## 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/" \l "curriculum" \t "_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)