# College of Arts and Science

## Bachelor in Computer Science

## Study Plan 2022-2023

| Programme Study Plan | | | | | | | | |
|------|---------------|--------------|--------------|-----|-----|--------------|--------------|-------------|
| No. | Course Code | Course Title | Prerequisite | Lec | Lab | ASU Credit | NQF Credit | NQF Level |
| Year 1 – First Semester (15 Cr) | | | | | | | | |
| 1 | ENG 111 | Upper-Intermediate English | Oxford test score > 50 /ENG 098 | 3 | 0 | 3 | 12 | 5 |
| 2 | CS 104 | Computer Skills | - | 2 | 2 | 3 | 12 | 5 |
| 3 | CSC 101 | Mathematics 1 | - | 2 | 2 | 3 | 12 | 6 |
| 4 | CSC 111 | Structured Programming | - | 2 | 2 | 3 | 12 | 6 |
| 5 | CSC 103 | Probability and Statistics | - | 2 | 2 | 3 | 12 | 6 |
| Year 1 – Second Semester (18 Cr) | | | | | | | | |
| 1 | ENG 112 | Advanced English | ENG 111 | 3 | 0 | 3 | 12 | 5 |
| 2 | - | University Elective (Group 1) | - | 3 | 0 | 3 | 12 | 5 |
| 3 | HR 106 | Human Rights | - | 3 | 0 | 3 | 12 | 5 |
| 4 | CSC 102 | Discrete Mathematics | - | 2 | 2 | 3 | 12 | 6 |
| 5 | CSC 141 | Communication Skills | - | 3 | 0 | 3 | 12 | 6 |
| 6 | CSC 142 | Computer Ethics and Social Responsibility | ENG111 | 3 | 0 | 3 | 12 | 6 |
| Year 2 – First Semester (18 Cr) | | | | | | | | |
| 1 | - | University Elective (Group 2) | - | 3 | 0 | 3 | 12 | 6 |
| 2 | ARB 101 | Arabic Language | - | 3 | 0 | 3 | 12 | 6 |
| 3 | CSC 202 | Digital Logic | CSC 102 | 2 | 2 | 3 | 12 | 6 |
| 4 | CSC 203 | Mathematics 2 | CSC 101 | 2 | 2 | 3 | 12 | 6 |
| 5 | CSC 212 | Object-Oriented Programming I | CSC 111 | 2 | 2 | 3 | 12 | 6 |
| 6 | CSC 222 | Software Engineering I | CSC 141 | 2 | 2 | 3 | 12 | 6 |
| Year 2 – Second Semester (18 Cr) | | | | | | | | |

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| 1 | HBH 105 | Bahrain Civilization and History | - | 3 | 0 | 3 | 12 | 6 |
| 2 | CSC 215 | Data Structures | CSC 212 | 2 | 2 | 3 | 12 | 7 |
| 3 | CSC 221 | Database Systems | CSC 212 | 2 | 2 | 3 | 12 | 6 |
| 4 | CSC 231 | Computer Organization and Architecture | CSC 202 | 2 | 2 | 3 | 12 | 7 |
| 5 | CSC 241 | Scientific Research Methods | CSC 103 | 3 | 0 | 3 | 12 | 7 |
| 6 | CSC 322 | Web Based Software Development I | CSC 222 | 2 | 2 | 3 | 12 | 7 |
| Year 3 – First Semester (18 Cr) | | | | | | | | |
| 1 | CSC 304 | Artificial Intelligence | CSC 212 | 2 | 2 | 3 | 12 | 7 |
| 2 | CSC 314 | Object Oriented Programming II | CSC 212 | 2 | 2 | 3 | 12 | 7 |
| 3 | CSC 321 | Systems Analysis and Design | CSC 221 | 2 | 2 | 3 | 12 | 7 |
| 4 | CSC 325 | Database Development | CSC 221 | 2 | 2 | 3 | 12 | 7 |
| 5 | CSC 331 | Operating Systems | CSC 231 | 3 | 0 | 3 | 12 | 7 |
| 6 | - | Programme Elective (Group 1) | - | | | 3 | 12 | 7 |
| Year 3 – Second Semester (18 Cr) | | | | | | | | |
| 1 | BA 161 | Introduction to Entrepreneurship | - | 3 | 0 | 3 | 12 | 6 |
| 2 | CSC 301 | Numerical Analysis | CSC 203 | 2 | 2 | 3 | 12 | 7 |
| 3 | CSC 302 | Computational Theory | CSC 102 & CSC 215 | 3 | 0 | 3 | 12 | 7 |
| 4 | CSC 323 | Visual Programming | CSC 314&CSC 221 | 2 | 2 | 3 | 12 | 8 |
| 5 | CSC 332 | Data Communication and Computer Networks | CSC 331 | 2 | 2 | 3 | 12 | 8 |
| 6 | - | Programme Elective (Group 1) | - | | | 3 | 12 | 7 |
| Year 4 – First Semester (15 Cr) | | | | | | | | |
| 1 | CSC 401 | Algorithms Design & Analysis | CSC 102 & CSC 215 | 3 | 0 | 3 | 12 | 8 |
| 2 | CSC 402 | Compilers Design | CSC 302 | 3 | 0 | 3 | 12 | 8 |
| 3 | CSC 425 | Graduation Project 1 | CSC 241&90 Hrs | 3 | 0 | 3 | 12 | 8 |
| 4 | CSC 441 | Internship | CSC 321&90 Hrs | 3 | 0 | 3 | 20 | 8 |
| 5 | - | Programme Elective (Group 2) | - | | | 3 | 12 | 8 |
| Year 4 – Second Semester (15 Cr) | | | | | | | | |
| 1 | CSC 426 | Graduation Project 2 | CSC 425 | 3 | 0 | 3 | 12 | 8 |

| 2 | CSC 435 | Ciphering and Computer Security | CSC 332 | 3 | 0 | 3 | 12 | 8 |
| 3 | CSC 436 | Mobile Computing | CSC 332 | 3 | 0 | 3 | 12 | 8 |
| 4 | - | Programme Elective (Group 2) | - | | | 3 | 12 | 8 |
| 5 | - | Programme Elective (Group 2) | - | | | 3 | 12 | 8 |

## University Elective Courses

| University Elective Courses (6 Cr) | | | | | | |
|---|---|---|---|---|---|---|
| No. | Course Code | Course Title | Prerequisite | ASU Credit | NQF Credit | NQF Level |
| Group 1 (3 Cr) | | | | | | |
| 1 | ISL101 | Islamic Culture | - | 3 | 12 | 6 |
| 2 | ISL102 | Islamic Ethics | - | 3 | 12 | 6 |
| 3 | ISL103 | Islam & Contemporary Issues | - | 3 | 12 | 6 |
| Group 2 (3 Cr) | | | | | | |
| 1 | LIB101 | Introduction to Library Science | - | 3 | 12 | 5 |
| 2 | MAN101 | Man and Environment | - | 3 | 12 | 5 |
| 3 | SOC101 | Introduction to Sociology | - | 3 | 12 | 5 |
| 4 | SPT101 | Special Topics | - | 3 | 12 | 5 |
| 5 | CS205 | Computer Applications | CS104 | 3 | 12 | 5 |
| 6 | LFS102 | Thinking and communications skills development | - | 3 | 12 | 5 |

## Programme Elective Courses

| Programme Elective Courses (15 Cr) | | | | | | | |
|---|---|---|---|---|---|---|---|
| No. | Course Code | Course Title | Prerequisite | Lec | Lab | ASU Credit | NQF Credit | NQF Level |
| Group 1 (6 Cr) | | | | | | | |
| 1 | CSC 204 | Linear Algebra | CSC 203 | 2 | 2 | 3 | 12 | 7 |
| 2 | CSC 305 | Operations Research | CSC 103 | 3 | 0 | 3 | 12 | 7 |
| 3 | CSC 326 | Mobile Application Development | CSC 322&CSC 221 | 2 | 2 | 3 | 12 | 7 |
| 4 | CSC 327 | Web Based Software Development II | CSC 322&CSC 221 | 2 | 2 | 3 | 12 | 7 |

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|---|---|---|---|---|---|---|---|---|
| 5 | CSC 328 | Human computer interaction | CSC 222 | 3 | 0 | 3 | 12 | 7 |
| 6 | CSC 329 | Multimedia Systems | CSC 322 | 2 | 2 | 3 | 12 | 7 |
| 7 | CSC 421 | Software Engineering II | CSC 222 | 2 | 2 | 3 | 12 | 7 |
| Group 2 (9 Cr) | | | | | | | | |
| 1 | CSC 312 | Programming Languages Concepts | CSC 314 | 3 | 0 | 3 | 12 | 8 |
| 2 | CSC 315 | Data Mining | CSC 304 | 2 | 2 | 3 | 12 | 8 |
| 3 | CSC 343 | Special Topics in Computer Science | DEPT. APPROVAL | 3 | 0 | 3 | 12 | 8 |
| 4 | CSC 403 | Image Processing | CSC 401 | 2 | 2 | 3 | 12 | 8 |
| 5 | CSC 411 | Computer Graphics | CSC 401 | 2 | 2 | 3 | 12 | 8 |
| 6 | CSC 437 | Cloud computing | CSC 332 | 2 | 2 | 3 | 12 | 8 |
| 7 | CSC 438 | Parallel and Distributed Computing | CSC 332 | 2 | 2 | 3 | 12 | 8 |