

جامعة: المنصورة

كلية : العلوم

قسم / الرياضيات

توصيف مقرر دراسي

١- بيانات المقرر		
المستوى: الرابع	اسم المقرر : Modeling and Simulations	كود المادة : Math 426
عدد الوحدات الدراسية: ٢ ساعة معتمدة نظري ٢: تمارين: ١ عملي: ٠		التخصص : رياضيات

For students undertaking this course, the aims are to: <ul style="list-style-type: none">• Give an introduction to Simulation and Modeling.• Revise the basics of Probability Theory.• Generate Random Numbers.• Generate Random Varieties.• Analyze the output.• Introduce queuing theory.	٢- هدف المقرر:
٣- المستهدف من التدريس المقرر:	
a- Knowledge and Understanding: On completing this course, students will be able to: a1- Know the nature of simulation. a2- know different random variable both continuous and discrete. a3- Learn different types for generating random numbers. a4- describe real world problems in mathematical terms; especially problems of theoretical physics and environmental science. a5- learn the basic techniques of computer simulation and programming.	أ- المعلومات والمفاهيم:
b- Intellectual Skills: On completing this course, students will be able to: b1- tackle modeling problems. b2- calculate the mean , variene and correlation of random variables. b3- know the different between true, psudo, and quai random numbers. b4- evaluate the need for quantitative models in real world problems.	ب- المهارات الذهنية

b5- differentiate and select between methods of treatment of mathematical problems (numerical, analytical, symbolic ... etc.).			
c-Professional and Practical Skills:			
<p>On completing this course, students will be able to:</p> <p>c1- model simple problems.</p> <p>c2- write programs to find the above in b2.</p> <p>c3- implement different methods for generating random numbers.</p> <p>c4- Use computers and appropriate software to solve mathematical problems.</p> <p>c5- Present ideas and results in written and oral presentations.</p>			ج- المهارات المهنية الخاصة بالمقرر:
d-General and Transferable Skills:			
<p>On completing this course, students will be able to:</p> <p>d1- model simple problems.</p> <p>d2- know how to find them for real problems.</p> <p>d3- know which generator to use.</p> <p>d4- use computer and internet.</p> <p>d5- Understand the relevance of Science to national development.</p> <p>d6- understand problem solving strategies.</p> <p>d7- Recognize the value of numeracy in the precise statement of ideas.</p>			د- المهارات العامة :
<ul style="list-style-type: none"> • Introduction to Basic Simulation Modeling • Revision of Basic probability • Random Number Generators • Generating random Variates • Output Data Analysis 			٤- محتوى المقرر:
1-Lectures using data show and board			٥- اساليب التعليم والتعلم:
2-Home works, reports and discussion groups			
The same as normal students, only skeletal disabilities are allowed in the Faculty of Science.			٦- أساليب التعليم والتعلم للطلاب ذوي القدرات المحدودة:
٧- تقويم الطلاب :			
1- Oral Exam.	to assess	a1-a2,b1-b2,d1-d2	أ- الأساليب المستخدمة :
2- Final Exam	to assess	a1-a3,b1-b3,c1-c3	

3- Mid-Term Exam	to assess	a1,a2,b1,b2	
1- Oral Exam	week	16	ب- التوقيت :
2- Final Exam	week	16	
3- Mid-Term Exam	week	7	
- Mid-Term Examination	10		ج- توزيع الدرجات :
- Final-Term Examination	80		
- Oral Examination	10		
- Practical Examination	0		
Total 100%			
٨- قائمة الكتب الدراسية والمراجع :			
			أ- مذكرات:
			ب- كتب ملزمة
Simulation Modeling and Analysis by Averill Law, W. Kelton.			ج- كتب مقترحة :
http://en.wikipedia.org/wiki			د- دوريات علمية أو نشرات..

(أ) مصفوفة المعارف والمهارات المستهدفة من المقرر الدراسي

المحتويات للمقرر	اسبوع الدراسة	المعارف الرئيسية	مهارات ذهنية	مهارات مهنية	مهارات عامة
Introduction to Basic Simulation Modeling	1-2	a1	b1	c1	d1
Revision of Basic probability	3-5	a2	b2	c2	d2
Random Number Generators	6-9	a3	b3	c3	d3
Generating random Variates	10-11	a3	b3	c3	d3
Output Data Analysis	12-13	a4	b4-	c4	d4

أستاذ المادة : ا.د/

رئيس مجلس القسم العلمي : ا.د. مجدى الياس فارس