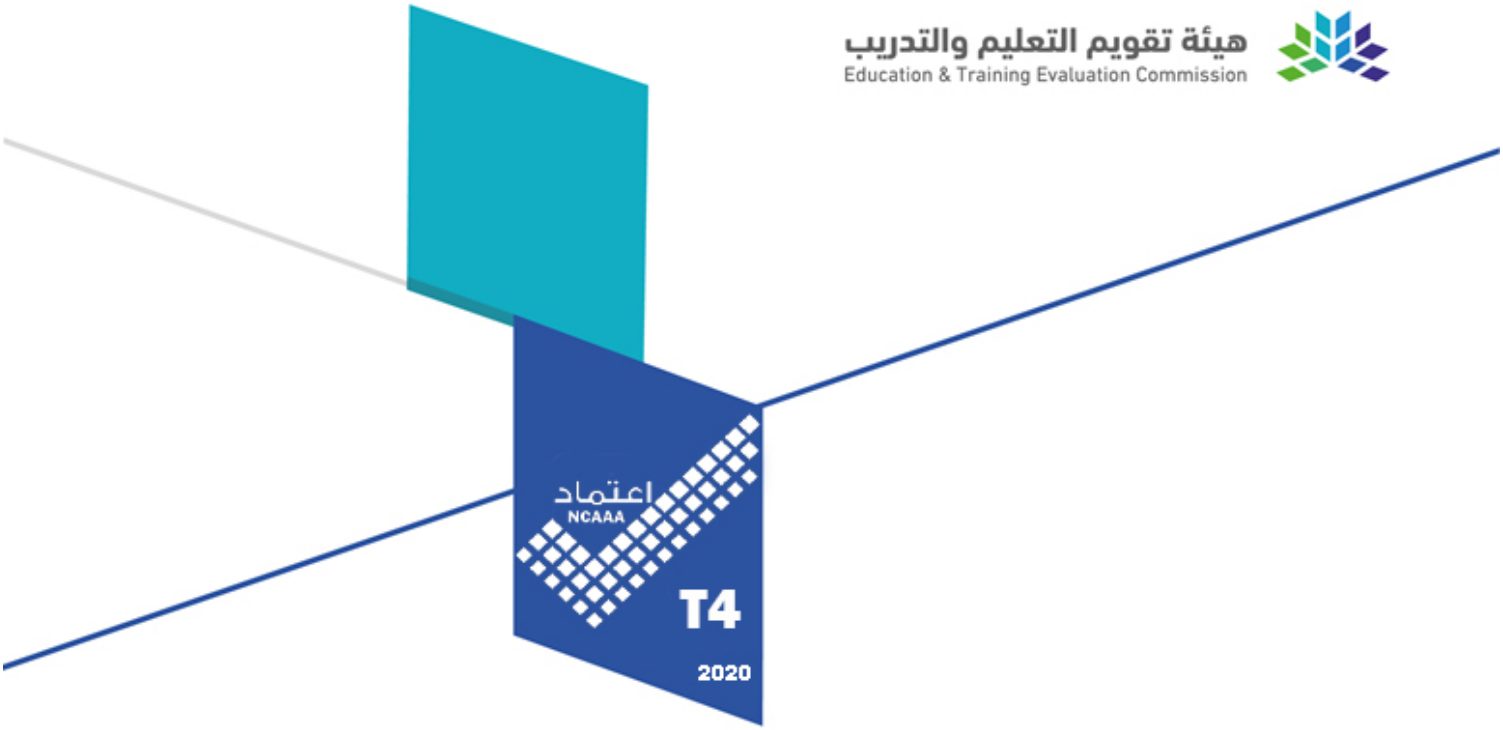
هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission



Course Specifications

Course Title:	**Concepts of Programming Languages**
Course Code:	**CSI 513**
Program:	**Computer Science and Information**
Department:	**Computer Science and Information**
College:	**College of Science at Az Zulfi**
Institution:	**Al- Majmaah University**

Table of Contents

A. Course Identification

1. Credit hours: (3) (2 Lec + 2 lab)
2. Course type **a.** University ☐ College ☐ Department ■ Others ☐ **b.** Required ■ Elective ☐
3. Level/year at which this course is offered: 7h Level – 3rd year
4. Pre-requisites for this course (if any)**:** **CSI 222: Discrete Mathematics for Computer Science 2**
5. Co-requisites for this course (if any)**:** NIL

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	48	80 %
2	**Blended**	6	10%
3	**E-learning**	-	--
4	**Distance learning**	-	--
5	**Other**	6	10 %

7. Contact Hours (based on academic semester)

No	Activity	Learning Hours
Contact Hours		
1	**Lecture**	30
2	**Laboratory/Studio**	30
3	**Tutorial**	--
4	**Others** (specify)	--
	Total	60
Other Learning Hours*		
1	**Study**	45
2	**Assignments**	10
3	**Library**	05
4	**Projects/Research Essays/Theses**	15
5	**Others** (specify)	00
	Total	(60+75 = 135)

B. Course Objectives and Learning Outcomes

1. Course Description

Brief history of programming languages. Formal grammars. BNF notation. Principles of modern programming languages: features, design and evaluation. Imperative vs. declarative language styles. General-purpose language features, such as types, operators, expressions, subprograms, recursion, and object-orientation. Special purpose language features, such as support for graphical interface, concurrency, and non-determinism. Relationship between language design and implementation.

2. Course Main Objective

Programming Languages Concepts introduces students to the main constructs of contemporary programming languages and provides the tools needed to critically evaluate the existing and future programming languages.
Students gain a solid foundation for understanding the fundamental concepts of programming languages through the course presentation of design issues for various language constructs, the examination of the design choices for these constructs in some of the most common languages, and critical comparison of the design alternatives.
In addition, the course provides an in-depth discussion of programming language structures, presents a formal method of describing syntax, and introduces approaches to lexical and syntactic analysis.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	**Knowledge and Understanding**	
1.1	Understand best practices and standards and their application.	k3
2	**Skills :**	
2.1	Design, implement, develop and evaluate complicated computer-based system, process component, or program to meet desired needs.	s2
2.2	Identify and analyze user needs and take them into account in the selection, creation, evaluation and administration of computer-based systems.	s4
3	**Values:**	
3.1	Use current techniques, skills, and tools necessary for computing practice.	c3

C. Course Content

No	List of Topics	Contact Hours
1	Introduction 1: Programming languages spectrum, programming environments, evolution of major programming languages, Zuse's Plankalkül, Functional programming, computerizing business records, time Sharing.	6
2	Introduction 2: Describing Syntax & Semantics, Names, Bindings, and Scopes.	6

3	Control Flow: Expressions and Assignment Statements, Statement-Level Control Structures.	6
4	Data Types: Introduction, different data types and their scope in programming.	3
5	Subprograms & Control Abstraction: fundamentals, parameter passing, Exception handling	9
6	Data Abstraction and Object-oriented Orientation: concept of data abstraction, design issues of object-oriented programming languages, inheritance, and encapsulation.	6
Total		45

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1	Understand best practices and standards and their application.	Lectures Lab demonstrations Case studies Individual presentations	Written Exam Homework assignments Class & lab Activities Quizzes
2.0	**Skills**		
2.1	Design, implement, develop and evaluate complicated computer-based system, process component, or program to meet desired needs.	Group discussions, Brainstorming Presentations	Home works and assignments
2.2	Identify and analyze user needs and take them into account in the selection, creation, evaluation and administration of computer-based systems.		
…			
3.0	**Values**		
3.1	Use current techniques, skills, and tools necessary for computing practice.	Group discussions Case Studies Brainstorming Presentations	Written Exam Homework assignments Class & lab Activities Quizzes

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	**First written mid-term exam**	6	20%
2	**Second online mid-term exam**	12	20%
3	**Class activities, group discussions, Presentation**	Every week	10%
4	**Homework + Assignments**	After every chapter	10%
5	**Final written exam**	14	40%

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :
Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice : **Office hours: Mon : 10 – 12.** **Email: k.sattar@mu.edu.sa**

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	**Robert W. Sebesta, Concepts of Programming languages, Addison-Wesley, 10th edition, 2013.** **ISBN-13: 978-0131395312, ISBN-10: 0131395319**
Essential References Materials	**1. David A. Watt, Programming Language Design Concepts 1st Edition, Kindle Edition, 2004.** **ISBN-13: 978-0470853207 , ISBN-10: 0470853204** **2. Sara Baase and Allen Van Gelder, Computer Algorithms: Introduction to Design & Analysis, Pearson; 3rd edition 1999.** **ISBN-13: 978-0201612448, ISBN-10: 0201612445**
Electronic Materials	**1. http://nptel.ac.in/courses/106102067/** 2. **www.dcs.gla.ac.uk/~daw/books/PLDC/**
Other Learning Materials	**Course material includes handouts, ppt, questionnaires as distributed among the students**

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	1. Classrooms with required digital aids and to support traditional method of teaching using blackboard. 2. Classrooms with proper lighting and air conditioning system integrated with the sound System /audio system. Classroom with smart board interface, display screen and a computer to aid the sessions
Technology Resources (AV, data show, Smart Board, software, etc.)	Smart Board with supporting software / computers with updated versions of software as required to understand the subject concepts with quality headphones.
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	NIL

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of Teaching	Students Classroom Observation Committee Professional Development Unit External Reviewers – accreditation committee	Formal Classroom Observation - Direct Student Surveys - Indirect
Effectiveness of Assessment	Curriculum and Test Development Unit Curriculum Committee Assessment Committee External Reviewers	Faculty Feedback - indirect Student Feedback – indirect Course Reports
Extent of Achievement of Course Learning Outcomes	Quality Assurance Unit Curriculum and Test Development Unit	Course Reports Annual Program Review

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	
Date