هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

T-104
2022

Course Specification

Course Title:	**WEB INTELLIGENCE**
Course Code:	**ITEC-446**
Program:	**Bachelor in Information Technology (BIT)**
Department:	**Computer Science**
College:	**Engineering & Computer Science**
Institution:	**Jazan University**
Version:	**1**
Last Revision Date:	**18/09/2024**

Table of Contents:

A. General information about the course:

Course Identification					
1. Credit hours:	3 hours				
2. Course type					
a.	University ☐	College ☐	Department☐	Track☒	Others☐
b.	Required ☐	Elective☒			
3. Level/year at which this course is offered:	**12**				
4. Course general Description					
This course aims to achieve a multi-disciplinary balance between research advances in the fields of collective intelligence, data science, human-centric computing, knowledge management, and network science. It is committed to addressing research that deepens the understanding of computational, logical, cognitive, physical as well as business and social foundations of the future Web, and enables the development and application of intelligent technologies.					
5. Pre-requirements for this course (if any): Nil					
6. Co- requirements for this course (if any): Nil					
7. Course Main Objective(s)					
• Introduction to topics of web intelligence. • Study models of information retrieval, semantic webs, search engines, and web mining. • Applying data mining tools to develop projects in web mining and information retrieval. • Exploring Web Structure Mining • Hyperlink-Induced Topic Search (HITS) Applications of Social Networks					

1. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1.	Traditional classroom	60	100%
2.	E-learning		
3.	Hybrid • Traditional classroom • E-learning		
4.	Distance learning		

2. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	30
2.	Laboratory/Studio	30
3.	Field	
4.	Tutorial	
5.	Others (specify)	

	Total	60

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

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	**Demonstrate** the concepts of web intelligence and its importance.	K1	Visual & Verbal [Lectures / Presentations] with Inductive / deductive organization.	Midterm, Quiz , Final Exam, Assignment-1
1.2	**Relate** the fundamental knowledge areas and their relationship through web intelligence.	K2	Visual & Verbal [Lectures / Presentations] with Inductive / deductive organization.	Midterm, Quiz , Final Exam, Assignment-1
1.3	**Outline** the basic application areas of web intelligence.	K3	Brainstorming and Report Writing	Midterm, Quiz , Final Exam, Assignment-1
2.0	Skills			
2.1	**Analyze and study** the models of information retrieval, semantic webs, search engines, and web mining.	S1	Visual & Verbal [Lectures / Presentations] with Inductive / deductive organization.	Midterm, Quiz, Final Exam, Assignment-1
2.2	**Implement** data mining tools to develop projects in web mining and information retrieval. .	S2	Visual & Verbal [Lectures / Presentations] with Inductive / deductive organization.	Midterm, Quiz , Final Exam, Assignment-1
2.3	**Exploring** Web Structure Mining.	S3	Visual & Practical [Lab Session]	Midterm, Quiz, Final Exam, Assignment-1
3.0	Values, autonomy, and responsibility			
3.1	**Appraise and understand** the role of web intelligence in social network and business.	V1	Active Class participation as Group Activity Technical Reports writing and proving the ideas through debates	Lab Works, Group Assignments & Group Discussions.
3.2	**Demonstrate** the ability to work in teams and groups to accomplish common goals.	V2	Active Class participation as Group Activity Technical Reports writing and proving the ideas through debates	Lab Works, Group Assignments & Group Discussions.

C. Course Content

No	List of Topics	Contact Hours
1.	**Chapter 1: Introduction to Web Intelligence** • Semantic web • Social intelligence • Web knowledge management • Perspectives of WI • Levels of WI • Goal of WI • Characteristics of web intelligence • Challenges and issues of WI • Wisdom web • Web-based support systems • Designing an intelligent web • Future of WI	6T+6P
2.	**Chapter 2: Web information retrieval** • Introduction • Typical web search engines • Architecture of a web crawler • Distributed crawling • Focused spiders/crawlers • Collaborative crawling • Some tools and open source for web crawling • Information retrieval: beyond searching • Models of information retrieval.	4T+4P
3.	**Chapter 3:Web Mining & Structured Data Extraction** • Introduction to web mining • Evolution of web mining techniques . • Process of web mining • Web content mining • Web usage mining • Web structure mining • Sensor web mining: architecture and applications • Web mining software • Opinion mining • Other applications using AI for web mining • Future research directions • Preliminaries • Wrapper induction • Locating data-rich • Systems for wrapper generation • Applications and commercial systems	6T+6P

.4	**Chapter 4: Semantic web** • Introduction to semantic web • Metadata • Layered architecture of semantic web • Refined architecture of semantic web • Ontology and ontology constructs • Meta-ontology • Ontology tools and editors • Annotation tools • Inference engines • Semantic web applications • Semantic web interoperability and web mining • Semantic web and social communities • Semantic web and intelligent search • Semantic web research issues	6T+6P
5.	**Chapter 5: Web Knowledge management** • About knowledge • Knowledge management fundamentals • Ontology revisited • Utilization of knowledge management methodologies on semantic web • Exchanging knowledge in virtual entities • Case study • Building the World Wide Why • Conclusion and applications	4T+4P
.6	**Chapter 6: Social network intelligence** • Introduction to social networking • Friend-of-a-friend • Semantically interlinked online communities • Social network analysis • Social network data • hCard and XFN • Advantages and disadvantages of social networking • Social graph application programming interface Social search and artificial intelligence	4T+4P
Total		60

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Assignment -1	3rd Week	10%
2.	Assignment -2	5th Week	10%
3.	Midterm	6th Week	15%
4	Quiz	8th Week	5%
5	Lab Assessment	9th Week	20%
6	Final Exam	10th Week	40%

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

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	1- Akerkar, R. & Lingras, P. (2008). Building an Intelligent Web: Theory and Practice. Jones and Bartlett Publishers, Sudbury, Massachusetts. ISBN-13: 978-0-7637-4137-2 2- Web Intelligence (WI): A New Paradigm for Developing the Wisdom Web and Social Network Intelligence. Zhong, Ning (et al.) ISBN 978-3-662-05320-1 3- Witten, Ian H. & Frank, E. (2005). Data Mining: Practical Machine Learning Tools and Techniques. 2nd Edition, Morgan Kaufman. ISBN 0120884070, 9780120884070
Supportive References	Priti Srinivas and Sajja Rajendra Akerkar, P.(2012), CRC Press Taylor & Francis, ISBN-13: 978-1-4398-7164-5
Electronic Materials	1. https://www.researchgate.net/publication/372848209_Intelligent_Techniques_for_Data_Science_-_Rajendra_Akerkar_Priti_Srinivas_Sajja 2. https://www.iospress.com/catalog/journals/web-intelligence 3. https://www.wi-iat.com/wi-iat2021/index.html
Other Learning Materials	Projectlibre manual

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Classroom /labs
Technology equipment (projector, smart board, software)	Projector, Smart Board, Microsoft Office, Microsoft Project and Microsoft Visio
Other equipment (depending on the nature of the specialty)	Computer availability for each individual student with all the required accessories. Internet should be available.

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	HOD / QAU	Direct
Effectiveness of students assessment	Students	Indirect
Quality of learning resources	CEO / Track Leaders	Direct
The extent to which CLOs have been achieved	HOD / QAU	Direct
Other		

Assessor (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

G. Specification Approval Data

COUNCIL /COMMITTEE	DEPARTMENT COUNCIL
REFERENCE NO.	MEETING NO. 1, AGENDA NO. 2
DATE	13/09/2022