وَزَارَةُ التَّعْلِيمِ العَالِي وَالبَحْثِ العِلْمِيّ

جَامِعَةُ الأنبَار

كُلِّيَّةٌ عُلُومِ الحَاسُوبِ وَتِكْنُولُوجِيا المَعْلُومَاتِ

قِسْمُ الذَّكَاءِ الأَصْطِنَاعِيّ

Higher Education & Scientific Research

University Of Anbar

**College of Computer Science
and Information Technology**

Artificial Intelligence Department

دليل البرنامج الدراسي 20242023

Program Catalogue | 2023-2024

University of Anbar

First Cycle – Bachelor's degree (B.Sc.) – Artificial Intelligence

الذكاء الاصطناعي – بكالوريوس

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1. Mission & Vision Statement

Vision Statement

The AI Department envisions a future where AI technologies are harnessed to positively transform industries, societies, and individual lives. It aspires to be a globally recognized center of excellence in AI education and research, producing graduates who are not only technically proficient but also deeply aware of the ethical, social, and environmental implications of AI. Through the work, it seeks to shape the AI landscape, driving innovation, inclusivity, and sustainability in AI development and deployment, and ultimately, making a lasting and positive impact on the world.

Mission Statement

The mission of the AI Department is to educate, inspire, and empower the next generation of AI professionals. AI Department is committed to providing a comprehensive and cutting-edge education in artificial intelligence, fostering research and innovation, and promoting ethical and responsible AI practices. The aim is to prepare students to excel in AI-related fields,

contribute to the advancement of AI technology, and address real-world challenges with innovative AI solutions

2. Program Specification

Programme code:	BSc-AI	ECTS	240
Duration:	4 levels, 8 Semesters	Method of Attendance:	Full Time

This program provides a comprehensive educational and practical training in various aspects of Artificial Intelligence (AI). The focus of the program is core concept principles of AI, including programming languages, Knowledge Base, data structure, AI algorithms, computer architecture, Optimization Problems, Robotics and Pattern Recognition. These foundational topics form the basis for understanding and solving complex computational problems.

Level 1 exposes students to the fundamentals of computing, suitable for progression to the specialized topics in this program. Program-specific core topics are covered at Level 2 preparing for research-led subject specialist modules at Levels 3 and 4.

At Levels 2, 3 and 4 students are free to choose some of their module credits with the provision of a range of modules are selected that reflect the aspects of AI, through analyzing problems, to stage of providing solutions to ensure the breadth of knowledge expected of a graduate with a AI degree. This allows students to develop their own wide-ranging interests in computer science. Decisions on what to study are made with input from personal tutors.

The research ethos is developed and fostered from the start through practicals, which are either embedded in lecture modules or taught in dedicated practical modules, research seminars and tutorials. At Level 4 all students carry out an independent research project.

Academic tutorials are held at Levels 1 and 2 with the same tutor, who is also the personal tutor, providing continuity and progressive guidance. Level 1 and 2 tutorials include a number of workshops to teach skills, e.g. library use and presentation skills, followed by assessed exercises, e.g. essays and talks, as opportunities to practice these skills in a subject-specific context.

Graduates of the program can pursue careers in software development, data analysis, cybersecurity, artificial intelligence, systems analysis, research, or pursue further education at the postgraduate level.

3. Program Goals

- Equip students with a strong foundation in AI theory and practice.
- Foster critical thinking and problem-solving skills relevant to AI.
- Instill ethical considerations and responsible AI development.
- Encourage interdisciplinary collaboration and innovation.
- Prepare students for careers in AI research, development, and application.

4. Student Learning Outcomes

Student Learning Outcomes (SLOs) for an AI department outline the specific knowledge, skills, and competencies that students should acquire during their academic journey in the field of artificial intelligence. These outcomes serve as a guide for curriculum development and assessment..

Upon completion of the program, students will be able to:

1. Demonstrate a strong grasp of AI principles, methodologies, and applications.
2. Apply machine learning and deep learning techniques to solve real-world problems.
3. Develop AI algorithms and models for efficiency and effectiveness.
4. Evaluate the ethical implications of AI technologies and make responsible decisions.
5. Proficiently program AI solutions using relevant languages and tools.
6. Identify and address AI applications in various industries and domains.
7. Collaborate effectively in interdisciplinary teams to tackle complex AI challenges.
8. Contribute to AI research and innovation through experimentation and publication.
9. Stay updated with evolving AI trends and technologies for lifelong learning.
10. Exhibit critical thinking skills in analyzing and solving AI-related issues.

5. Academic Staff

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6.   Credits, Grading and GPA

Credits

University of Anbar is following the Bologna Process with the European Credit Transfer System (ECTS) credit system. The total degree program number of ECTS is 240, 30 ECTS per semester. 1 ECTS is equivalent to 25 hrs student workload, including structured and unstructured workload.

Grading

Before the evaluation, the results are divided into two subgroups: pass and fail. Therefore, the results are independent of the students who failed a course. The grading system is defined as follows:

GRADING SCHEME مخطط الدرجات				
Group	**Grade**	**التقدير**	**Marks (%)**	**Definition**
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب - قيد المعالجة	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				
Number Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

Calculation of the Cumulative Grade Point Average (CGPA)

1. The CGPA is calculated by the summation of each module score multiplied by its ECTS, all are divided by the program total ECTS.

   CGPA of a 4-year B.Sc. degree:

   CGPA = [(1st ^{m}odule score x ECTS) + (2nd ^{m}odule score x ECTS) + ……] / 240

7.   Curriculum/Modules

Semester 1 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
AIDC113	Computer Technology	78	47	5.00	C	None
AIDC112	Programming Basics	123	102	9.00	C	None
AIDC111	Introduction to Artificial Intelligence (AI)	93	57	6.00	C	None
CCIT060	Mathematics	93	57	6.00	B	None
UOA003	English Language I	33	17	2.00	S	None
UOA005	Democracy & Human Rights	33	17	2.00	S	None

Semester 2 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
CCIT061	Discrete Structures	78	47	5.00	B	CCIT060
AIDC123	Structured Programming	123	102	9.00	C	AIDC112
AIDC124	Logic Design	93	57	6.00	C	
AIDC125	Data Science	93	57	6.00	C	AIDC111
UOA001	Arabic Language	33	17	2.00	S	
UOA006	The crimes of the defunct Ba'ath party	33	17	2.00	S	

Semester 3 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
AIDC210	Knowledge Representation	93	57	6.00	C	AIDC125
CCIT062	Numerical Analysis	78	47	5.00	B	CCIT061
AIDC213	Basics of Object Oriented Programming	108	67	7.00	C	AIDC123
AIDC212	Computational Theory	78	47	5.00	C	
AIDC214	Python Programming Language	78	47	5.00	C	AIDC123
UOA002	Arabic Language II	33	17	2.00	S	UOA001

Semester 4 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
AIDC222	Advanced Object Oriented Programming	123	77	8.00	C	AIDC213
AIDC223	Algorithms and Data Structures	108	67	7.00	C	AIDC123
AIDC224	Machine Learning Basics	93	57	6.00	C	AIDC214

AIDC225	Artificial Intelligence Algorithms	93	82	7.00	C	AIDC210
UOA002	English Language II	33	17	2.00	S	UOA003

Semester 5 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
AIDC311	Compilers	63	62	5.00	C	
AIDC312	Computer Architecture	63	37	4.00	C	AIDC113
CCIT063	Computer Networks	93	57	6.00	B	
AIDC314	Optimization Problems	78	72	6.00	C	AIDC225
AIDC315	Web Applications	63	37	4.00	C	
AIDC316	Advance Machine Learning	93	32	5.00	C	AIDC224

Semester 6 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
AIDC321	Information Retrieval	90	35	5.00	C	AIDC214, AIDC223
AIDC322	Databases	93	57	6.00	C	
AIDC323	Metaheuristic	108	67	7.00	C	AIDC225
AIDC324	Deep Learning	108	67	7.00	C	AIDC316
AIDC1325	Computer Security	78	47	5.00	C	

Semester 7 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
AIDC411	Operating Systems	108	42	6.00	C	
AIDC412	Data Mining	108	67	7.00	C	AIDC324, AIDC214
AIDE413	Games Development	93	57	6.00	E	
UOA019	Research Methodology	63	37	4.00	S	
AIDC415	Robotics	108	67	7.00	C	

Semester 8 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
AIDC421	Natural Languages Processing (NLP)	78	47	5.00	C	AIDC321, AIDC214
AIDS422	Digital Forensics	78	22	4.00	C	
AIDC423	Pattern Recognition	78	47	5.00	C	AIDC324
AIDC424	Big Data	63	37	4.00	C	
AIDC425	Recommendation Systems	63	37	4.00	C	
UOA020	Project	93	107	8.00	S	UOA019

8.   Contact

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