STUDENT AND ACADEMIC SERVICES

UWE Bristol | University of the West of England

MODULE SPECIFICATION

Part 1: Information			
Module Title	Embedded Electronic Devices and Programming [TSI]		
Module Code	UFCFUX-6-1	Level	Level 4
For implementation from	2021-22		
UWE Credit Rating	6	ECTS Credit Rating	3
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 to provide students with a knowledge of methods of embedded electronic devices programming. **Outline Syllabus:** Principles of designing embedded devices; The structural elements of the AVR with RISC architecture; Tools and software of designing embedded devices. Steps of AVR microcontrollers programming in C/C++; Programming of microcontroller I / O ports; Processing of external interrupts; Programming of microcontroller timers; Programming of data exchange on the serial interface; Programming of analogue signal processing devices; Programming operations with EEPROM **Teaching and Learning Methods:** Learning and teaching will be provided to students in forms: lectures, 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

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): A1 - final 2-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. B1 – series of practical tasks, exploring different aspects of embedded electronic device programming.			
First Sit Components	**Final Assessment**	**Element weighting**	**Description**
Examination - Component A	✓	50 %	Examination
Portfolio - Component B		50 %	A series of practical tasks, exploring different aspects of embedded electronic device programming.
Resit Components	**Final Assessment**	**Element weighting**	**Description**
Examination - Component A		50 %	Examination
Portfolio - Component B		50 %	series of practical tasks, exploring different aspects of embedded electronic device programming.

Part 4: Teaching and Learning Methods	
Learning Outcomes	On successful completion of this module students will achieve the following learning outcomes: <table><tr><td>**Module Learning Outcomes**</td><td>**Reference**</td></tr><tr><td>Understands the principles of embedded electronic devices design using microcontrollers</td><td>MO1</td></tr><tr><td>Programming and debugging software for microcontrollers</td><td>MO2</td></tr><tr><td>Use and develop of microcontroller operation algorithms</td><td>MO3</td></tr><tr><td>Use and apply programming environment, such as example Atmel Studio</td><td>MO4</td></tr></table>
Contact Hours	**Independent Study Hours:** <table><tr><td>Independent study/self-guided study</td><td>48</td></tr><tr><td>**Total Independent Study Hours:**</td><td>48</td></tr></table>

	Scheduled Learning and Teaching Hours:	
	Face-to-face learning	34
	Total Scheduled Learning and Teaching Hours:	34
	Hours to be allocated	60
	Allocated Hours	82
Reading List	*The reading list for this module can be accessed via the following link:* https://rl.talis.com/3/uwe/lists/88CB7D5B-F0A5-BB65-2FD8-B97D1F24082D.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 [Oct][PT][TSI][5yrs] BSc (Hons) 2020-21 BSc (Hons) 2020-21 Computer Science and Software Development [Feb][FT][TSI][4yrs] BSc (Hons) 2020-21 Computer Science and Software Development [Feb][PT][TSI][5yrs] BSc (Hons) 2020-21 BSc (Hons) 2020-21