Module Specification

System Programming   [TSI]

Version: 2023-24, v2.0, 17 Mar 2023

Contents

Part 1: Information

Module title: System Programming   [TSI]

Module code: UFCFCX-12-2

Level: Level 5

For implementation from: 2023-24

UWE credit rating: 12

ECTS credit rating: 6

Faculty: Faculty of Environment & Technology

Department: FET Dept of Computer Sci & Creative Tech

Partner institutions: Transport and Telecommunication Institute

Delivery locations: Not in use for Modules

Field: Computer Science and Creative Technologies

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: The aim of this module is to form students' knowledge about memory management, threads, processes, synchronization, files, memory mapping,

data exchange between processes. Students will have an experience on using WinAPI functions for solving programming issues.

Outline syllabus: Introduction to System Programming;

Operating System architecture;

The use of bitwise operations;

Introduction to WinApi;

GUI programming by WinApi;

Obtaining system parameters data;

Low-level working with files;

Administration of the registry;

Process Management. Inter-process communication;

Thread management. Thread Synchronisation;

Memory Management

Part 3: Teaching and learning methods

Teaching and learning methods: Learning and teaching will be provided to students in two forms: lectures and labs. During lectures, theoretical aspects of the course will be provided to students by the teaching staff. Lectures will be supported by presentation published and available to the students on e.tsi.lv under the module section. Also, additional materials, like code examples, text books, publications on the internet, videos etc will be presented in e.tsi.lv.
During labs, each student receives an individual task to perform

Windows and its API (WinApi) are considered as example of the operating system. The main programming language for labs is C++. In addition to learning activities during taught sessions, students are expected to spend time outside of class on independent learning activities. These might include completing assignment tasks, independent reading, practising new skills on personal projects and watching informative videos, completing self-assessment test etc.

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

MO1 Know operating systems architecture

MO2 Know the concept of kernel objects, and how to work with them

MO3 Work with the Help system MSDNA

MO4 Apply WinApi function for the task using the C++ programming language and modern development environment IDE Visual Studio

MO5 Apply principles of processes and threads and their synchronisation

MO6 Use WinApi functions to manage processes, threads, memory, registry, files and folders

Hours to be allocated: 120

Contact hours:

Independent study/self-guided study = 96 hours

Face-to-face learning = 64 hours

Total = 160

Reading list: The reading list for this module can be accessed at readinglists.uwe.ac.uk via the following link
https://rl.talis.com/3/uwe/lists/BB61DEFB-3281-2C34-EF83-96E6060E386C.html?lang=en-gb&login=1

Part 4: Assessment

Assessment strategy: This module assessment is split into two:

A final 3-hour examination which will assess the students understanding of taught material that forms part of the learning outcomes but cannot easily be assessed through practical tasks.

A series of practical tasks, exploring different aspects of system programming using C++ programming language and WinApi. The assessment includes demonstration of the developed applications.

Assessment components:

Portfolio (First Sit)

Description: A series of labs, exploring different aspects of system programming using C++ programming language and WinApi.

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO2, MO3, MO4, MO5, MO6

Examination (First Sit)

Description: Written Examination

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO4, MO5, MO6

Examination (Resit)

Description: Written Examination

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2, MO4, MO5, MO6

Portfolio (Resit)

Description: A series of labs, exploring different aspects of system programming using C++ programming language and WinApi.

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO2, MO3, MO4, MO5, MO6

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Computer Science and Software Development {Double Degree} [Feb][FT][TSI][4yrs] BSc (Hons) 2021-22

Computer Science and Software Development {Double Degree} [Oct][FT][TSI][4yrs] BSc (Hons) 2021-22

Computer Science and Software Development {Double Degree} [Oct][PT][TSI][5yrs] BSc (Hons) 2020-21

Computer Science and Software Development {Double Degree} [Feb][PT][TSI][5yrs] BSc (Hons) 2020-21