Module Specification

Programming Languages Concepts [TSI]

Version: 2023-24, v1.0, 14 Oct 2022

Contents

Part 1: Information

Module title: Programming Languages Concepts [TSI]

Module code: UFCFLW-12-0

Level: Level 3

For implementation from: 2023-24

UWE credit rating: 12

ECTS credit rating: 6

College: College of Arts, Technology and Environment

School: CATE School of Computing and Creative Technologies

Partner institutions: None

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 main aim of the module is to provide a systematic study of the principles of design, evaluation and use of modern programming languages. The module gives an overview of PL design principles and discusses theoretical issues of modern languages semantic and operating principles.

Outline syllabus: Defining and problems of programming languages;
Types of Programming Languages;
The expressions in programming languages;
The actions and statements in the programs;
The syntax and grammars;
Parsing and derivations;
The grammar for expressions;
Versions of grammars;
Semantics of Programming Languages;
Objects and data types;
Scalar and array types;
Records and sets;
Pointers;
Variable attributes;
Data type conversions;
Data type conversions;
Introduction to the subroutines;
Parameter-passing methods;
Scopes and activations;
Exception handling;
Abstract data types;
Object-oriented programming;

Part 3: Teaching and learning methods

Teaching and learning methods: Learning and teaching will be provided to students in forms of lectures, practical classes and laboratory works. Lectures are supported by presentations published and available to the students on e.tsi.lv under the module section. Also, additional materials, like publications on the internet, videos etc will be presented in e.tsi.lv.
Practical classes are devoted to solving and discussion of practical tasks, regarding grammar, scopes and activations, use of subroutines, parameter passing methods.

Later, students' knowledge and understanding will be tested using control work (in written form).

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

MO1 Know and use the basic principles and concepts that define the construction and application of programming language

MO2 Select PL for a specific software project, considering particularities of each programming language type

MO3 To learn by themselves new programming languages, considering knowledge about common elements in PLs and PLs construction

MO4 Consider the cost of the development and application of PL in a particular domain

MO5 Understand limitations of various high-level languages

MO6 Understanding the PLs trends

MO7 Be able to track trends and directions in development of programming languages

Hours to be allocated: 120

Contact hours:

Independent study/self-guided study = 48 hours

Face-to-face learning = 32 hours

Total = 80

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/0BB6B0D6-F000-5402-FFE2-100352C726B5.html?lang=en-gb&login=1

Part 4: Assessment

Assessment strategy: This module assessment is split into two components (A – Exam, B – Practical Assignments):
The practical assignment component should be completed individually (i.e. this is not group work) and represents 50% of final module mark.
A1: - final 2-hour closed books examination which covers theoretical aspects of the module
The practical assignments and labs has following elements
B2: - a sequence of in-class tests about module topics
B1: - a sequence of 4 individual assignments. For each assignment a report shall be provided by the student

Assessment tasks:

Portfolio (First Sit)
Description: 5 sequential laboratory works
Weighting: 40 %
Final assessment: No
Group work: No
Learning outcomes tested: MO1, MO3, MO5

In-class test (First Sit)
Description: a series of tests on module topics
Weighting: 25 %
Final assessment: No
Group work: No
Learning outcomes tested: MO1, MO2, MO3, MO4, MO5, MO6, MO7

Examination (First Sit)
Description: Examination
Weighting: 35 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO1, MO2, MO4, MO5, MO6, MO7

Examination (Resit)
Description: Written exam
Weighting: 35 %
Final assessment: No
Group work: No
Learning outcomes tested: MO1, MO2, MO4, MO5, MO6, MO7

In-class test (Resit)
Description: 4 Written test
Weighting: 25 %
Final assessment: No
Group work: No
Learning outcomes tested: MO1, MO2, MO3, MO4, MO5, MO6, MO7

Portfolio (Resit)
Description: 5 sequential laboratory works
Weighting: 40 %
Final assessment: No
Group work: No
Learning outcomes tested: MO1, MO3, MO5

Part 5: Contributes towards

This module contributes towards the following programmes of study: