







Course Title: Programming Paradigms

Course Code: 313CCS-3

**Program: Bachelor of Science in Computer Science** 

**Department: Department of Computer Science** 

**College: Computer Science and Information Systems** 

Institution: Najran University

Version: 2.0

Last Revision Date: August 2022







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### A. General information about the course:

### **1. Course Identification**

1. Credit hours: (3)

### 3 (2, 2, 1) [Theory, Lab, Tutorial]

2. Course type						
Α.	□University	□College	🛛 Depa	rtment	□Track	□Others
В.	$\boxtimes$ Required			□Electi	ve	
3. Level/year at which this course is offered: (Level 6/Year 3)						
4. Course General Description:						

Study of programming languages paradigms (imperative, functional, object-oriented, ... etc.), Language evaluation criteria, the evolution of major programming languages, and the main concepts of programming languages (types, expressions, control statements, subprograms, ... etc.). with a particular focus on the differences between the programming languages especially the modern languages (C++ and Java, Python and C#)

### 5. Pre-requirements for this course (if any):

212CCS-4

6. Co-requisites for this course (if any):

None

### 7. Course Main Objective(s):

Expose students to the main programming paradigms, concepts, and languages to make them able to compare different languages and evaluate them.

#### 2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	75	100%
2	E-learning		
3	Hybrid		





No	Mode of Instruction	Contact Hours	Percentage
	Traditional classroom		
	• E-learning		
4	Distance learning		

### 3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	30
2.	Laboratory/Studio	30
3.	Field	
4.	Tutorial	15
5.	Others (specify)	
Total		75

# **B.** Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understand	ing		
1.1	Describe the basics of functional programming, object-oriented programming, and logic programming paradigms with proper examples.	$\mathbf{K}_1$	Lectures Questions during the lectures to spark students' curiosity.	Quizzes Midterm exams Final exam
1.2	Discuss the scope and memory management concepts of various programming languages	$\mathbf{K}_1$	Lectures Questions during the lectures to spark students' curiosity. Group discussion	Quizzes Midterm exams Final exam
1.3	Distinguish among different types of programming language paradigms.	K <sub>1</sub> , K <sub>2</sub>	Lectures Questions during the lectures to spark students' curiosity. Group discussion	Quizzes Midterm exams Final exam





Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
2.0	Skills			
2.1	Analyze the syntactical differences of commonly used programming languages	$\mathbf{S}_1$	Lectures Group exercises Group discussions	Quizzes Midterm exams Final exam
2.2	Integrate main concepts of object-oriented programming	S <sub>2</sub> , S <sub>4</sub>	Lectures Group exercises Group discussions	Quizzes Midterm exams Final exam
2.3	Propose appropriate solutions for real-life problems with specific programming language	S <sub>2</sub> , S <sub>5</sub>	Lectures Group exercises Group discussions	Quizzes Midterm exams Final exam
2.4				
3.0	Values, autonomy, and resp	onsibility		
3.1 3.2				

## **C.** Course Content

No	List of Topics	Contact Hours
1.	Introduction to programming languages	5
2.	Language evaluation criteria	5
3.	Evolution of major programming languages	10
4.	Data types	10
5.	Expressions	5
6.	Control statements	5
7.	Iteration statements	5
8.	Subprograms	10
9.	Object-oriented programming languages	10
10.	Modern Programming Comparative Study	10
	Total	75





No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	First Assignments	3 <sup>th</sup>	5%
2.	Second Assignments	7 <sup>th</sup>	5%
3.	First Quiz	$4^{th}$	5%
4.	Second Quiz	8 <sup>th</sup>	5%
5.	Midterm Exam	6 <sup>th</sup>	20%
6.	Lab Performance	NA	10%
7.	Final Lab Exam	15 <sup>th</sup>	10%
8.	Final Exam	16 <sup>th</sup>	40%

## **D. Students Assessment Activities**

\*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

### **E. Learning Resources and Facilities**

### **1. References and Learning Resources**

Essential References	<ol> <li>Robert W. Sebesta, Concept of Programming Languages, Pearson Education, 12th Edition, 2019</li> </ol>
Supportive References	<ol> <li>Saroj Kaushik, Logic and Prolog Programming, New Age International.</li> <li>Mark Lutz and David Ascher, Learning Python, O'REILLY and Associates, Latest Edition.</li> <li>Anders Hejlsberg, Mads Torgersen, Scott Wiltamuth and Peter Golde, The C# Programming Language, Microsoft .NET Development Series, Latest Edition.</li> <li>Joshua Bloch, Effective Java: Programming Language Guide.</li> </ol>
Electronic Materials	
Other Learning Materials	

# 2. Required Facilities and equipment

Items	Resources
<b>facilities</b> (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	<ul> <li>Lecture rooms with 30 seats with a multimedia projector.</li> <li>Whiteboard, personal computer, one table.</li> </ul>





Items	Resources
<b>Technology equipment</b> (projector, smart board, software)	- Desktop/ Laptop computer
<b>Other equipment</b> (depending on the nature of the specialty)	N/A

# F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Collecting students' suggestions to facilitate more during the class.	Students	Verbal discussion
Student's questionnaire once during the semester about course learning outcomes.	Students	Indirect Survey
Achievement percentage of course learning outcomes, direct evaluation using CLO assessment sheet	Course Instructor	Direct evaluation using CLO achievement calculation
Teaching strategies	Quality unit	Indirect
Assessment methods	Quality unit	Indirect
Instructor performance	Quality unit	Indirect
Course content	Quality unit	Indirect

Assessors (Students, Faculty, Program Leaders, Peer Reviewers, Others (specify)

Assessment Methods (Direct, Indirect)

### **G. Specification Approval**

COUNCIL /COMMITTEE	Computer Science Departmental Council
REFERENCE NO.	14440203-0185-00002
DATE	1st Sep, 2022

