics in the field of sustainable architecture design.	Direct learning (lecture) Interactive learning (brain storming) Interactive learning (dialogue & discussion) Self –learning (research work)	Essay-type examination Multiple-Choice exams Evaluation of research paper Oral examination Presentation
	NQF Learning Domains and Learning Outcomes	**Teaching Strategies**	**Assessment Methods**
2.0	**Cognitive Skills**		
2.1	Consistently applies practical and theoretical knowledge in dealing with a wide variety of novel and unpredictable scholarly and/or professional contexts, and develops original and creative responses to issues and problems related to sustainability, Islamic Identity, etc.	Interactive learning (brain storming) Interactive learning (dialogue & discussion) Interactive learning (creative thinking) Indirect learning (problem solving) Self –learning (research work)	Assignments and tasks Evaluation of projects Oral examination Presentation Evaluation of research paper