Course Specification

(Postgraduate)

Course Title:	Selected Topics in Artificial Intelligence
Course Code:	501834-3
Program:	Master in Artificial Intelligence
Department:	Computer Science
College:	Computers and Information Technology
Institution:	Taif University
Version:	V2
Last Revision Date:	5 May 2024

قسم علوم الحاسب
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TU جامعة الطائف TAIF UNIVERSITY

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A. General information about the course:

1. Course Identification:

1. Credit hours: (3)				
2. Course type				
A.	☐University	☐College	☒ Department	☐Track
B.	☐ Required		☒ Elective	
3. Level/year at which this course is offered: (Year: 1, Level: 1)				
4. Course general Description:				
This course employs a seminar-based approach to delve into cutting-edge and sophisticated subjects within the realm of Artificial Intelligence. The course content will adapt to encompass the latest trends in the field, including machine learning algorithms, deep learning, and emerging AI developments.				
5. Pre-requirements for this course (if any)**:**				
None.				
6. Co-requirements for this course (if any)**:**				
None.				
7. Course Main Objective(s):				
The objectives of this course are as follows: ▪ **To provide students with the ability to critically review, assess, and engage in discussions about research papers, fostering a deep comprehension of AI-related subjects.** ▪ **To provide experience in recognizing AI's significance in tackling intricate problems and grasping research involving diverse AI/ML/DL techniques.** ▪ To analyze, synthesize, and evaluate scientific papers that contribute to the progress of AI in various domains, such as biomedical research, healthcare, business intelligence, robotics, and interdisciplinary fields.				

2. Teaching Mode: (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	**36**	**80%**
2	E-learning	**9**	**20%**
3	Hybrid ▪ Traditional classroom ▪ E-learning	**0**	**0%**
4	Distance learning	**0**	**0%**

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

No	Activity	Contact Hours
1.	**Lectures**	**45**
2.	**Laboratory/Studio**	**-**
3.	**Field**	**-**
4.	**Tutorial**	**-**
5.	**Others (specify): Mid-Term and Final Exams**	**-**
	Total	**45**

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	Explore and identify new trends in AI field.	**K1**	Lecture Discussion	Presentation
2.0	**Skills**			
2.1	Analyze and assess research papers of AI-related subjects.	**S1**	Lecture Discussion	Presentation
2.2	Evaluate the AI's significance in tackling intricate problems and implement diverse AI/ML/DL methods to solve them.	**S2**	Discussion Groupwork	Presentation Summary Paper
2.3	Ability to synthesize, and evaluate scientific papers in AI-related domains, such as biomedical, healthcare, business intelligence, robotics, and interdisciplinary fields.	**S3**	Discussion Groupwork	Reviewing Assignment Presentations Project
3.0	**Values, autonomy, and responsibility**			
3.1	Practice the role of professional ethics in AI.	**V1**	Discussion	Project
3.2	Work effectively as a team member or leader in a project focused on AI-related domains.	**V2**	Discussion	Project

C. Course Content:

No	List of Topics	Contact Hours

1.	Advanced Topics in AI (biomedical, healthcare, business intelligence, robotics, and multidisciplinary fields)	9
2.	Implementation of New Methods and Trends of AI (machine learning, deep learning, generative AI, explainable AI, graph embeddings, etc.)	12
3.	Selection and Focus Reading (Domain knowledge, Data Representation, Methods, etc.)	12
4.	Future Directions	12
Total		**45**

D. Students Assessment Activities:

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Discussions and Participation	Weekly	15%
2.	Presentations	3,6,10,12	20%
3.	Summary Paper	5,7,11,15	20%
4.	Reviewing Assignment	10	15%
5.	Project	15,16	30%

*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	▪ There are no required textbooks for this course. Students will read and discuss several AI-related papers.
Supportive References	▪ Additional reading materials and resources will be provided throughout the course. The materials will include: ○ Selected research papers from top-tier peer-reviewed journals or conferences, accessible through the university library or online databases. ○ Textbooks or reference materials on advanced AI techniques. ▪ Lecture notes and slides provided by the instructor.
Electronic Materials	▪ Programming resources and tools for implementing AI algorithms (e.g., Python, Keras, PyTorch, R). ▪ Datasets relevant to selected domain for project.
Other Learning Materials	▪ https://www.anaconda.com/ ▪ Google AI/ Google Colab ▪ GitHub

2. Educational and Research Facilities and Equipment Required:

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	▪ A seminar room appropriate for maximum 15 students with a personal computer, a data show, and a smart board.
Technology equipment (Projector, smart board, software)	▪ Lab materials and required software. ▪ Video projector / data show ▪ White board.
Other equipment (Depending on the nature of the specialty)	▪ To be announced during the course!

F. Assessment of Course Quality:

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students Coordinator	Indirect (Course exit survey) Indirect (Feedback from Course Coordinator)
Effectiveness of students assessment	Faculty member Coordinator	Indirect (Feedback from Faculty member) Indirect (Feedback from Course Coordinator)
Quality of learning resources	Students Faculty member Coordinator Council Curriculum Committees	Indirect (Course exit survey) Indirect (Feedback from Faculty member) Indirect (Feedback from Course Coordinator) Indirect (Feedback from council) Indirect (Feedback from Graduate Committees)
The extent to which CLOs have been achieved	Students Faculty member Coordinator Curriculum Committees	Indirect (Course exit survey) Indirect (Feedback from Faculty member/ Course Coordinator/ Graduate Committee)
Other	-	-

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

G. Specification Approval Data:

COUNCIL /COMMITTEE	**GRADUATE PROGRAMS COMMITTEE – CS DEPT.**
REFERENCE NO.	**V2**
DATE	**5/5/2024**

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