هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

اعتماد NCAAA T4 2020

Course Specifications

Course Title:	Programming Languages
Course Code:	CS 323
Program:	Computer Science
Department:	Computer Science
College:	College of Computer and Information Sciences
Institution:	Majmaah University

Table of Contents

A. Course Identification

1. Credit hours:	**3(3,0,1)**
2. Course type	
a.	University ☐ College ☐ Department ☐ Others ☒
b.	Required ☒ Elective ☐
3. Level/year at which this course is offered:	**Level 8/Year 3**
4. Pre-requisites for this course (if any)**:**	**CS 211**
5. Co-requisites for this course (if any)**:**	

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	44	100%
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	33
2	**Laboratory/Studio**	
3	**Tutorial**	11
4	**Others** (specify)	
	Total	44

B. Course Objectives and Learning Outcomes

1. Course Description

This course gives students a set of formal mathematical tools for defining and implementing the semantics of a language and demonstrates them in the context of important real-world programming languages, with emphasis on theoretical properties of type systems.

2. Course Main Objective

To acquire the fundamental concepts of programming languages and techniques to discuss and compare features of several popular programming paradigms such as imperative, object oriented, functional, and logic programming. Understand how to examine modern programming languages and features: abstract data and control structures, procedures, parameter passing mechanisms, block structuring and scope rules, input/output, and storage management.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1	CLO3- Demonstrate facility of BNF specifying programming language syntax and semantics	K1
1.2		
1.3		
1...		
2	**Skills :**	
2.1	CLO1- Describe the evolution of modern programming languages.	S1
2.2	CLO2- Identify the basic aspects of various programming paradigms.	S1
2.3	CLO4- Show understanding of issues involving variables and subprograms	S1
2.4	CLO5- Describe features of functional and logic programming languages	S1
2.5		
3	**Values:**	
3.1		
3.2		
3.3		
3...		

C. Course Content

No	List of Topics	Contact Hours
1	Introduction • Reasons for studying concepts of programming languages • Language evaluation criteria • Language Categories	3
2	Describing Syntax and Semantics • The general problem of describing syntax • Formal methods of describing syntax • Attribute grammars	4
3	Lexical and Syntax Analysis • Lexical analysis • The parsing problem • Recursive Descent parsing	3
4	Name, Bindings, Type Checking, and Scopes • Names • Variables • The concepts of binding	3
5	Data Types • Primitive data types • Different structures • Character string types • User defined ordinal types	4

6	• Arrays types • Record types • Union types • Pointer and reference type	4
7	Expressions and Assignment Statements • Arithmetic expressions • Overloaded operators • Types conversions	4
8	• Relational and Boolean expressions • Short circuit evaluation • Assignment statements • Mixed mode assignment	4
9	Statement Level control structures	4
10	Subprograms • Design issues for subprograms • Local referencing environments Parameter passing methods • Parameters that are subprogram names	4
11	Functional programming languages	4
12	Logic programming languages	4
Total		44

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	CLO3- Demonstrate facility of BNF specifying programming language syntax and semantics.	Classroom Teaching	Quiz, Assignment, Mid Exam, Final Exam
1.2			
…			
2.0	**Skills**		
2.1	CLO1- Describe the evolution of modern programming languages.	Classroom Teaching	Quiz, Assignment, Mid Exam, Final Exam
2.2	CLO2- Identify the basic aspects of various programming paradigms.	Classroom Teaching	Quiz, Assignment, Mid Exam, Final Exam
2.3	CLO4- Show understanding of issues involving variables and subprograms	Classroom Teaching	Quiz, Assignment, Mid Exam, Final Exam
2.4	CLO5- Describe features of functional and logic programming languages	Classroom Teaching	Quiz, Assignment, Mid Exam, Final Exam
2.5			
3.0	**Values**		
3.1			
3.2			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quizzes	Week 3, Week 8	10%
2	Assignments	Week 4, Week 9	20%
3	Mid Term Exam	Week 6	20%
4	Homework	Week 10	5%
5	Exercise	Every Week	5%
6	Final Exam	Week 12	40%
7			
8			

***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 :
Each student is allotted to an academic advisor for guidance and counseling

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	Concepts of Programming Languages, Robert W. Sebesta, Prentice Hall, 2007, 8th Edition
Essential References Materials	
Electronic Materials	
Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	**Classroom**
Technology Resources (AV, data show, Smart Board, software, etc.)	**PC with Windows/Linux, LCD Projector, Smart Board**
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	**Internet Connection**

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Final Examination, Midterm Exam & Quizzes	Instructor	Direct
Survey	Students	Indirect
Final Examination Marks	Peers	Verification of Marks
Course Report	Quality Unit	Checklist quality reports

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	College Council
Reference No.	Meeting #1
Date	