Course Description Form

1. Course Name:
Optimization I
2. Course Code:
MATH 214
3. Semester / Year:
Second/ Second
4. Description Preparation Date:
23/3/2024
5. Available Attendance Forms:
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hours / 4 units
7. Course administrator's name (mention all, if more than one name)
Name: Saad Mohsen Asst. Lec. Shayma Abdulsattar Asst. Lec. Nibras Yasir Asst. Lec. Abbas Ibraheem Asst. Lec. Ruqaya Saady Asst. Lec. Eman Khalid Email: saad.mohsen@nahrainuiv.edu.iq
8. Course Objectives

Course Objectives	• Study of non-linear programming systems and their solutions. • Study classical optimization and solve systems u many methods. • numerical optimization and its applications

9. Teaching and Learning Strategies

Strategy	The strategy is to provide the students with as much information about nonlinear programming as possible by attending lectures to maximize the connection between the students and the lecturer in order to solve as many real-life statistical applications as possible with practical lab. The lectures, some homework and some other additional exercises is also shared on Google Classroom.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

2–1		4	Definition and classificatior linear programming		
6–3		8	Model building		
9–7		8	Graphical Solution		
11–10		10	Simplex Method		
13–12		14	Duality and Theorem		
15–14		16	Transportation and Assignm		

11. Course Evaluation

Midterm exam: 40 marks
Final exam: 60 marks

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Optimization theory and applications by S.S. RAO
Main references (sources)	Operation research by HAMDY A. TAHA
Recommended books and references (scientific journals, reports…)	Any website related to our study
Electronic References, Websites	Google.com

1. بنية المقرر

الأسبوع	الساعات	مخرجات التعلم المطلوبة	اسم الوحدة / أو الموضوع	طريقة التعليم	طريقة التقييم
2-1	4	حل مسائل الامثلية العامة	Definition and classification of nonlinear programming	برمجة باستخدام الماتلاب	
6-3	8	طرق حل المتغير واحد لدالة الهدف	Solution of single variable optimization	برمجة باستخدام الماتلاب	
9-7	8	حلا مسائل الامثليه لمتعددة المتغيرات برمجيا	Multi variable optimization with no constraints	برمجة باستخدام الماتلاب	
11-10	10	امثلة اضافية لايجاد النقاط العظمى والصغرى	Multi variable optimization with constraints	برمجة باستخدام الماتلاب	
13-12	14	حل الامثليه بالطريقه الحسابيه بالطريقه المحدده وطريقة اكسوستف برمجيا	Solve numerical optimization by unrestricted search and exhaustive	برمجة باستخدام الماتلاب	

15-14	16	حل الامثليه بالطريقه ا لحسابيه بالطريقه دايك توموس وفيبنونشي و كولدن سكشن برمجيا	Solve numerical optimization by dichotomous , Fibonacci and golden section	برمجة باستخدام ا لماتلاب	