



Computer Science, Physics and Engineering

Course Syllabus

Introduction to Computing and Programming Concepts

Course ID: CSc 132

Course Catalog Description: This course is an overview of computer concepts, including hardware, operating systems, binary numbers, and programming logic. This course is offered for STEM majors. Non-STEM majors should enroll in CSc 131.

Student Learning Outcomes:

At the completion of this course the students will be able to:

- (CL1) Navigate the learning management system (E360 – profile, dropboxing, format of submission, syllabus).
- (CS 1) Demonstrate basic use of application software (word processing, spreadsheets, presentations)
- (CS 1) Demonstrate basic use of system software (windows explorer, system maintenance tools)
- (CS 2) Demonstrate proficiency in identifying the function of hardware components (CPU, memory, peripherals)
- (CS 3) Demonstrate proficiency in solving Boolean logic (and, or, not, xor truth tables)
- (CS 4) Demonstrate proficiency developing flow charts for control structures (blocks, symbols, I/O, decisions, loops, arithmetic and logic expressions)

Metric Prefixes		
Tera	10^{12}	T
Giga	10^9	G
Mega	10^6	M
Kilo	10^3	k
Hecto	10^2	h
Deca	10^1	da
Deci	10^{-1}	d
Centi	10^{-2}	c
Milli	10^{-3}	m
Micro	10^{-6}	μ
Nano	10^{-9}	n
Pico	10^{-12}	p

1. Quarter 1 – Building Essential Skills and Software (4 weeks)

Week 1:

- 1.1. Algorithmic Thinking – Brain Teasers, Games
- 1.2. Essential Skills for success – E360 and other resources

Week 2:

- 1.3. Software
 - 1.3.1. System Software
 - Operating Systems, File Management

Week 3:

- 1.3.2. Application Software
 - Word editors, spreadsheets, presentation software

Week 4:

- 1.4. Hardware

2. Quarter 2 ---- Boolean Logic and Introduction to Algorithms (4 weeks)

Weeks 5, 6:

- 2.1. Boolean Logic
 - Boolean operators

- Boolean expressions
 - Truth Tables

Weeks 7, 8:

- 2.2. Introduction to Algorithms - Flow Charts (basic symbols and conventions)
 - Simple Algorithms and Selection Algorithms

3. Quarter 3 --- Linear Programming (4 weeks)

Week 9-12

- Algorithms with Repetition
- Controlled Loops

4. Quarter 4 --- Modular Programming (4 weeks)

Week 13-16

- Searching and Sorting Algorithms
- Working with sub-routines/functions in Flowgorithm