



Module Specification

C Programming

Version: 2023-24, v3.0, 13 Mar 2023

Contents

Module Specification	1
Part 1: Information	2
Part 2: Description	2
Part 3: Teaching and learning methods	3
Part 4: Assessment.....	4
Part 5: Contributes towards	6

Part 1: Information

Module title: C Programming

Module code: UFMFN7-15-1

Level: Level 4

For implementation from: 2023-24

UWE credit rating: 15

ECTS credit rating: 7.5

Faculty: Faculty of Environment & Technology

Department: FET Dept of Engineering Design & Mathematics

Partner institutions: None

Field: Engineering, Design and Mathematics

Module type: Module

Pre-requisites: None

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: Not applicable

Features: Not applicable

Educational aims: See Learning Outcomes

Outline syllabus: Programming language principles

Sequence, selection, iteration

Data structures, pointers

Data-types, data manipulation

Development tools: Compilers, linkers

Specification and design techniques

Professional and legal issues: Ethics. Intellectual property. Product liability

Standards: IEC61508 MISRA C

Part 3: Teaching and learning methods

Teaching and learning methods: Programming is a core component in the development of embedded and autonomous systems. This module will provide students with fundamental programming concepts and also the principles of elementary procedural programming based on the C Programming language. This module will introduce and develop the practical and professional skills required for designing and implementing C programs for a wide variety of applications.

Learning material will be delivered through a set of lectures and structured laboratory exercises. Students will start from "step by step" laboratory exercises and progress to problem based learning culminating in design and implementation of a complete system. Accompanying lectures and tutorial sessions will present the formal aspects of the module.

Module Learning outcomes: On successful completion of this module students will achieve the following learning outcomes.

MO1 Develop a good understanding of engineering principles and needs to apply a systems approach to software design and development task

MO2 Demonstrate an understanding of appropriate codes of practice and industry standards in relation to software development

MO3 Develop an understanding of programming fundamentals through the design of simple control programmes and appropriate use of verification tools and techniques

MO4 Demonstrate understanding and use of technical literature and other information sources

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 46 hours

Placement = 56 hours

Face-to-face learning = 48 hours

Total = 150

Reading list: The reading list for this module can be accessed at [readinglists.uwe.ac.uk](https://uwe.rl.talis.com/modules/ufmfn7-15-1.html) via the following link <https://uwe.rl.talis.com/modules/ufmfn7-15-1.html>

Part 4: Assessment

Assessment strategy: The strategy will use individual exercises, logbooks, reports and demonstrations to develop and assess students' understanding of C-programming concepts through problem based exercises.

Final summative assessment will be an online examination on the DEWIS assessment platform. The examination will assess the students' understanding of programming concepts and design principles together with their awareness of professional and legal issues relating to the use of C Language as a development tool. The online examination will be of 2 hours duration (25%).

The second summative assessment task requires a portfolio submission. This is

achieved through an individual c- programming project where the student is required to submit their code with a description of the design process and operation of the software. A digital logbook is also required to be submitted within this portfolio. This is a personal record of weekly laboratory exercises (75%).

Formative assessments will be used to provide oral feedback throughout laboratory sessions particularly with respect to the workshop exercises and logbook entries along with a set of online exercises for additional formative feedback purposes.

The resit assessment strategy is the same as the first sit.

Assessment tasks:

Examination (Online) (First Sit)

Description: e-assessment (2 hours)

Weighting: 25 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2

Portfolio (First Sit)

Description: Individual report showing design process for a programming exercise and Code Review (description 1500 words) and associated digital logbook developed as they progress through the weekly exercises (2500 words).

Weighting: 75 %

Final assessment: No

Group work: No

Learning outcomes tested: MO2, MO3, MO4

Examination (Online) (Resit)

Description: e-assessment (2 hours)

Weighting: 25 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2

Portfolio (Resit)

Description: Individual report showing design process for a programming exercise and Code Review (description 1500 words) and associated digital logbook developed as they progress through the weekly exercises (2500 words).

Weighting: 75 %

Final assessment: No

Group work: No

Learning outcomes tested: MO2, MO3, MO4

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Mechanical Engineering and Technology (Mechatronics) {Foundation} [GCET] BEng (Hons) 2022-23

Instrumentation and Control Engineering {Foundation} [GCET] BEng (Hons) 2022-23

Electronics and Telecommunication Engineering {Foundation} [GCET] BEng (Hons) 2022-23

Automation and Robotics Engineering {Foundation} [GCET] BEng (Hons) 2022-23

Instrumentation and Control Engineering {Foundation} [Feb][PT][GCET][8yrs] BEng (Hons) 2020-21

Instrumentation and Control Engineering {Foundation} [Oct][PT][GCET][8yrs] BEng (Hons) 2020-21