جامعة : المنصورة

كليـة : العلـــوم

قســم : الرياضيات

١- بيانات المقرر		
كود المادة : Math 421	اسم المقرر : Operation research	المستوى: الرابع
التخصص : رياضيات	عدد الوحدات الدراسية: ٣ ساعة معتمدة نظرى ٢: تمارين: ٢ عملى: ٠	

٢- هدف المقرر:	**For students undertaking this course, the aims are to:** - Provide a grounding in the major traditional areas of Operational Research/Management Science through a study of techniques and their application in a variety of business settings. - Familiarize the student with the OR methodology of problem solving and appraise its application in a range of problem situations.
٣- المستهدف من تدريس المقرر	
أ- المعلومات و المفاهيم :	**a- Knowledge and Understanding** **On successfully completing the course, students will be able to:** a1-Be aware of the Formulation of linear programming problems in management a2-Understand the ideal of modeling LP problems. a3-Know and understand how to use game theory concepts in our life.
ب- المهارات الذهنية :	**b- Intellectual Skills** **On completing this course, students will be able to:** b1-Solve linear programming problems graphically. b2-Apply linear programming techniques to various types of decision Problems. b3-Recognize the changing nature and role of OR in business.
ج- المهارات المهنية الخاصة بالمقرر :	**c- Professional and Practical Skills** **On completing this course, students will be able to:** c1-Use the Matlab software package in solving linear programming problems. c2-Develop model building and problem solving skills. c3-Use the operational procedures to solve linear programming problems.

d- General and Transferable Skills **On completing this course, students will be able to:** d1-Work as a team. d2- Solve problems d3-Manage their time.	**د- المهارات العامة :**
- Introduction - Convex Analysis - Saddle point optimality criteria of nonlinear programming(withoutdifferentiability) - Optimality criteria in NPP (with differentiability) - The penalty function method - Duality in NPP - Linear Fractional Programming - Quadratic forms - The penalty function method - Duality in NPP - Linear Fractional Programming	**٤- محتوى المقرر :**
1-Lectures 2- Tutorials	**٥- أســـاليـــب التعليـــم و التعلـم**
The same as normal students, only skeletal disabilities are allowed in the faculty of science.	**٦- أساليب التعليم و التعلم للطـــلاب ذوى القـدرات المحـدودة**
	٧- تقويـــــم الطـــلاب :
1- Oral Exam. to assess a1-a2,b1-b2,d1-d2 2- Final Exam to assess a1-a2,b1-b2,c1-c2 3- Mid-Term Exam to assess a1-a2,b1-b2,c1-c2	**أ- الأساليب المستخدمة**
1- Oral Eexam week 16 2- Final Exam week 16 3- Mid-Term Exam week 7	**ب- التوقيت**

ج- توزيع الدرجات	- Mid-Term Examination 10 - Final-Term Examination 80 - Oral Examination 10 - Practical Examination 0 Total 100%
٨- قائمة الكتب الدراسية و المراجع :	
أ- المذكرات	Available at the department
ب- الكتب ملزمة	Mangasarian, O. L, Nonlinear programming, McGrow-hill, New York (1969).
ج- كتب مقترحة	-Rao, S. S., Optimization Theory and Applications, Wiley Eastern limited, New Delhi (1985). -Mital, K. v. Optimization Methods in Operations Research and System analysis, Wiley Eastern limited, New Delhi (1987). -Bazaraa, M.S., Sherali, H. D., and Shatty, Nonlinear programming Theory and Algorithms, John Wiely and Sons, Inc., New York (1993).
د- دوريـــات علميـــة أو نشرات	http://en.wikipedia.org/wiki/Operations_research

(أ) مصفوفة المعارف والمهارات المستهدفة من المقرر الدراسى

المحتويات للمقرر	اسبوع الدراسة	المعارف الرئيسية	مهارات ذهنية	مهارات مهنية	مهارات عامة
1: Introduction	1-2	a1,a3	b1		d1,d2,d3
2: Integer programming	3-4	a1,a3	b1	c1,c3	d1,d2
3: Convex Analysis	5	a1,a2,a3	b1,b2,b3	c1,c2,c3	
4: The nonlinear programming problem	6	a1,a3	b1,b3		d1,d2
5: Saddle point optimality criteria of nonlinear programming(without differentiability)	7	a1,a3	b1,b2,b3	c1,c3	d1,d2
6: Optimality criteria in NPP (with differentiability)	8	a1,a2	b1,b2,b3		
7: The Kuhn_ Tucker stationary point problem	9-10	a1,a2,a3	b1,b3	c1,c2	d1,d2
8: Quadratic forms	11	a1,a2,a3	b1,b2,b3		d1,d3
5: The penalty function method	12	a1,a2	b1,b3	c1,c2,c3	d1,d2

6: Duality in NPP	13	a1,a2	b1,b2	c1,c3	d1,d2
7: Linear Fractional Programming	14	a1,a2	b1	c1,c2	d2

أستاذ المادة : د/سامح عسكر

رئيس مجلس القسم العلمى : أ.د.مجدى الياس فارس