## Computer Science Curriculum

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| Year; Semester | Course(Department, Number, Title)List all courses in the program by term starting with the first term of the first year and ending with the last term of the final year | Indicate Whether Course is Required, Elective or a Selected Elective by an R, an E or an SE.  | Subject Area (**ECTS** Credit) | Last Two Terms the Course was Offered; Year and, Semester, or Quarter | Maximum Section Enrollment for the Last Two Terms the Course was Offered |
| Math & Basic Science | Computing Topics Check if Contains Significant Design () | General Education | Other |
| 1;1 | MATH101 - Calculus I | R | 5 |   |   |   |  |  |
|   | COSC101-Programming Basics | R |  | 5() |  |   |  |  |
|   | COSC102-Introduction to Algorithms | R |   | 5() |   |   |  |  |
|  | GE1 - Academic ICT skills  | R |  |  | 5 |  |  |  |
|  | SC1 – Sciences Elective | SE | 5 |  |  |  |  |  |
|   | SC1 – Sciences Elective | SE | 5 |   |  |   |  |  |
| 1;2 | COSC103-Data Structures | R |  | 5() |  |  |  |  |
|   | COSC104-Algorithm Design | R |  | 5() |  |  |  |  |
|   | COSC105-Object Oriented Programming 1 (C++) | R |  | 5 () |  |  |  |  |
|    | MATH102 - Calculus 2 | R | 5 |  |  |  |  |  |
| SC(lab)1 Natural Sciences Labs with coursework[[1]](#footnote-1)  | SE | 5 | () |  |  |  |  |
| GE2 - Foreign Language 1 | SE |  |   | 5 |  |  |  |
| 2;1 | COSC201-Object Oriented Programming 2 (C#, Java or VBA) | R |   | 5 () |   |   |  |  |
|    | COSC202-Algorithmic Optimization | R |   | 5() |  |   |  |  |
| MATH201 - Discrete Mathematics | R | 5 |   |   |   |  |  |
| GE3 - Foreign Language 1 | SE |  |   | 5 |  |  | English for ICT |
| GE/NoTech1 – Nontechnical or Minor [[2]](#footnote-2) | E   |  |   | 5 |  |  |  |
| SC(lab)1 Natural Sciences Labs with coursework | SE | 5 | () |  |  |  |  |
|  | COSC203-Databases | R |   | 5 () |  |  |  |  |
|  2;2  | COSC204-Computer Architecture | R |   | 5 () |  |  |  |  |
| MATH202 - Linear Algebra | R | 5 |  |  |  |  |  |
| COSC-el1- Elective[[3]](#footnote-3) | SE |   | 5 () |  |  |  |  |
|   | GE/NoTech1 | SE |  |  | 5 |  |  |  |
|  | GE4 - English for ICT | R |  |  | 5 |  |  |  |
|   |
| 3;1 | COSC301 - Data Analysis and Statistics  | R |   | 5 () |  |  |  |  |
|   | COSC302 - Operations Research | R |  | 5  () |  |  |  |  |
|   | COSC303 – Operation Systems | R |   | 5 () |  |  |  |  |
|   | COSC-el2- Elective | E |  | 5() |  |  |  |  |
|   | MATH-el1 | SE | 5 |  |  |  |  |  |
|   | GE/NoTech3 | SE  |   |   | 5 |  |  |  |
| 3;2 | COSC304-Modeling and Simulation | R |   | 5  () |  |  |  |  |
|   | COSC305-Web Technology | R |   | 5  () |  |  |  |  |
|   | GE5 Computer Law & Ethics | R |   |  |  | 5   |  |  |
|   | COSC-el3 | SE |   | 5 () |  |  |  |  |
|  | MATH-el2 | SE | 5 |  |  |  |  |  |
|   | GE/NoTech4 | SE |   |   | 5 |  |  |  |
| 4;1 | COSC401-Software Engenering  | R |   | 5   () |  |  |  |  |
|  | COSC402-Intelligent Systems | R |   | 5   () |  |  |  |  |
|   | COSC-el4 | SE |   | 5  () |  |  |  |  |
|  | GE/NoTech5 | E |  |  | 5 |  |  |  |
|  | GE/NoTech6 | E |  |  | 5 |  |  |  |
|  | GE-el1 | SE |   |   | 5 |  |  |  |
| 4;2  | COSC403- Final Project  | R |  | 10 () |  |  |  |  |
| COSC-el5- Elective | SE |   | 5 () |  |  |  |  |
|  | GE/NoTech7 | E |  |  | 5 |  |  |  |
|  | GE/NoTech8 | E |  |  | 5 |  |  |  |
|   | GE-el2 | E  |   |   | 5 |  |  |  |
| TOTALS-ABET BASIC-LEVEL REQUIREMENTS | 50 | 115 | 70 | 5 |  |  |
| OVERALL TOTAL CREDIT HOURS FOR COMPLETION OF THE PROGRAM = 240 **ECTS** | 20% | 48% | 29% | 3% |   |   |
| Must satisfy one set | Minimum semester credit hours |  |  |   |   |   |   |
| Minimum percentage |  |  |   |   |   |   |
|  |  |  |  |  |   |   |   |   |
| 1. | **Required** courses are required of all students in the program, **elective** courses (often referred to as open or free electives) are optional for students, and selected elective courses are those for which students must take one or more courses from a specified group. |

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| **Science Core (**SC- SC(lab)) |
|  |  |  |  |  |  |
| SC- | Introduction to Physics |  |  |  |  |
| SC- | Introduction to Chemistry |  |  |  |  |
| SC- | Introduction to Biology |  |  |  |  |
| SC- | Introduction to Geography |  |  |  |  |
| SC- | Introduction to Geology |  |  |  |  |
| SC- | Introduction to Electronics |  |  |  |  |
|  |  |  |  |  |  |
| SC(lab) | Physics Lab Coursework |  |  |  |  |
| SC(lab) | Chemistry Lab Coursework |  |  |  |  |
| SC(lab) | Biology Lab Coursework |  |  |  |  |
| SC(lab) | Geography Lab Coursework |  |  |  |  |
| SC(lab) | Geology Lab Coursework |  |  |  |  |
| SC(lab) | Electronics Lab Coursework |  |  |  |  |

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| **General Education Module (**GE-el)  |
|  |  |  |  |  |  |
| GE-el | Business and Economics Courses |  |  |  |  |
| GE-el | Social Sciences Courses |  |  |  |  |
| GE-el | Psychology and Educational Sciences Courses  |  |  |  |  |

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| **Mathematic Core (**MATH-el) |
|  |  |  |  |  |  |
| MATH-el | Math Bachelor Courses |  |  |  |  |
| MATH-el |  |  |  |  |  |
| MATH-el |  |  |  |  |  |

Explanations:

1. The current program has been developed according to the official ABET recommendations ( [http://www.abet.org/accreditation/accreditation-criteria/criteria-for-accrediting-computing-programs-2017-2018/#curriculum](http://www.abet.org/accreditation/accreditation-criteria/criteria-for-accrediting-computing-programs-2017-2018/%22%20%5Cl%20%22curriculum%22%20%5Ct%20%22_blank)):

**„ a. Computer science: At least one and one-third academic years...“**

**„b. Mathematics: At least one-half academic year of college-level mathematics ...“**

**„c. Science: Natural science course work ...“**

1. The recommendations of visiting ABET experts were considered according to the official A4 TSU CS report document. Citation:

„**Recommendation:**

**9. The program should require 10-20 ECTS of nontechnical courses that increase**

**student understanding and appreciation of global, societal, ethical, and professional**

**issues related to computing”**

1. SC- SC(lab) modules are introductory Natural Science courses with Lab;
2. GE-el modules are courses from other faculties;
3. GE/NoTech modules are courses from other faculties or minor program;
4. MATH-el modules are Math courses .

1. see list of HUMA elective courses below [↑](#footnote-ref-1)
2. see list of Social Science Elective courses below [↑](#footnote-ref-2)
3. see list of elective courses below [↑](#footnote-ref-3)