Form: Course Syllabus		
	Form Number	
	Issue Number and Date	2/3/24/2022/2963 5/12/2022
	Number and Date of Revision or Modification	
	Deans Council Approval Decision Number	
	The Date of the Deans Council Approval Decision	
	Number of Pages	01

1.	**Course title**	Ontologies and Knowledge Graphs	
2.	**Course number**	1905321	
3.	**Credit hours**	3 Practical	3 Practical
	Contact hours (theory, practical)	3 Practical	
4.	**Prerequisites/co-requisites**	Knowledge Representation and Reasoning (1905221)	
5.	**Program title**	Artificial Intelligence	
6.	**Program code**	4	
7.	**Awarding institution**	The University of Jordan	
8.	**School**	King Abdullah II School for Information Technology	
9.	**Department**	Department of Data Science and Artificial Intelligence	
10.	**Course level**	3rd year	
11.	**Year of study and semester (s)**	3, semester 1 (Fall)	
12.	**Other department (s) involved in teaching the course**	None	
13.	**Main teaching language**	English	
14.	**Delivery method**	☒Face to face learning ☐Blended ☐Fully online	
15.	**Online platforms(s)**	☒Moodle ☐Microsoft Teams ☐Skype ☐Zoom ☐Others	
16.	**Issuing/Revision Date**	December, 2023	

17. Course Coordinator:

Name: Dr. Bashar Al-Shboul	Contact hours: Sundays; 11:30-12:30
Office number: 305	Phone number: 22640
Email: b.shboul@ju.edu.jo	

18. Other instructors:

19. Course Description:

The Ontologies and Knowledge Graphs (OKG) course will introduce the notion of the Data Semantics, provide an overview of the underlying theory and technology, cover existing technologies and practices, and highlight current and potential applications.

20. Course aims and outcomes:

A- Aims:
The main goal of this course is to teach the student how to use the Data Semantics technologies in semantic representation and reasoning of data using ontologies. Therefore, the course will cover different aspects of Ontology representation, creation, design, reasoning, programming and applications.

B- Intended Learning Outcomes (ILOs):

Successful completion of this course should lead to the following learning outcomes:

A- Knowledge and Understanding: Students should …

A 1. Have a clear idea about the semantics vision and the motivation behind improving the current state of the World Wide Web as an example.

A 2. Understand the main concepts of the semantics including its explicit metadata, Ontologies, logic and inference and intelligent agents.

B- Skills: with the ability to …

B 1. Describe web resources in the Resource Description Framework
B 2. To know how to apply engineering methods and models and can judge the risks and typical problems encountered in developing semantics projects.

B 3. Able to use XML for the representation of structured information.
B 4. Able to describe Web resources in Resource Definition Framework and it's Schema.
B 5. Learn how to use the Ontology Web Language (OWL) for describing the semantics of knowledge in a machine-accessible way.

C - Competencies – with ability to …

C 1. Discuss and work in a group to design a semantics application.

C 2. Work in a group to implement a semantics application.

C 3. Exercise systematic software engineering for a small system in small teams with a precise task description with tight time constraints

C 4. Present the final work (project) and make a demo.

Upon successful completion of this course, students will be able to:

	Program SOs / ILOs of the course	SO (1)	SO (2)	SO (3)	SO (4)	SO (5)
Knowledge	A1	√				
	A2	√				
Skills	B1	√	√			
	B2	√	√			
	B3	√	√			
	B4	√	√			
	B5	√	√			
Competencies	C1	√				
	C2		√			
	C3	√	√			
	C4	√	√			

21. Topic Outline and Schedule:

Week	Topic	ILO	Learning Methods	Platform	Synchronous / Asynchronous Lecturing	Evaluation Methods	Resources
1-3	**Semantic Web Introduction/ Vision** **Semantic Web and Business**	A1, A2, B1, B2	Face-to-Face		S	T: Lecture; L: Reading lecture notes	Slides + Course Videos
4-8	**XML & Web Services** **Resource Description Framework**	A1, A2, B1, B2, B3, C1, C2, C3	Face-to-Face		S		Slides + Course Videos

Week	Topic	ILO	Learning Methods	Platform	Synchronous / Asynchronous Lecturing	Evaluation Methods	Resources
8	**Mid-term Exam**						
9-12	**RDF Schema, OWL** **OWL using Protege editor**	A1, A2, B1, B2, B4, B5, C3, C4	Face-to-Face		S		Slides + Course Videos
12-14	**Ontology Querying with SPARQL**	A1, A2, B1, B2, B4, B5	Face-to-Face		S		Slides + Course Videos
15	**Introduction to Ontology Engineering Methods**	A1, A2	Face-to-Face		S		Slides + Course Videos
16	**Final Exam**						

22. Evaluation Methods:

Opportunities to demonstrate achievement of the SLOs are provided through the following assessment methods and requirements:

Evaluation Activity	Mark	Topic(s)	SOs	Period (Week)	Platform
Practical	**20**	Whole Material		8th Week & 14th Week	
Midterm	**30**	First 8 Weeks		8th Week	Essay
Final Exam	**40**	Whole Material		15th or 16th Week	Essay

23. Course Requirements

1- Personal computers in a lab.
2- Data show
3- XML Copy Editor
4- Protege

24. Course Policies:

A- **Attendance policies**: Every student is expected to attend all classes

B- **Absences from exams and submitting assignments on time**: Absence from exams is handled according to the University of Jordan's regulations. Students should completely adhere to the assignments and project strict deadlines, absolutely no exceptions will be given.

C- **Health and safety procedures**: Following standard policies and procedures of computer labs.

D- Honesty policy regarding cheating, plagiarism, misbehavior: all violations to the code of conduct of the University of Jordan is unacceptable and will be punished with an F for the full course.

E- **Grading policy**: grading is treated as follows:

1. Written Reports:

- organization, clarity and continuity.
- quality, completeness and soundness of the analysis

2. Assignments:

- On-time submission
- authenticity

F- **Available university services that support achievement in the course**: computer labs, personal computers, internet connection, Microsoft products (Office 2016, Office 365, Windows 10)

25. References:

- ***A Semantic Web Primer,*** Grigoris Antoniou and Frank van Harmelen. 2012, 3rd Edition The MIT Press.
- ***Learning SPARQL, Querying and Updating with SPARQL 1.1,*** Bob DuCharme, 2013., 2nd Edition, O'Reilly Media
- ***Introduction to Ontology Engineering,*** *Maria Keet, 2nd Ed. 2018*

26. Additional information:

Name of Course Coordinator: Dr. Bashar Al-Shboul	Signature:	Date: 03/12/2023
Head of Curriculum Committee/Department:	Signature:	
Head of Department:	Signature:	
Head of Curriculum Committee/Faculty:	Signature:	
Dean:	Signature:	