



Module Title Computer Programming	Module Code MSDE 223	Semester (Sem 1 / Sem 2) Sem 1
Credits 10	Level 4	Professor and email Dongha SHIM dongha@seoultech.ac.kr
Delivery Method Lecture	Delivery Location SeoulTech, Mugung Hall	

Module Synopsis

This module aims to provide the student with the ability to develop a C program from a given specification. This is achieved through the use of structured program development and C programming methodology.

The student will learn how to produce a program in C and how to write C programs to perform a number of Engineering tasks and to solve specific engineering problems. Learning takes place through theory and examples taught during the class, together with supervised practical application of programs in the class.

Assessment constitutes a final examination. A set of workshops is used during class time to reinforce the lecture material.

Outline Syllabus

Introduction to computer systems: including the concept of a program as a binary file, as an assembly file, and as a high level program, showing the increasing levels of abstraction.

Flow diagrams: converting a specification into a structured sequence of program instructions.

Standard constructs: if-then-else, while-do, do-while, loop, switch-case and structures) with examples of each.

Data types: different types and the correct use of these data types in program development. Including arrays and strings.

Functions: parameter passing, returning data values, passing by reference. The use of pre-declared functions, and user defined functions. The purpose and use of prototypes.

Pointers: pointer variables, pointer operators, passing pointers as parameters, casts.

Structures: defining and using.



Problem solving: writing C programs to solve given problems, for example, to create a data base or to solve engineering problems. program debugging

Indicative Reading

- 1) S. Kochan, Programming in C, 3rd Ed., Sams Publishing, 2004, ISBN 0672326663.
- 2) B. W. Kernighan and D. M. Ritchie, The C Programming Language, 2nd Ed., Prentice Hall, 1998, ISBN 0131103628.
- 3) G. Perry and D. Miller, C Programming Absolute Beginner's Guide, 3rd Ed., Que Publishing, 2013, ISBN 0789751984.
- 4) M. McGarth, C Programming in easy steps, 3rd Ed., Pub. Computer Step, 2008, ISBN 1840783636.

NOTIONAL STUDENT WORKLOAD	Hours
MODE OF DELIVERY (FT / PT / DL)	FT
Lectures	40
Seminars	
Tutorials	
Laboratories/studios/practical	20
Directed learning	
Independent Learning	40
Work experience/fieldwork	
Other: eg formal presentation	0
Total Workload 100 hours for a 10 credit module 200 hours for a 20 credit module	100

Module Learning Outcomes

KU1,2	KU1. Demonstrate basic knowledge of the scientific and mathematical foundations of engineering to solve basic problems. KU2. Perform simple analysis of familiar engineering systems.
PVA2	PAV2. Demonstrate creativity in discussing solutions to standard problems.



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MSDE Module Descriptor

Assessments	Assessment Type	Weighting %	Midterm/interim/final
Coursework			
Project			
Quiz			
Test			
Laboratory			
Exam	Final formal examination	100	Final
Presentation			