MODULE SPECIFICATION

Part 1: Information			
Module Title	Compiler Construction. [TSI]		
Module Code	UFCFHX-12-3	Level	Level 6
For implementation from	2023-24		
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 give the students' knowledge of the main principles of compilers structure and programming as well as of the main methods and principles for building different phases of compiler – lexical and syntax analyzer, internal form of program representation, optimization and code generation.

Outline Syllabus: Introduction in automation of programming;
Formal systems;
The lexical analysis and programming of the lexical analyser (scanner);
Parsing and programming of a parser;
The internal form of representation of the initial program and semantics of tables;
Procedures of the semantic analysis;
Machine-independent optimisation;
Generation of codes;
Machine-sensitive optimisation;
Distribution of memory;
The target information of the compiler.

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 practical tasks, 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 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.

B1 – A series of labs, connected with lexical and syntax analysers (parser) development using any high-level programming language. Each lab as an application and its source code should be completed and uploaded to e.tsi.lv (under specific practical task element) in form of the report,
The assessment includes demonstration of the developed applications. The defence is happening orally and consists of discussion on theoretical issues which fits current lab.

First Sit Components	**Final Assessment**	**Element weighting**	**Description**
Examination - Component A	✓	60 %	Written Examination
Portfolio - Component B		40 %	A series of labs, connected with lexical and syntactical analysers (parser) development using any high-level programming language
Resit Components	**Final Assessment**	**Element weighting**	**Description**
Examination - Component A		60 %	Written Examination
Portfolio - Component B		40 %	A series of labs, connected with lexical and syntactical analysers (parser) development using any high-level programming language

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 the main principles of construction of the translating programs	MO1
Use principles of formal systems for the description of various designs of the programming language	MO2
Carry out decomposition of the text of the source program (to build grammar of lexemes, final automata devices and their states diagrams, to build trees of syntactic analysis)	MO3

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/4132CB37-70D8-0FA0-5A46-AB9EAB1B2C42.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