جامعــة الزيتونــة الأردنيــة
**Al–Zaytoonah University of Jordan**
كلية العلوم وتكنولوجيا المعلومات
**Faculty of Science and information Technology**

" عراقة وجودة"
"Tradition and Quality"

| Course Plan for Bachelor program - Course Plan Development and Updating Procedures/ Computer Science Department | QF01/0407-3.0E |
|---|---|

| **Course Plan for Computer Science (Bachelor Program) No.: (Academic year)** |
|---|
| **Approved by Deans Council by decision (07/72/2016-2017 ) dated (30/8/2017)** |
| **(133) Credit Hours** |

| No. | Goals and learning outcomes |
|---|---|
| **Goal 1** | Ability to use the principles of computer science in understanding, implantation and analysis of mathematical problems and finding their solutions. |
| ILO 1.1 | Student should understand and analyze mathematical problems |
| ILO 1.2 | Student should be able to use mathematical concepts in algorithm analysis. |
| **GOAL 2** | Ability to analyze, design and implement efficient and reliable computer programs. |
| ILO 2.1 | Student should know different programming methods |
| ILO 2.2 | Student should understand how to build and use computer programs |
| ILO 2.3 | Student should be able to use different programming languages |
| **GOAL 3** | Knowledge on computer hardware and related software |
| ILO 3.1 | Student should know the internal computer organization and its components |
| ILO 3.2 | Student should be able to develop system software |
| ILO 3.3 | Student should be able to design logic circuits |
| **GOAL 4** | Using practical, scientific and communication skills to enhance team spirit help the local community |
| ILO 4.1 | Student should maintain life skills and use it to help the community |
| ILO 4.2 | Student should have self development in continuous education |
| ILO 4.3 | Student should be able to produce and apply computer applications that comply with local market needs. |
| **GOAL5** | **Understanding the technical, ethical, lawful and social responsibilities.** |
| ILO 5.1 | Student should be aware and their rights and duties toward society. |
| **GOAL6** | **Ability to understand the principles of software engineering** |
| ILO 6.1 | Student should be able to gather comprehensive software requirements. |
| ILO 6.2 | Student should be able to analyze software requirements and extract main system components. |
| ILO 6.3 | Student should be able to verify and validate software. |
| **GOAL 7** | **Ability to understand and design computer networks** |
| ILO 7.1 | Student should know the different computer network types. |
| ILO 7.2 | Student should know the stages of network construction |
| ILO 7.3 | Student should understand the basics of network security |

Note: G= Goal, ILO= Intended Learning Outcome
   Assign 3-7 ILOs for each goal

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| Student's information | | Course number | Course title | Credit Hours | Theory Hours | Practical Hours | Prerequisite Co-requisite | Advertisement Plan |
|---|---|---|---|---|---|---|---|---|
| Registered | passed | | | | | | | Semester/year |
| **First: University Requirements (27) Credit Hours** | | | | | | | | |
| **A. Mandatory requirement (15 credit hour)** | | | | | | | | |
| ☐ | ☐ | 0420101 | Military Sciences | 3 | 3 | 0 | | 1/2 |
| ☐ | ☐ | 0420111 | Arabic Language (1) | 3 | 3 | 0 | Remedial Arabic Language | 1/1 |
| ☐ | ☐ | 0420121 | English Language (1) | 3 | 3 | 0 | Remedial English Language | 1/2 |
| ☐ | ☐ | 0420151 | National Education | 3 | 3 | 0 | | 1/1 |
| ☐ | ☐ | 0420171 | Life Skills | 3 | 3 | 0 | | 1/1 |
| **B. Electives (12 credit hours, minimum 3 credits from each field)** | | | | | | | | |
| **Field I. Humanitarian courses** | | | | | | | | |
| ☐ | ☐ | 0420103 | History of Jerusalem | 3 | 3 | 0 | | 1/2 |
| ☐ | ☐ | 0420112 | Islamic Culture | 3 | 3 | 0 | | 2/2 |
| ☐ | ☐ | 0420131 | Principles of Education | 3 | 3 | 0 | | 1/2 |
| ☐ | ☐ | 0420134 | Sport and Health | 3 | 2 | 2 | | 2/2 |
| ☐ | ☐ | 0420142 | Human Civilization | 3 | 3 | 0 | | 1/2 |
| ☐ | ☐ | 0420152 | Introduction to Sociology | 3 | 3 | | | 2/2 |
| ☐ | ☐ | 0501100 | Innovation and Entrepreneurship in Business | 3 | 3 | 0 | | 2/2 |
| ☐ | ☐ | 0601102 | Law in Our Life | 3 | 3 | 0 | | 1/2 |
| **Field II. Scientific course** | | | | | | | | |
| ☐ | ☐ | 0120111 | Information Technology and Society | 3 | 3 | 0 | | 1/2 |
| ☐ | ☐ | 0120153 | Medicinal Plants | 3 | 3 | 0 | | 1/2 |
| ☐ | ☐ | 0301101 | First Aid | 3 | 3 | 0 | | 1/2 |
| ☐ | ☐ | 0301102 | Fundamental of Nutrition | 3 | 3 | 0 | | 2/2 |
| ☐ | ☐ | 0906100 | Principles of Energy Science | 3 | 3 | 0 | | 2/2 |

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### Second: Faculty Requirements (21) credit hours

| Student's information | | Course number | Course title | Credit Hours | Theory Hours | Practical Hours | Prerequisite Co-requisite | Advertisement Plan |
|---|---|---|---|---|---|---|---|---|
| Registered | passed | | | | | | | Semester/year |
| ☐ | ☐ | 0120117 | Introduction to Information Technology | 3 | 3 | 0 | *Remedial computer skills | 1/1 |
| ☐ | ☐ | 0120126 | Principles of Mathematics and Statistics | 3 | 3 | 0 | | 1/1 |
| ☐ | ☐ | 0120110 | Principles of Programming | 3 | 2 | 2 | Introduction to Information Technology | 1/2 |
| ☐ | ☐ | 0120118 | Professional Skills for Scientific Faculties | 3 | 3 | 0 | | 1/2 |
| ☐ | ☐ | 0120261 | Web Design | 3 | 2 | 2 | Principles of Programming | |
| ☐ | ☐ | 0120127 | Linear Algebra | 3 | 3 | 0 | Principles of Calculus and Statistics | 2/1 |
| ☐ | ☐ | 0120128 | Numerical Analysis | 3 | 3 | 0 | Principles of Calculus and Statistics | 3/2 |

### Third: Major requirements (82) credit hours
#### A. Mandatory Major requirements (30) credit hours

| | | Course number | Course title | Credit Hours | Theory Hours | Practical Hours | Prerequisite Co-requisite | Advertisement Plan |
|---|---|---|---|---|---|---|---|---|
| ☐ | ☐ | 0112111 | Discrete Mathematics | 3 | 3 | 0 | Introduction to Information Technology | 1/2 |
| ☐ | ☐ | 0112231 | Digital Logic Design | 3 | 3 | 0 | Discrete Mathematics | 2/1 |
| ☐ | ☐ | 0112221 | Object Oriented Programming | 3 | 2 | 2 | Principles of Programming | 2/1 |
| ☐ | ☐ | 0112212 | Data Structure | 3 | 3 | 0 | Object Oriented Programming | 2/2 |
| ☐ | ☐ | 0112232 | Computer Organization and Design | 3 | 3 | 0 | Digital Logic Design | 2/2 |
| ☐ | ☐ | 0112313 | Algorithms | 3 | 3 | 0 | Data Structure | 3/1 |
| ☐ | ☐ | 0112322 | Visual Programming | 3 | 2 | 2 | Database (1) | 3/1 |
| ☐ | ☐ | 0112323 | Web Applications Programing | 3 | 2 | 2 | Web Design | 3/1 |
| ☐ | ☐ | 0112333 | Operating Systems | 3 | 3 | 0 | Computer Organization and Design | 3/2 |
| ☐ | ☐ | 0112434 | Embedded Systems | 3 | 3 | 0 | Operating Systems | 4/1 |

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|---|---|---|---|---|---|---|---|---|
| **B. Mandatory Minor Requirements (31) Credit Hours** | | | | | | | | |
| ☐ | ☐ | 0112251 | Database (1) | 3 | 2 | 2 | Object Oriented Programming | 2/2 |
| ☐ | ☐ | 0112214 | Computational Theory | 3 | 3 | 0 | Discrete Mathematics | 2/2 |
| ☐ | ☐ | 0112334 | Computer Architecture | 3 | 3 | 0 | Computer Organization and Design | 3/1 |
| ☐ | ☐ | 0112353 | Systems Analysis and Design | 3 | 3 | 0 | Database (1) | 3/2 |
| ☐ | ☐ | 0112342 | Data Communications and Security | 3 | 3 | 0 | Computer Networks | 3/2 |
| ☐ | ☐ | 0112325 | Programming Database Systems | 3 | 2 | 2 | Database (1) | 3/2 |
| ☐ | ☐ | 0112424 | Mobile Applications Programming | 3 | 2 | 2 | Visual Programming | 4/1 |
| ☐ | ☐ | 0112433 | Special Programming Language | 3 | 2 | 2 | Visual Programming | 4/2 |
| ☐ | ☐ | 0112471 | Preparing and Documenting Computerized Projects | 1 | 0 | 2 | Department Approval | 4/1 |
| ☐ | ☐ | 0112415 | Artificial Intelligence | 3 | 3 | 0 | Algorithms | 4/2 |
| ☐ | ☐ | 0112472 | Project | 3 | 3 | 0 | Department Approval | 4/2 |
| **C. Major supporting requirements (12) credit hours** | | | | | | | | |
| ☐ | ☐ | 0114251 | Software Engineering Principles | 3 | 3 | 0 | Introduction to Information Technology | 2/1 |
| ☐ | ☐ | 0122141 | Computer Networks | 3 | 3 | 0 | Introduction to Information Technology | 2/2 |
| ☐ | ☐ | 0113353 | Information Security | 3 | 3 | 0 | Algorithms | 3/2 |
| ☐ | ☐ | 0122343 | Networks Programming | 3 | 2 | 2 | Visual Programming | 4/1 |
| **D. Major electives (9) credit hours** | | | | | | | | |
| ☐ | ☐ | 0112384 | Multimedia Tools | 3 | 2 | 2 | Object Oriented Programming | 3/2 |
| ☐ | ☐ | 0112462 | Computer Graphics | 3 | 2 | 2 | Linear Algebra | 3/2 |
| ☐ | ☐ | 0112352 | Database (2) | 3 | 2 | 2 | Database (1) | 3/2 |
| ☐ | ☐ | 0112461 | Image Processing | 3 | 2 | 2 | Linear Algebra | 4/1 |
| ☐ | ☐ | 0112456 | Information Systems Development | 3 | 2 | 2 | Systems Analysis and Design | 4/1 |
| ☐ | ☐ | 0112482 | Special Topics in CS (1) | 3 | 2 | 2 | Department Approval | 4/1 |
| ☐ | ☐ | 0112435 | Internet of Things | 3 | 3 | 0 | Data Communications and | 4/2 |

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| | | | | | | | Security + Visual Programming | |
|---|---|---|---|---|---|---|---|---|
| ☐ | ☐ | 0112483 | Special Topics in CS (2) | 3 | 2 | 2 | Department Approval | 4/2 |
| ☐ | ☐ | 0112430 | Operational Research | 3 | 3 | 0 | Linear Algebra | 4/2 |

**Fourth: free electives (3) Credit Hours**
(Student may choose any course from any course plan at the university unless the student had passed it previously)

❖  Co-requisite

**Courses Given to Other Majors)**

| Course number | Course title | Credit hours | Type of requirement (University Requirements, Faculty Requirements, Supporting Requirements) |
|---|---|---|---|
| 0112231 | Digital Logic Design | 3 | Supporting Requirements for Computer Information Technology/Computer Information Technology |
| 0112333 | Operating Systems | 3 | Supporting Requirements for Software Engineering/Software Engineering |
| 0112251 | Database (1) | 3 | Supporting Requirements for Computer Science/Computer Networks & Computer Science/ Multimedia Systems |
| 0112111 | Discrete Mathematics | 3 | Mandatory Major Requirements for Computer Science Family. |
| 0112231 | Digital Logic Design | 3 | |
| 0112221 | Object Oriented Programming | 3 | |
| 0112212 | Data Structure | 3 | |
| 0112232 | Computer Organization and Design | 3 | |
| 0112313 | Algorithms | 3 | |
| 0112322 | Visual Programming | 3 | |
| 0112323 | Web Applications Programing | 3 | |
| 0112333 | Operating Systems | 3 | |
| 0112434 | Embedded Systems | 3 | |