STUDENT AND ACADEMIC SERVICES

MODULE SPECIFICATION

Part 1: Information			
Module Title	System Programming [TSI]		
Module Code	UFCFCX-12-2	Level	Level 5
For implementation from	2022-23		
UWE Credit Rating	12	ECTS Credit Rating	6
Faculty	Faculty of Environment & Technology	Field	Computer Science and Creative Technologies
Department	FET Dept of Computer Sci & Creative Tech		
Module Type:	Standard		
Pre-requisites	None		
Excluded Combinations	None		
Co-requisites	None		
Module Entry Requirements	None		
PSRB Requirements	None		

Part 2: Description

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

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.

Part 3: Assessment			

This module assessment is split into two components (A – Exam, B – Labs):
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.

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

First Sit Components	Final Assessment	Element weighting	Description
Examination - Component A	✓	50 %	Written Examination
Portfolio - Component B		50 %	A series of labs, exploring different aspects of system programming using C++ programming language and WinApi.
Resit Components	Final Assessment	Element weighting	Description
Examination - Component A		50 %	Written Examination
Portfolio - Component B		50 %	A series of labs, exploring different aspects of system programming using C++ programming language and WinApi.

Part 4: Teaching and Learning Methods	
Learning Outcomes	On successful completion of this module students will achieve the following learning outcomes:

Module Learning Outcomes	Reference
Know operating systems architecture	MO1
Know the concept of kernel objects, and how to work with them	MO2
Work with the Help system MSDNA	MO3
Apply WinApi function for the task using the C++ programming language and modern development environment IDE Visual Studio	MO4
Apply principles of processes and threads and their synchronisation	MO5
Use WinApi functions to manage processes, threads, memory, registry, files and folders	MO6

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Contact Hours	Independent Study Hours:	
	Independent study/self-guided study	96
	Total Independent Study Hours:	96
	Scheduled Learning and Teaching Hours:	
	Face-to-face learning	64
	Total Scheduled Learning and Teaching Hours:	64
	Hours to be allocated	120
	Allocated Hours	160
Reading List	*The reading list for this module can be accessed via the following link:* https://rl.talis.com/3/uwe/lists/BB61DEFB-3281-2C34-EF83-96E6060E386C.html?lang=en-gb&login=1	

Part 5: Contributes Towards
This module contributes towards the following programmes of study: Computer Science and Software Development [Oct][FT][TSI][4yrs] BSc (Hons) 2020-21 Computer Science and Software Development [Feb][FT][TSI][4yrs] BSc (Hons) 2020-21