



East West University
Department of Computer Science and Engineering
Course Outline
Spring 2020 Semester

Course: CSE103 Structured Programming

Course Site: <https://yeasirrayhanprince.github.io/teaching/cse103-spring-2020>

Credits and Teaching Scheme

| | Theory | Laboratory | Total |
|---------------|---|---------------------------|---|
| Credits | 3 | 1.5 | 4.5 |
| Contact Hours | 3 Hours/Week for 13 Weeks + Final Exam in the 14 th Week | 3 Hours/Week for 13 Weeks | 6 Hours/Week for 13 Weeks + Final Exam in the 14 th Week |

Prerequisite

None

Instructor Information

Instructor: Yeasir Rayhan
Lecturer, Department of Computer Science and Engineering
Office: Room: AB2: 201
Tel. No.: 09666775577 (hunting) ext. 519
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Contact: 01793167491

Class Routine and Office Hour

| Day | 08:30-10:00 | 10:10-11:40 | 11:50-01:20 | 01:30-03:00 | 03:10-04:40 |
|-----------|------------------------|-------------------|-------------|----------------------|-----------------------|
| Sunday | CSE103(10) AB2 205 | CSE103(10) 637 | | CSE106(3) AB2 403 | Office Hour |
| Monday | CSE106(1) AB2 503 | CSE103(12) 630 | | | |
| Tuesday | | | Office Hour | Office Hour | CSE103(12) AB1 601 |
| Wednesday | CSE106(1) AB2 503 | Office Hour | | | |
| Thursday | CSE 103(10) AB2 205 | Office Hour | Office Hour | CSE106(3) AB2 504 | CSE103(12) AB1 601 |

Course Objective

The purpose of this course is to introduce the students to computer programming using structured language. The students will be able to enhance their analyzing and problem-solving skills and use the same for writing programs using C language. Knowledge of this course will be needed as prerequisite knowledge for future courses such as CSE106 Discrete Mathematics, CSE110 Object

Oriented Programming, CSE207 Data Structures, CSE246 Algorithms, CSE302 Database Systems, CSE366 Artificial Intelligence, CSE405 Computer Networks and many others.

Knowledge Profile

K2: Conceptually-based mathematics, numerical analysis, statistics, and formal aspects of computer and information science

Learning Domains

Cognitive - C2: Understanding, C3: Applying

Psychomotor - P2: Manipulation, P3: Precision

Affective - A2: Responding

Program Outcomes (POs)

PO1: Engineering Knowledge

Complex Engineering Problem Solution

None

Complex Engineering Activities

EP1: Depth of knowledge required

EP2: Range of conflicting requirements

Course Outcomes (COs) with Mappings

After completion of this course students will be able to:

| CO | CO Description | PO | Learning Domains | Knowledge Profile | Complex Engineering Problem Solving/ Engineering Activities |
|-----|--|-----|------------------|-------------------|---|
| CO1 | Understand and apply the fundamentals of programming, basics of elementary programming, and different control statements for implementing structured programs. | PO1 | C2, C3 | K2 | |
| CO2 | Understand and apply the different types of arrays and functions for implementing structured programs. | PO1 | C2, C3 | K2 | |
| CO3 | Use different data structures like pointers, structures, unions, user defined data types, and dynamic memory for implementing structured programs. | PO1 | C3 | K2 | |

| | | | | | |
|-----|--|-----|------------------------|----|--|
| CO4 | Use and apply appropriate language constructs and data structures; perform and demonstrate skills; and write report for developing programs for solving complex problems. | PO1 | C2, C3 P2, P3 A2 | K2 | |
|-----|--|-----|------------------------|----|--|

Course Topics, Teaching-Learning Method, and Assessment Scheme

| Course Topic | Teaching-Learning Method | CO | Mark of Cognitive Learning Levels | | CO Mark | Exam (Mark) |
|---|--|-----|-----------------------------------|-----|---------|-----------------------------|
| | | | C2 | C3 | | |
| Introduction to computers and programming languages, data representation in computer, flowchart construction for problem solving | Lectures, Class Discussions, Discussions Outside Class | CO1 | 2.5 | | 2.5 | Midterm Exam I (15) |
| Introduction to C Programming (input, output, variables, data types, operators, expressions, assignments) | Do | CO1 | 2.5 | | 2.5 | |
| Conditional control statements (if, if-else, nested if-else, switch) | Do | CO1 | 2.5 | 2.5 | 5.0 | |
| Loop statement (while, for and do...while), break and continue statements | Do | CO1 | 2.5 | 2.5 | 5.0 | |
| Introduction to arrays (arrays, declaring arrays, manipulating arrays) | Do | CO2 | 3.0 | 4.0 | 7.0 | Midterm Exam II (20) |
| Nested loop statement | Do | CO1 | 2.5 | 3.5 | 6.0 | |
| Multidimensional array | Do | CO2 | 3.5 | 3.5 | 7.0 | |
| Characters and strings (various types of string manipulation) | Do | CO2 | 2.5 | 3.5 | 5.0 | Final (20) |
| Introduction to functions (function definitions, function prototypes and argument, header files). Solving complex problems in modular fashion using user defined function | Do | CO2 | | 2.5 | 2.5 | |

| Course Topic | Teaching-Learning Method | CO | Mark of Cognitive Learning Levels | | CO Mark | Exam (Mark) |
|---|--------------------------|-----|-----------------------------------|-----|---------|-------------|
| | | | C2 | C3 | | |
| Introduction to recursive definition and solving problem using recursive function | Do | CO2 | | 2.5 | 2.5 | |
| Pointers (pointer variable declarations, pointer operators, passing arguments to functions by reference with pointers, pointer expressions and pointer arithmetic, arrays of pointers, and function pointers) | Do | CO3 | | 2.5 | 2.5 | |
| Structures (structure definitions and initialization, accessing structure members, structure with function and pointer) | Do | CO3 | | 2.5 | 2.5 | |
| File management (files and streams, creating a file, reading data from file, writing data to file, and updating files) | Do | CO3 | | 2.5 | 2.5 | |
| Dynamic memory allocation and linked lists | Do | CO3 | | 2.5 | 2.5 | |

Laboratory Experiments and Assessment Scheme

| Experiment | Teaching-Learning Method | CO | Mark of Cognitive Learning Levels | | Mark of Psychomotor Learning Levels | | Mark of Affective Learning Levels | CO Mark |
|---|--|-----|-----------------------------------|----|-------------------------------------|-----|-----------------------------------|---------|
| | | | C2 | C3 | P2 | P3 | | |
| Problem solving using arithmetic operators and conditional control statements | Discussion, Report Writing, Coding and Running Program | CO4 | 0.5 | | 0.5 | 0.5 | 0.5 | 2 |
| Problem solving using loops | Do | CO4 | 0.5 | | 0.5 | 0.5 | 0.5 | 2 |

| | | | | | | | | |
|---|---------------------|-----|------------|------------|------------|------------|------------|-----------|
| Problem solving requiring array manipulation | Do | CO4 | 0.5 | | 0.5 | 0.5 | 0.5 | 2 |
| Problem solving requiring nested loop | Do | CO4 | | 0.5 | 0.5 | 0.5 | 0.5 | 2 |
| Lab Exam | Individual Lab Exam | CO4 | | 1.5 | 0.5 | 0.5 | 0.5 | 3 |
| Problem solving requiring multi-dimensional array | Do | CO4 | | 0.5 | 0.5 | 0.5 | 0.5 | 2 |
| Problem solving requiring user defined function and string manipulation | Do | CO4 | | 0.5 | 0.5 | 0.5 | 0.5 | 2 |
| Problem solving involving file input/output | Do | CO4 | | 0.5 | 0.5 | 0.5 | 0.5 | 2 |
| Problem solving requiring user defined data types | Do | CO4 | | 0.5 | 0.5 | 0.5 | 0.5 | 2 |
| Lab Exam | Individual Lab Exam | CO4 | | 1.5 | 0.5 | 0.5 | 0.5 | 3 |
| Total | | | 1.5 | 5.5 | 5.0 | 5.0 | 5.0 | 22 |

Teaching Materials/Equipment

Text book:

Follow course site

Mini Projects:

Mini Project description will be provided later.

Grading System

| Marks (%) | Letter Grade | Grade Point | Marks (%) | Letter Grade | Grade Point |
|-----------|--------------|-------------|-----------|--------------|-------------|
| 97-100 | A+ | 4.00 | 73-76 | C+ | 2.30 |
| 90-96 | A | 4.00 | 70-72 | C | 2.00 |
| 87-89 | A- | 3.70 | 67-69 | C- | 1.70 |
| 83-86 | B+ | 3.30 | 63-66 | D+ | 1.30 |
| 80-82 | B | 3.00 | 60-62 | D | 1.00 |
| 77-79 | B- | 2.70 | Below 60 | F | 0.00 |

Exam Dates

| Section | Term I | Term II | Final |
|---------|-------------|----------|----------|
| 10 | 6 February | 12 March | 16 April |
| 12 | 11 February | 10 March | 19 April |

Academic Code of Conduct

Academic Integrity:

Any form of cheating, plagiarism, personification, falsification of a document as well as any other form of dishonest behavior related to obtaining academic gain or the avoidance of evaluative exercises committed by a student is an academic offence under the Academic Code of Conduct and **may lead to severe penalties as decided by the Disciplinary Committee of the university.**

Special Instructions:

- Students are expected to attend all classes and examinations. A student **MUST** have at least 80% class attendance to sit for the final exam.
- Students will not be allowed to enter into the classroom after 20 minutes of the starting time.
- For plagiarism, the grade will automatically become zero for that exam/assignment.
- Normally there will be **NO make-up exam**. However, in case of **severe illness, death of any family member, any family emergency, or any humanitarian ground**, if a student miss any exam, the student **MUST** get approval of makeup exam by written application to the Chairperson through the Course Instructor **within 48 hours** of the exam time. Proper supporting documents in favor of the reason of missing the exam have to be presented with the application.
- For **final exam**, there will be **NO** makeup exam. However, in case of **severe illness, death of any family member, any family emergency, or any humanitarian ground**, if a student miss the final exam, the student **MUST** get approval of **Incomplete Grade** by written application to the Chairperson through the Course Instructor **within 48 hours** of the final exam time. Proper supporting documents in favor of the reason of missing the final exam have to be presented with the application. **It is the responsibility of the student to arrange an Incomplete Exam within the deadline mentioned in the Academic Calendar in consultation with the Course Instructor.**
- All mobile phones **MUST** be turned to silent mode during class and exam period.
- There is **zero tolerance for cheating** in exam. Students caught with cheat sheets in their possession, whether used or not; writing on the palm of hand, back of calculators, chairs or nearby walls; copying from cheat sheets or other cheat sources; copying from other examinee,

etc. would be treated as cheating in the exam hall. The only penalty for cheating is **expulsion for several semesters as decided by the Disciplinary Committee of the university.**