**Course Description**

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| 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/she has made the most of the available learning opportunities. They must be match to the description of the programe.  |

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| 1. Educational Institution
 | Shatt Al-Arab University  |
| 1. Scientific Department / Center
 | Computer Technology Engineering |
| 1. Course name/code
 | Computer Networks simulation |
| 1. Programme(s) to which it contributes
 | Third class of TelecommunicationsNetworks Computer |
| 1. Available forms of attendance
 | Lecture, laboratory |
| 1. Semester/Year
 | 2024/2025 |
| 1. Number of study hours (total)
 |  90 hours  | Number of hours per week |
| theoretical | practical | Total |
| 1 | 2 | 3 |
| 1. Date of preparation of this description
 | 20 – 9 - 2024 |
| 1. **Course Objectives:**

1. Know the types of computer networks2. Know the types of devices of Computer Networks3. Learn methods of linking computer networks and simulators packet tarcer4. Know how to relay information through computer networks5. Know the types of protocols and programs that is appropriate for computer networks depending on the desired application |

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| 1. **Course** **Outcomes and**  **Teaching Methods, Learning and Evaluation**
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| A- Knowledge and UnderstandingA1- The student gains experience in the field of computer networksA2- Keep in touch with development of network design A3- cisco program . |
| B. Subject-specific skillsB-1 - Preparation of technical engineers with high skills in the field of computer networksB 2 - Work to enhance performance standards including the application of international standards in the field of computer engineering techniques . |
|  **Teaching and learning methods**  |
| Academic lectures: providing a solid foundation upon which to develop cognitive balance for students Practical laboratory:, which provides each student the expertise to help develop practical skills side and consolidate the principles necessary to carry out the projects correctly |
|  **Evaluation Methods**  |
| Interactive tests: basically to assess the student by observing the extent of interaction provides during the lecture and participation Written tests: that provides knowledge of the extent of the student's understanding and follow-up of the material and scientific observations given by teachingQuarterly tests: Episode moderation and be to assess the student's interest and its interaction with the scientific article received during the semester for academic and skillsFinal tests: These are the final episode to assess the student's interest and its interaction with the scientific article received during the school year for academic and skills |
| C. Thinking SkillsC1- Implant the spirit of creativity among students and to ensure that find them innovative solutions to various problemsC2- Students develop the ability to work together effectively as teams come out excellent resultC3- Sense of responsibility among students and psychological configuration to carry the burden on their shoulders DevelopmentC4- Development to ensure the values and perseverance to get the job done to reach satisfactory results |
|  **Teaching and learning methods**  |
| Stimulate the creative side of the students and that by asking various scientific problems and the demand of the students find appropriate scientific solutions to them in different waysDevelop a spirit of cooperation between the students, through the formation of working teams and motivate the students to exert all the necessary conditions for the work of the various efforts and with several people |
|  **Evaluation Methods**  |
| Direct assessment: Where is this assessment by the teaching directly and through note student interaction during the lecture and install notes about itPractical projects is to assess the student's ability to achievement and creativity and to work in teams, consequences and solutions to various scientific problems |
| d. General and qualifying skills transferred (other skills related to employability and personal development).D1- Connect the types of computer networksD2- Has the ability to bind to all programming and computer networking devicesD3- Maintenance feeler networks.  |

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| 1. Course Structure
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| **Al , Week** | **Hours** | **Required Learning Outcomes** | **Name of the unit and/or subject** | **Method of education** | **Evaluation Method** |
| 1 - 2 | 3 | Knowledge of types of networks based on size and transport Technology | (Simulation Overview), the three models (network model, node model, and process model) | Theoretical presentationWith the help ofWith ChartsIllustrative + practical lectures | Achievement test + Discussion and question |
| 3-7  | 3 | Learn the most important species in the local area networks | Scenario 1: Network Implementation Scenario 2: Low level design Scenario 3: MPSL technology Scenario 4: Prediction and validation of network | Theoretical presentationWith the help ofWith ChartsIllustrative + practical lectures | Achievement test + Discussion and question |
| 8-9 | 3 | Understanding the difference between the services that rely on communication, that does not rely on contact | SETUP(Simple Network, Busy network, One-server network, and Faster network) | Theoretical presentationWith the help ofWith ChartsIllustrative + Practical Lectures + Panel Discussions | Achievement test + Discussion and question + and answer my class |
| 10-11 | 3 | Understanding of the OSI model | SETUP Wireless Network | Theoretical presentationWith the help ofWith ChartsIllustrative + Practical Lectures + Panel Discussions | Achievement test + Discussion and question + and answer my class |
| 12 | 3 | Knowledge of types of large networks and small and private | Using routing protocols | Theoretical presentationWith the help ofWith ChartsIllustrative + Practical Lectures + Panel Discussions | Achievement test + Discussion and question + and answer my class |
| 13-15 | 3 | Knowing the size of the files by type | ANALYSIS (Response Time of Simple Network vs. Busy network) | Theoretical presentationWith the help ofWith ChartsIllustrative + Practical Lectures + Panel Discussions | Achievement test + Discussion and question + and answer my class |
| 16-20 | 3 | Knowing the bandwidth and speed of transmission of information | CPU utilization of various servers in the Busy network | Theoretical presentationWith the help ofWith ChartsIllustrative + Practical Lectures + Panel Discussions | Achievement test + Discussion and question + and answer my class |
| 21-26 | 3 | Knowledge of types of center carrier | Different types of examples | Theoretical presentationWith the help ofWith ChartsIllustrative + Practical Lectures + Panel Discussions | Achievement test + Discussion and question + and answer my class |
| 27-30 | 3 | Knowledge of types of satellites | Other types of computers network simulator | Theoretical presentationWith the help ofWith ChartsIllustrative + Practical Lectures + Panel Discussions | Achievement test + Discussion and question + and answer my class |

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| 12. Infrastructure |
| 1 Required textbooks  | Data Communications and Networking byMcGraw-Hill Forouzan Networking Series |
| 2 Key references (sources)  |  |
| * 1. Recommended books and references (scientific journals, reports,.... )
 | COMPUTER NETWORKING by James F. Kurose University of Massachusetts, Amherst |
| * 1. Electronic references, websites ....
 | **www.cisco.com** |

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| 1. Course improvement Plan
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|  improving the subjects of the current curriculum by checking the current materials by deleting / adding others new topics |