Course Description Form

Course Description

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, demonstrating whether he has made maximum use of the available learning opportunities . It must be linked to the description of the .program

Shatt Al-Arab University College	1. Educational institution
Department of Computer Science	2. Scientific Department / Center
computer simulation	3. Course name / code
official time	4. Available forms of attendance
First and Second Semester / 2022-2023	5. season/year
hours 60	6. Number of hours of study (total)
2022-9-20	7. The date this description was prepared
8. Course objectives	
simulation and systems modeling	
Comparison between the types of simulation models, their methods, and their use	
Remember the steps and stages of building models and simulations	
Expand the student's awareness in this field to motivate him to build simulation .systems in multiple areas that society needs	
Familiar with programming language Python & Matlab for use in other fields after graduation	

9. Course outcomes and methods of teaching, learning and assessment
A- Cognitive goals A1- That the student learn the programming language properly A2 - The ability to build a miniature model and simulate it programmatically A3 - To develop the student and his analytical and deductive abilities , as well as perception and self-education A4- Identifying the most important mathematical statistical distributions to build a sound mathematical foundation A5 - Identify the most important methods for generating random numbers that are used in research in different fields A6 - Benefiting from the curriculum for the project decision through building intelligent systems
. B - The Marathi objectives of the course B1 - Writing and debugging programming errors using theMatlab language B2 - Graduation Research B3 - Operational reports B4 - Possesses the ability to critically think, analyze and solve problems
Teaching and learning methods
Readings, self-learning, discussion panels - 1 Classroom exercises and activities -2 Guiding students to some websites to benefit from -3 Holding research seminars to explain and analyze the code -4
Evaluation methods
Except for the central and monthly exams - 1 Only intentional exams - 2 Operation reports -3 Only practical exams - 4 Research projects -5 Participate in the lesson and present the activities -6

C- The emotional and value goals
C1- Not to derive and analyze
C 2- Comparison
C3-Discussion
C4 - Research and investigation
C 5- Use of computers and the Internet
C 6- Conducting research and drawing conclusions
C7 - Decision making

Teaching and learning methods

Theoretical lectures -1
practical laboratories - 2
Research and investigation -3
Discussion groups within the practical lessons -4

Evaluation methods

Except for oral and written exams - 1
Research projects -2
Classroom discussions -3
Assessment of duties and discussions -4

D - Transferred general and rehabilitative skills (other skills related to employability and personal development).
D1 - Develop the ability to work collectively and effectively
D2 - Develop the ability for self-learning
D3 - Develop the ability to put forward and discuss ideas
D4 - Develop the ability to deal with problems in an organized logical way

10. Course structure					
Evaluation method	education method	Unit name and/or topic	Required learning outcomes	hours	the week
general questions and discuss o i's exam	theoretical	Introductory lecture and introduction to the curriculum vocabulary	Introduction to simulation	2	1
general questions	theoretical	Introduction to simulation and its definition - part one	Introduction to simulation	2	2
and discuss o	theoretical	Introduction to simulation and its definition - part two	Introduction to simulation	2	3
i's exam	theoretical	Define simulation and its basics	Introduction to simulation	2	4
general questions	theoretical	Learn the basics of the system and model in simulation - Part I	Introduction to simulation	2	5
and discuss o	theoretical	Learn the basics of system and model in simulation - part two	Introduction to simulation	2	6
i's exam	theoretical	What are the divisions and classifications of systems and models - Part ? One	Introduction to simulation	2	7
general questions	theoretical	What are the divisions and classifications of systems and models - Part ? Two	Introduction to simulation	2	8

and discuss o	theoretical	What are the divisions and classifications of systems and models - Part ? Three	Introduction to simulation	2	9
i's exam	theoretical	How to develop a simulation model	Introduction to simulation	2	10
general questions	theoretical	What are the advantages and disadvantages of simulation ?applications	Introduction to simulation	2	11
and discuss o	theoretical	The basic steps of studying simulation development	Introduction to simulation	2	12
i's exam	theoretical	What are the applications and problems - part ? one	Introduction to simulation	2	13
general questions	theoretical	What are the applications and problems - part two	Introduction to simulation	2	14
and discuss o	theoretical	What are the applications and problems - the third part	Introduction to simulation	2	15th
i's exam	theoretical	Make a review of previous lectures	Introduction to simulation	2	16
general questions	theoretical	What are the applications and problems - Part Four	Introduction to simulation	2	17
and discuss o	theoretical	What are the applications and problems - Part V	Statistical Distribution	2	18
i's exam	theoretical	Learn about the applications of	Statistical Distribution	2	19

		statistics in the study of simulation			
general questions	theoretical	What is the Statistical Distribution - ? Part One	Statistical Distribution	2	20
and discuss o	theoretical	What is the statistical distribution - part two	Statistical Distribution	2	21
i's exam	theoretical	Learn about applications in the field of statistical distribution	Statistical Distribution	2	22
general questions	theoretical	What are ?random systems	random variables	2	23
and discuss o	theoretical	What are the methods for generating random variables - part ? one	random variables	2	24
i's exam	theoretical	What are the methods for generating random variables - part two	random variables	2	25
general questions	theoretical	Applications of generating random variables in the simulation study Part I -	random variables	2	26
and discuss o	theoretical	Applications of generating random variables in the simulation study Part Two -	random variables	2	27
i's exam	theoretical	Get to know the queuing theory	queuing theory	2	28

general questions	theoretical	What are the classifications of the queuing system and ways to represent ?them	queuing theory	2	29
general questions	theoretical	Queue Analysis Applications - Part One	queuing theory	2	30
general questions	theoretical	Queue Analysis Applications - Part Two	queuing theory	2	31
general questions	theoretical	Make a review of previous lectures	queuing theory	2	32

11. Infrastructure	
Simulation: Principles and Methods By Wayne.J . Graybeal & Udo W. Pooch	1- Required course books
Probability, Statistics, and Stochastic) Processes by Peter Olofsson & Mikael Andersson, 2011	2- Main references (sources)
Books, magazines, and websites related to simulation and modeling	أ) Recommended books and references (scientific (..... ,journals, reports
Sober websites that talk about simulation and modeling	ب) Electronic references, ...,websites

12. course development plan
Presentation of software projects by students during the semester that can benefit from them in the community