The University of Jordan
King Abdullah II School for Information Technology (KASIT)
Computer Science Department

Course Syllabus – Fall Semester 2022/2023

1901471 : Programming Languages: Design and Implementation

1.   Course Information

Catalog Description	This course is designed to provide the students of the basic concepts related to PLD. Theoretical concepts such as virtual computer, firmware, syntax, semantic, Grammar description method are fully described. The main issues related to design and implementation of programming language such as data type, sequence control, data control, run time environment are covered in details. Case studies of some available programming languages are also provided.
Credit Hours	3
Prerequisite	1901241
Course Type	Lecture
Required/Elective	Mandatory
Textbook	1. Programming Languages: Design and Implementation, Terrence W. Pratt and Marvin V. Zelkowitz, Pearson; 4th edition, ISBN-10 : 0130276782
References	2. Concepts of Programming Languages, Robert W. Sebesta, PEARSON INDIA; 11th edition (January 1, 2019), ISBN-10 : 9353438896
Instructor	Prof. Saleh Abu-Soud Email: abu-soud@psut.edu.jo Office: Phone:
Class Schedule	Sun, Tue, Thu 8.30 – 9.30
Class Location	102
Office Hours	
Teaching Assistant	No

2. Course Contents

Week(s)	Topic(s)
1	Language Design Issues
2	Impact of Machine Architecture
3	Language Translation Issues
4	Modelling Language Properties
5	Elementary Data Types
6	Structured Data Types
	Midterm
7 - 8	Sequence Control
9	Data Control
10 - 11	Subprograms and Programmer-Defined Data-Types
12	Encapsulation
13	Inheritance
14	Syntax and Translation
15	Storage Management
16	**Final**

3. Assessment Policy

Assessment Tool	Expected Due Date	Weight
First Exam		20
Second Exam		25
Project & Class Activities		15
Final Exam		40%

4.   Course Objectives

This course aims at:

- Exploring concepts that underlie all programming languages.
- Exploring Design issues of programming languages.
- Exploring Implementation issues of programming languages
- Providing a framework for understanding how to use language constructs effectively and how to design correct and elegant programs.
- Providing exposure to multiple programming languages.

5.   Course Outcomes

Intended Learning Outcomes (ILOs): Successful completion of this course should lead to the following learning outcomes:

- **Knowledge and understanding: Students should**
    A1)Understand basic concepts of PL, history, features, and paradigms
    A2) understand the basic design and implementation issues of PL.
    A3) understand concept of PL processor, and program translation
- **Intellectual skills: with the ability to**
    B1) Comparison between the external and internal structure of different programming languages.
    B2) Comparison between computational models of different programming languages.
    B3) Comparison between execution models of different programming languages.
- **Subject specific skills: with ability to**
    C1) Identify the designated aspects of programming languages.
    C2) Implementation of selected aspects of programming languages
- **Transferable skills**
    D1) Ability to Work in a group in order to study and evaluate the features and the structure of programming languages in term of the learned concepts through the course.