**Course Description Form**

# Description of the location

This course description provides a concise summary of the main features of the course and the learning outcomes expected of the student, demonstrating whether the student has made the most of the available learning opportunities. It must be linked to the course description. The program.

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| Shatt al-Arab University | 1 . Educational institution |
| Computer Science | 2 . Scientific Department / Center |
| Data and computer security | 3 . Name/Code of the headquarters |
| My presence | 4 . Available forms of attendance |
| Second semester/ 2024-2025 | 5 . semester/year |
| 200 | 6 . Number of study hours (total) |
| August 5, 2025 | 7 . Date this description was prepared |
| 8 . Course objectives  Studying different algorithms to protect important information is part of the requirements of encryption. | |

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| 9. Course outcomes, teaching, learning and assessment methods  Learn the fundamentals of information security and the principles and foundations of related fields, such as cryptography and cybersecurity . |
| A- Cognitive objectives  1- Possessing the infrastructure for cryptography and information protection.  2- Learn the basics of cybersecurity .  3- Building a foundation to protect networks from hacking  4- Identify the types and categories of data protection methods, including encryption and concealment. |
| B-Skill objectives of the course  1- Building software data protection methods and techniques  2- Dealing with network hackers' methods |
| Teaching and learning methods |
| 1. In-person lectures 2. Practical laboratory lectures 3. Reports 4. Seminars 5. rapid tests |
| Evaluation methods   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **Module Evaluation**  evaluation The material Academic | | | | | | |  | | **Time/ Nu**  **amber** | **Weight (Marks)** | **Week Due** | **Relevant Learning**  **Outcome** | | **Formative assessment** | **Quizzes** | 2 | 10% (10) | 5, 10 | LO #1, 2, 10 and 11 | | **Assignments** | 2 | 10% (10) | 2, 12 | LO # 3, 4, 6 and 7 | | **Projects / Lab .** | 1 | 10% (10) | Continuous |  | | **Report** | 1 | 10% (10) | 13 | LO # 5, 8 and 10 | | **Summative**  **assessment** | **Midterm Exam** | 2 hours | 10% (10) | 7 | LO # 1- 7 | | **Final Exam** | 2 hours | 50% (50) | 16 | All | | **Total assessment** | | | 100% (100 Marks) |  |  | |
| C- Emotional and value goals  1-  2-  3-  4- |
| Teaching and learning methods |
| D - General and transferable skills ( other skills related to employability and personal development ) .  1- Information Technology  2-Detecting network intrusions  3- Programming |
| 10. Course structure |

Curriculum plan

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|  | Learning method | Unit name/topic | Required learning outcomes | watches | week |
|  | 1. In-person lectures 2. Practical laboratory lectures 3. Reports 4. Seminars 5. rapid tests | Introduction, classifications of cryptography methods and techniques |  |  | the first |
|  | 1. In-person lectures 2. Practical laboratory lectures 3. Reports 4. Seminars 5. rapid tests | Encryption - Transmission Methods - Columns and Double Columns |  |  | the second |
|  | 1. In-person lectures 2. Practical laboratory lectures 3. Reports 4. Seminars 5. rapid tests | Classic substitution methods - addition, multiplication, and combination |  |  | the third |
|  | 1. In-person lectures 2. Practical laboratory lectures 3. Reports 4. Seminars 5. Quick tests, in-person lectures 6. Practical laboratory lectures 7. Reports 8. Seminars 9. rapid tests | Classical Substitution Methods - Vigener's Algorithm |  |  | Fourth |
|  | 1. In-person lectures 2. Practical laboratory lectures 3. Reports 4. Seminars 5. rapid tests | Classical Substitution Methods - Playfair's Algorithm |  |  | Fifth |
|  | 1. In-person lectures 2. Practical laboratory lectures 3. Reports 4. Seminars 5. rapid tests | Cryptography Mathematics |  |  | Sixth |
|  | 1. In-person lectures 2. Practical laboratory lectures 3. Reports 4. Seminars 5. rapid tests | Modern and traditional encryption |  |  | Seventh |
|  | 1. In-person lectures 2. Practical laboratory lectures 3. Reports 4. Seminars 5. rapid tests | Stream encryption algorithms |  |  | The eighth |
|  | 1. In-person lectures 2. Practical laboratory lectures 3. Reports 4. Seminars 5. rapid tests | Stream cipher vs. block cipher |  |  | Ninth |
|  |  | Feedback shift register |  |  | tenth |
|  | 1. In-person lectures 2. Practical laboratory lectures 3. Reports 4. Seminars 5. rapid tests | Some methods of stream encryption algorithms |  |  | eleventh |
|  | 1. In-person lectures 2. Practical laboratory lectures 3. Reports 4. Seminars 5. rapid tests | Simplified RC4 algorithm |  |  | twelfth |
|  | 1. In-person lectures 2. Practical laboratory lectures 3. Reports 4. Seminars 5. rapid tests | Public key encryption and the RSA algorithm |  |  | thirteenth |
|  | 1. In-person lectures 2. Practical laboratory lectures 3. Reports 4. Seminars 5. rapid tests | Public key algorithms and reliability |  |  | fourteenth |
|  | 1. In-person lectures 2. Practical laboratory lectures 3. Reports 4. Seminars 5. rapid tests | Artificial intelligence problems and information security applications |  |  | fifteenth |
|  | lectures + practical lectures | Preparing for end-of-course exams |  |  | sixteenth |

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| 11. Infrastructure | |
| 1- Required textbooks | nothing | |
| 2- Main references (sources) | 1. Applied of cryptography​ 2. Handbook​ of applied of cryptography​   mathematics of cryptography , cryptography and network security | |
| a) Recommended books and references ( scientific journals, reports , etc.) |  | |
| b) References Electronic, websites,..... |  | |

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| 12. Curriculum development plan |
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