Ministry of Higher Education and Scientific Research

Scientific supervision and evaluation device

Department of Quality Assurance and Academic Accreditation

Academic Description Program
2023-2024

Name university: Mosul
Name collage: Computer science And Mathematic
Name of department: Operations Research and Intelligent Technologies
File filling date: 1-4-2024

Signature:
Lecturer: Salih Mooaed Shaker

Department Head

Date: 24/4/2024

Signature:

The file has already been checked by

Director of Quality Assurance and Assesment Performance of the college of computer science and mathematic
Asst. Prof. Dr. Mohammed Chachan yonnis
Date: 24/4/2024

Signature:
Associate Dean for Scientific Affairs

Prof. Dr. Safwan Omar Hasoon

Date: 24/4/2024

Signature:
Approval of the Dean
Prof. Dr. Dhuha Basheer Abdullah
Date: 24/4/2024

Academic description

Of computer science and mathematic

1 .Educational institution	Mosul
2 .Academic Description Program	Operations Research and Intelligent Technologies
3. Name of the final certificate	Bachelor of Science in Operations Research and Intelligent Technologies
4 .System	Curses
6 .Accredited accreditation program	ABET
7 .Other external influences	Central admission
8 .Date the description was prepared	2024-4-1

.9 Objectives of the academic program
1 Continuous aspiration towards cognitive excellence in education and scientific research.
2 Training students and developing their abilities to interact and communicate with others and preparing them for the labor market
3 Acquiring scientific and practical skills through graduation projects and field training.
4 .Preparing students for postgraduate studies in the field of operations research and intelligent technologies.
5 .Preparing specialized scientific staff in the graduate program and interaction with other sciences.

A-Knowledge and understanding
A1- Introducing students to the purpose of teaching this content and the evaluation methods used, why the specific technology was chosen and how it can be used efficiently and effectively. It begins the learning process from easiest to most difficult, and builds on the learner's previous knowledge.
A2- A brief description of the knowledge that should be acquired:
A3- Study and understand the algorithms and data structures that underlie the development of all software

A4- Knowledge of scientific principles that are considered essential in the fields of application of operations research and intelligent technologies

A5- Study and understand models of programming languages and study at least one language from each model

A6- Study a number of specialized fields in computers. (Artificial intelligence, compiler design, database design, computer graphics and software engineering...)
Sufficient knowledge of the theoretical background to continue developing knowledge and skills after graduation, and the ability to read literature and conduct research and graduate studies in the field of specialization.

B - Subject-specific skills
B1 - Suspense and sequence of ideas
B2 - Previous academic level
B3 - Getting to know the latest programs and algorithms
B4- Blended learning by following the YouTube channels of the department's teaching staff and some educational platforms

Evaluation methods

D1 - Theoretical and practical tests - Written tests - Evaluation of oral discussions - Evaluation of individual and group assignments (research - Homework - Student reports and projects) - Evaluation of ability to present and deliver.
D2- The ability to design, implement and evaluate computer systems, processes, components and programs to meet required needs.
D3- Presenting real problems, conducting scientific analysis of them, and solving them programmatically through lectures and discussions, following induction and deduction for solution methods.
D4- General and transferable skills (other skills related to employability and personal development).

C- Thinking skills
C1- Encouraging knowledge contributions to ensure continuous improvement in teaching and scientific research processes and professional performance development
C2- Motivation through financial reward
C3-Honoring
C4- Developing thinking skills by developing alternatives, summarizing, and comparing conclusions

Teaching and learning methods

-1Identify the scientific concepts and principles that will be learned and present them in the form of a question or problem.
-2Preparing the educational materials necessary to implement the lesson.
-3Formulating the problem in the form of sub-questions so that it develops the skill of imposing assumptions among the learners.
-4Determine the activities or exploratory experiences that the learners will carry out.
-5Evaluating learners and helping them apply what they have learned in new situations.
-6Writing reports - preparing research papers
-7Addressing problems and developing appropriate solutions to them on sound scientific foundations

Evaluation methods

Evaluating reports and research papers - evaluating individual and group costs - practical and written tests - evaluating group discussions and research seminars
Use their mental abilities to discover scientific concepts and principles

1. .Program structure

Stage 2 course 1

ت	الاسم		رمز المادة	نوع المادة	عدد الساعات				عدد
					نظري	عملي	مناقشة	المجموع	
1	برمجة صحيحة وحركية	Integer and Dynamic Programming	CMOR23-F2111	اجباري قسم	3	—	1	4	3
2	نظرية الاحتمالات (1)	Probability Theory (1)	CMOR23-F2121	اجباري قسم	3	—	1	4	3
3	تحليل عددي (1)	Numerical Analysis (1)	CMOR23-F2131	اجباري كلية	2	2	—	4	3
4	معادلات تفاضلية	Differential Equations	CMOR23-F2141	اختياري كلية	3	—	1	4	3
5	سيطرة نوعية	Quality Control	CMOR23-F2151	اختياري قسم	2	—	1	3	2
6	نظرية المباراة	Game Theory	CMOR22-F2161	اجباري قسم	2	—	1	3	2
7	مسائل تتابعية	Sequencing Problems	CMOR23-F2171	اجباري قسم	2	—	—	2	2
	المجموع				17	2	5	24	18

Stage 2 course 2

	الاسم الكورس الثانى مرحلة ثانية		رمز المادة	نوع المادة	عدد الساعات				عدد
					نظري	عملي	مناقشة	المجموع	
1	نظرية الاحتمالات (2)	Probability Theory (2)	CMOR23-F2211	اجباري قسم	3	—	1	4	3
2	تحليل عددي (2)	Numerical Analysis (2)	CMOR23-F2221	اختياري كلية	2	2	—	4	3
3	مسائل التخصيص	Assignment Problems	CMOR23-F2231	اجباري قسم	3	—	1	4	3
4	تنقيب بينات	Data Mining	CMOR23-F2241	اجباري قسم	3	—	1	4	3
5	سلاسل زمنية	Time Series	CMOR23-F2251	اختياري قسم	2	—	2	4	2
6	مبادئ الاقتصاد	Elementary of Economic	CMOR23-F2261	اختياري جامعة	2	—	—	2	2
7	لغة انكليزية (2)	English Language (2)	CMOR23-F2271		2	—	—	2	2
	المجموع				17	2	5	24	18

Stage 3 course 1

	الاسم		رمز المادة	نوع المادة	عدد الساعات				عدد
					نظري	عملي	مناقشة	المجموع	
1	امثلية غير مقيدة(1)	Unconstrained Optimization (1)	CMOR23-F3111	اجباري قسم	3	___	1	4	3
2	عمليات تصادفية(1)	Stochastic Processes (1)	CMOR23-F3121	اجباري قسم	3	___	1	4	3
3	منطق مضبب (1)	Fuzzy Logic (1)	CMOR23-F3131	اجباري قسم	3	___	1	4	3
4	تقنيات ذكائية (1)	Intelligent Techniques (1)	CMOR23-F3141	اختياري كلية	2	2	—	4	3
5	نماذج الخزين (1)	Inventory Models (1)	CMOR23-F3151	اجباري قسم	2	___	1	3	2
6	تحليل الانحدار (1)	Regression Analysis (1)	CMOR23-F3161	اجباري قسم	2	___	1	3	2
7	نظرية القرارات	Decision Theory	CMOR22-F3171	اجباري قسم	2	___	1	3	2

المجموع	17	2	6	25	18

Stage 3 course 2

	الاسم		رمز المادة	نوع المادة	عدد الساعات				عدد
					نظري	عملي	مناقشة	المجموع	
1	امثلية غير مقيدة(2)	Unconstrained Optimization (2)	CMOR23-F3211	اجباري قسم	3	___	1	4	3
2	عمليات تصادفية(2)	Stochastic Processes (2)	CMOR23-F3221	اجباري قسم	3	___	1	4	3
3	منطق مضبب (2)	Fuzzy Logic (2)	CMOR23-F3231	اجباري قسم	3	___	1	4	3
4	تقنيات ذكائية (2)	Intelligent Techniques (2)	CMOR23-F3241	اجباري قسم	2	2	—	4	3
5	نماذج الخزين (2)	Inventory Models (2)	CMOR23-F3251	اختياري قسم	2	___	1	3	2
6	تحليل الانحدار (2)	Regression Analysis (2)	CMOR23-F3261	اختياري قسم	2	___	1	3	2
7	لغة انكليزية (3)	English Language (3)	CMOR23-F3271		2	___	___	2	2

المجموع	17	2	5	24	18

Stage 4 course 1

	الاسم		رمز المادة	نوع المادة	عدد الساعات				عدد
					نظري	عملي	مناقشة	المجموع	
1	امثلية مقيدة (1)	Constrained Optimization (1)	CMOR23-F4111	اجباري قسم	3	—	1	4	3
2	نظرية الطوبير(1)	Queuing Theory (1)	CMOR23-F4121	اجباري قسم	3	—	1	4	3
3	شبكات عصبية(1)	Neural Networks (1)	CMOR23-F4131	اجباري قسم	3	—	1	4	3
4	نمذجة	Modeling	CMOR23-F4141	اجباري قسم	2	2	—	4	3
5	تمييز الانماط	Pattern Recognition	CMOR23-F4151	اختياري قسم	2	—	1	3	2
6	نظرية المعولية	Reliability Theory	CMOR23-F4161	اختياري قسم	2	—	1	3	2
	منهج البحث العلمي	Scientific Search Method	CMOR23-F4171	اجباري كلية	2	—	—	2	2

المجموع	17	2	5	24	18

Stage 4 course 2

	الاسم		رمز المادة	نوع المادة	عدد الساعات				عدد
					نظري	عملي	مناقشة	المجموع	
1	امثلية مقيدة (2)	Constrained Optimization (2)	CMOR23-F4111	اجباري قسم	3	—	1	4	3
2	نظرية الطوبير(2)	Queuing Theory (2)	CMOR23-F4121	اجباري قسم	3	—	1	4	3
3	شبكات عصبية(2)	Neural Networks (2)	CMOR23-F4131	اجباري قسم	3	—	1	4	3
4	محاكاة	Modeling	CMOR23-F4141	اجباري قسم	2	2	—	4	3
5	لغة انكليزية (4)	Pattern Recognition	CMOR23-F4151		2	—	—	2	2
6	مشروع التخرج	Search Project	CMOR23-F4161	اختياري قسم	—	4	—	4	2
	المجموع				31	6	3	22	16