

SULTAN QABOOS UNIVERSITY COLLEGE OF SCIENCE DEPARTMENT OF COMPUTER SCIENCE BACHELOR OF SCIENCE IN COMPUTER SCIENCE COURSE OUTLINE

I. COURSE INFORMATION					
COURSE CODE	COMP5702				
COURSE TITLE	SEMANTIC WEB				
OMAN QUALIFICATION Framework (OQF) Level	8				
CREDIT HOURS	3				
CONTACT HOURS	4				
PRE-REQUISITES	(COMP3702) OR (COMP4701)				
CO-REQUISITES					
EQUIVALENT COURSES					
INCOMPATIBLE COURSES					
	□ University Requirement		□ University	Elective	
	College Requirement		□ College El	lective	
	□ Department Requirement		Departmer	□ Department Elective	
COURSE CATEGORY	☐ Major Requirement		□ Major Elective		
	Specialization Requirement		□ Specialization Elective		
	□ Other (specify):				
Counce Output	College: Science	College: Science		Computer Science	
COURSE OWNER	Center:		Unit:		
DELIVERY MODE	☑ Face to Face	🗆 Blei	nded	□ Online	
			⊠ Lecture/Lab		
	□ Lecture/Seminar		□ Lecture/Studio		
	□ Lecture/Tutorial		□ Lecture/Lab/Tutorial or Seminar		
	□Tutorial		□ Laboratory (Practical)		
COURSE I YPE	□ Field or Work Placement		🗆 Studio		
			🗆 Internship		
	□ Workshop		Project		
			□ Other (specify):		
LANGUAGE OF INSTRUCTION	English				
	The course covers the core conce	pts of th	e semantic Web	to process Web	
Country Description	information. It covers the semantic Web vision, the description of structured				
COURSE DESCRIPTION	Web documents with XML, the description of Web resources in the Resource				
	Description Framework (RDF), Web Ontology Languages (OWL), the logic				

	and inference rules, and ontology engineering processes. It also introduces some applications of the semantic Web such as data integration, e-commerce, and Web services. The students will gain practical experience in semantic Web languages: XML, SPARQL and OWL.					
	□ Augmente	ed Reality		\Box Flipped C	lassroom	
	⊠ Blended Learning			□ Problem-Based Learning		
I EACHING AND LEARNING	□ Discovery-Based Learning		□ Project-Ba	used Learning	5	
STRATEGIES	□ Student-Led Learning		□ Team-Based Learning			
	□ Work-Bas	sed Learning		□ Other (spe	cify):	
	□In-term ex	amination(s) (15%)		□ Quizzes (%)	□Other
ASSESSMENT COMPONENT	□ Homewor	k assignments (%)		□Project (25	(%)	(specify):
AND WEIGHT	□ Final exa	mination (40%)		Practical/	Lab (20%)	(%)
TEXTBOOKS AND Educational Material				1		
GRADING METHOD	\square A-F Scale \square Pas			s/Not Pass	\Box Other (specify):
GRADING METHOD DESCRIPT	ION					
	Range	Letter Grade		Des	cription	
	90 - 100	A	Exce	ptional perfor	mance: All	course
	86 - 89.9	A-	objec	ctives achieved	and met in a	
	01 0E 0	D	Vor	Stently outstan	aing manner	majority of
	81-85.9	D+	the c	ourse objective	s achieved (1	najority of
	77 - 80.9	D	being	being at least two-thirds) and met in a		
	75-70.9	D-	consi	istently thoroug	gh manner.	
A-F GRADING SCALE:	68 – 72.9	C+	Satisfactory Performance: At least most			
	64 – 67.9	С	of co	of course objectives have been achieved		chieved
	60 - 63.9	C-	and met satisfactorily.			
	55 – 59.9	D+	Mini	Minimally Acceptable Performance: The		nance: The
	50 – 54.9	D	course objectives met at a minimally acceptable level.			ally
	0 – 49.9	F	Una	cceptable perf	ormance: Th	ne course
			objec	ctives not met a	t a minimall	y
			acce	ptable level.		
DAGG/NOT DAGG						

II. SEMESTER INFORMATION				
Semester/Year	N/A	SECTION(S)	1	
DAY AND TIME				
COURSE COORDINATOR				
COORDINATOR OFFICE				
COORDINATOR EXTENSION				

III. ALIGNMENT OF COURSE LEARNING OUTCOMES (CLO), PROGRAM LEARNING OUTCOMES (PLO), GRADUATE ATTRIBUTES (GA), AND OMAN QUALIFICATION FRAMEWORK (OQF) CHARACTERISTICS

	CLO	PLO / SO	SQU Graduate Attributes	OQF Characteristics
1.	Understanding XML, RDF, RDFS, OWL	SO6	А	1
2.	Describe logic semantics and inference with OWL.	SO6	В	2
3.	Reason and develop ontology queries	SO2	D	4
4.	Use ontology engineering approaches in semantic applications: Design and implement an ontology	SO2	В	4
5.				

IV. COUR	IV. COURSE LEARNING OUTCOMES (CLOS) AND ASSESSMENT CRITERIA AND METHODS (FOR EACH CLO)				
6. CLO	1: Understanding XML, RDF, RDFS, OWL				
ASSESSM	ENT CRITERIA (TO ACHIEVE THIS OBJECTIVE, THE	ASSESSMENT METHODS			
STUDENT	MUST)				
A)	Be able to understand the different web languages	Midterm, Final			
B)	Be able to understand an ontology				
C)					
CLO2: D	escribe logic semantics and inference with OWL.				
ASSESSM	ENT CRITERIA (TO ACHIEVE THIS OBJECTIVE, THE	ASSESSMENT METHODS			
STUDENT	MUST)				
A)	Be able to understand inference rules	Projects, Final			
B)	B) Be able to describe inference rules from ontology				
C)					
CLO3: Re	eason and develop ontology queries				
ASSESSMENT CRITERIA (TO ACHIEVE THIS OBJECTIVE, THE ASSESSMENT METHODS					
STUDENT	MUST)				
A)	Be able to query an ontology	Midterm, Final, Project			
B)	Be able to reason on ontology	Project, Final			
C)					
CLO4: Use ontology engineering approaches in semantic applications: Design and implement an ontology					
ASSESSM	ASSESSMENT CRITERIA (TO ACHIEVE THIS OBJECTIVE, THE ASSESSMENT METHODS				
STUDENT	MUST)				
A)	Be able to design an ontology	Final, Project			
B)	Be able to design an ontology	Final, Project			
C)					
CLO5:					

V. COURSE	CONTENT AND S	SCHEDULE		
WEEK	LECTURES #	TOPICS/ SUBJECTS	READINGS /	R EMARKS (e.g.,
			CHAPTERS	ASSESSMENTS)
1	L1	Foundation of Semantic Web Technologies Current web vs Semantic Web; Semantic Web Technologies		Midterm & Final Exams
2	L2	Basic Description Logics Definition of the basic formalism; Reasoning algorithms		Midterm & Final Exams
3	L3	Structured Web Documents in XML XML; Structuring; Namespaces; Addressing and querying XML document; Processing		Midterm & Final Exams Midterm & Final Exams and Project Midterm & Final Exams
4	L4 L5	Describing Web Resources in RDF and RDFS RDF Basic Ideas; RDF (XML- Based Syntax); RDF serialization; RDF Schema (Basic Ideas); RDF Schema (the Language);		Midterm & Final Exams & Project
5	_			
6	L6	Web Ontology Language:		Final Exam
7	L7	OWL		Final Exam
8	L8	OWL and RDF/RDFS; Three Sublanguages of OWL; Description		Final Exam Final Exam
		of the OWL Language; Layering of OWL; Examples OWL in OWL		
9	L9	SPARQL		Final Exam
10	L10	SPARQL simple Graph Patterns;		
11	L11	Complex Graph Patterns; Group Patterns; Queries with Data Values; Filters; OWL Formal Semantics		Final Exam
12	L12	Linked Open data		ProjFinal Exam
13	L13	Principles of linked data; Web of		
14	L14	data; Open data cloud; linked Data Source		
15	L15	Revision		Project

VI. ADDITIONAL INFORMATION (e.g., RUBRICS, etc.)

VII. STUDENTS RESPONSIBILITIES

It is the student's responsibility to know and comply with all University Academic Regulations relevant to participation in this course. These regulations specifically include attendance requirements and student academic code of conduct.

ACADEMIC	The University expects the students to approach their academic endeavors with
INTEGRITY	the highest academic integrity. Please refer to the Undergraduate Academic
	Regulations.
ADD AND DROP	Students who wish to drop or add the course should review the Undergraduate
	Academic Regulations.
ATTENDANCE	Sultan Qaboos University has a clear requirement for students to attend courses,
	detailed in the Undergraduate Academic Regulations.
ASSESSMENT AND	To ensure the provision of a sound and fair assessment and grading, please review
GRADING	the Undergraduate Academic Regulations.
GRADE APPEAL	Students who wish to appeal their grades should review the Undergraduate
	Academic Regulations.
CLASSROOM	Students are expected to dress professionally during class time as required by the
POLICIES	University. Use of phones or any other electronic devices in the classroom during
	class time is strictly prohibited. Unauthorized use may lead to faculty member
	confiscation of the device for the remainder of the class. Behavior that
	persistently or grossly interferes with classroom activities is considered
	disruptive behavior and may be subject to disciplinary action. A student
	responsible for disruptive behavior may be required to leave the class.
LATE AND MAKE-UP	Students are required to meet the course objectives by submitting coursework no
WORK	later than the assigned due date. Students may be allowed to submit late work if
	approved by the course coordinator. Assignments submitted after the due date
	may be penalized.
MISSED	All quizzes, tests, clinical evaluations, and exams must be completed by the date
EVALUATIONS	they are assigned. If a quiz, test, or exam is missed due to a documented
	emergency situation (e.g., medical emergency, death in the immediate family), it
	is the student's responsibility to contact the instructor.
OTHER	

Course Outline Appendix

A. Program Learning Outcomes / Student Outcomes

- SO1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
- SO2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
- SO3. Communicate effectively in a variety of professional contexts.
- SO4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
- SO5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
- SO6. Apply computer science theory and software development fundamentals to produce computing-based solutions.

B. SQU Graduate Attributes

GRADUATE ATTRIBUTES	GRADUATE COMPETENCIES FOR UNDERGRADUATE
	STUDIES
A. Cognitive Capabilities: The	1. Demonstrates familiarity and works with advanced
graduate has sufficient general and	specialized knowledge in the area of specialization.
specialized theoretical knowledge	2. Demonstrates a general understanding of the
that enables him/her to deal well with	relationship of advanced specialized knowledge with
his/her specialty and other related	knowledge in other relevant professional fields and
fields.	aspects.
	3. Demonstrates a comprehensive understanding of the
	theories, principles, and methods used in his/her
	specialty, and how to create and apply new knowledge.
	4. Demonstrates general knowledge of the legal
	environment and necessary relevant regulatory
	frameworks.
	5. Shows awareness of contemporary literature and
	research.

B. Skill and Professional	1.	Applies concepts, theories, and investigative methods to
Capability: The graduate has		synthesize and interpret information to evaluate
sufficient skill and practical		conclusions.
experience that enables him/her to	2.	Applies appropriate research methods and techniques
perform all tasks related to the		and employs digital knowledge
specialization and other related	3.	Evaluates and critiques information independently
fields.	4.	Uses cognitive and technical skills to analyze complex
		issues and develop appropriate solutions.
	5.	Initiates new ideas or processes in the professional,
		educational or research context.
C. Effective Communication: The	1.	Explains, presents, and adapts information to suit the
graduate has the ability to		recipients.
communicate effectively with others	2.	Employs appropriate information and communication
to achieve the desired results		technology to collect and analyze information.
D. Autonomy and Leadership: The	1.	Performs advanced professional activities
graduate has the ability to lead,		independently.
make decisions and take	2.	Demonstrates leadership skills.
responsibility for decisions.	3.	Takes professional responsibility.
	4.	Assumes full accountability for the tasks and their
		output.
E. Responsibility and	1.	Manages time and other resources assigned to
Commitment: The graduate		accomplishing tasks effectively and responsibly.
appreciates the importance of	2.	Demonstrates effective practices when working in
available resources and deals with		teams.
them effectively and is committed to	3.	Demonstrates advanced levels of understanding of
the ethics of the profession and		values and ethics relevant to the specialization,
society.		profession and local and international society and
		promotes them among others.
	4.	Works within the professional, institutional, and
		specialization guiding frameworks and strategic plans.

	5. Interacts with community affairs positively and preserves national identity.
F. Development and Innovation:	1. Demonstrates the ability to independently manage
The graduate has a passion for	learning tasks, with an awareness of how to develop and
development and innovation in the	apply new knowledge.
field of specialization.	2. Utilizes specialized knowledge and skills for
	entrepreneurship.
	3. Utilizes creative and innovative skills in the field of
	specialization.

C. OQF Characteristics

- 1. Knowledge
- 2. Skills
- 3. Communication, Numeracy, and Information and Communication Technology Skills.
- 4. Autonomy and Responsibility
- 5. Employability and Values
- 6. Learning to learn