# 205SE Programming for Engineers

# Module Guide 2019/20 – Semester 1

This Guide should be read in conjunction with the Module Information Descriptor (MID)

The schedule is intended as a guide only and is subject to possible change

# Aims and Summary

This module aims to provide a foundation of computer programming skills for students studying in the fields of engineering. The module will develop basic problem-solving skills for task-oriented problems consistent with the conventions of the Unified Modelling Language (UML). Programs will be implemented using a block structured programming compatible language within an Integrated Development Environment (IDE). An introduction will also be given to objects and classes. The module is intended for students who have little or informal experience of computer programming.

# Organisational

|  |  |
| --- | --- |
| Module Leader: Mr. Christopher J. Bass <aa6164@coventry.ac.uk>  Lecturer, Software Engineering Other Teaching Staff: | Semester 1: Teaching starts week beginning: 16/09/2019 Lectures per week:Tutorials per week: 3x 2-hour slots.  See timetable web app for details. |

# Assessment

50% coursework and 50% exam.

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| --- | --- | --- | --- | --- |
| Assessment | Time needed | Weighting | Hand out date | Submission date |
| Coursework | 45 hours | 50% of Mm | 16/09/2019 (T1) | 06/12/2019 (T12) |
|  |  |  |  |  |
| Examination | 2 hours | 50% of Mm |  | December 2019 |
|  |  |  |  |  |

# Pass requirements

Coursework at least 35%, Exam at least 35%, and Module Mark at least 40% as a weighted average.

# Notes

Software used on this module is available to students, instructions how to obtain are on Moodle.

It is recommended that students spend additional time outside of those timetabled for practicing C++ programming skills. Student activity and time spent on each activity comprises:

Guided 134 hours (66%), Tutorial 66 hours (33%), Total 200 hours.

# Module Material

Rough plan:

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| --- | --- | --- | --- |
| Week | Beginning | Session Plan | Session Plan |
| T1 | 16/09/2019 | Introduction, GitHub, Version Control; Introduction to Computers (Deitel Ch1) | Win32 Console App, Hello World; Variables, Scope, Blocks |
| T2 | 23/09/2019 | Introduction to C++ (Deitel Ch2); C++ Continued | if conditional, while repetition; nesting statements |
| T3 | 30/09/2019 | Control Statements 1 (Deitel Ch4); UML Activity Diagrams, Problem Solving | for loop repetition, switch case; UML |
| T4 | 07/10/2019 | Control Statements 2 (Deitel Ch5); Libraries and Functions (Deitel Ch6) | Flow Control Challenge; Functions and File structure |
| T5 | 14/10/2019 | Type Conversions and Enum (Deitel Ch6); Introduction to OOP (Deitel Ch3) | OOP Classes and File structure; OOP Objects, Text File IO |
| T6 | 21/10/2019 | The Stack, Heap, and Storage Classes; Introduction to Classes | UML Class Diagram; Class Relationships |
| T7 | 28/10/2019 | Introduction to Arrays (Deitel Ch7); Vectors | Deitel Ch7 Exercises 7.03 - 7.12; Deitel Ch7 Exercises 7.13 - 7.20 |
| T8 | 04/11/2019 | Introduction to Pointers (Deitel Ch8); | Data structures and sorting; Pointer Operators \* and & |
| T9 | 11/11/2019 | Pass-by-Reference; Pointer Arithmetic, Dynamic Data | Const keyword, C-Strings; Dynamic Data Objects |
| T10 | 18/11/2019 |  |  |
| T11 | 25/11/2019 |  |  |
| T12 | 02/12/2019 | Exam revision | **Coursework deadline** |
| E | 09/12/2019 | Exam Period | Exam Period |
|  | 16/12/2019 | Marking | Marking |
|  | 23/12/2019 | Christmas break | Christmas break |
|  | 30/12/2019 | Christmas break | Christmas break |