Course Specification
(Bachelor)

Course Title:	Fundamentals of Programming
Course Code:	211CCS-4
Program:	Bachelor of Science in Computer Science
Department:	Department of Computer Science
College:	College of Computer Science and Information Systems
Institution:	Najran University
Version:	2.0
Last Revision Date:	15 February 2023

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A. General information about the course:

1. Course Identification

1. Credit hours: (4)					
4 (3, 2, 1) [Theory, Lab, Tutorial]					
2. Course type					
A.	☐University	☒ College	☐Department	☐Track	☐Others
B.	☒ Required		☐Elective		
3. Level/year at which this course is offered: (Level 3/Year 2)					
4. Course General Description:					
This course offers an introduction to computer science and computer programming in Java. With emphasis on object-oriented programming (OOP) practice and problem-solving skills. The course presents a balanced coverage of Java language basics, programming concepts and techniques and standard algorithms. The topics included are Algorithms, Flowcharts, Data types, basic Java syntax, introduction to objects and classes, variables, Operators, Selection and control structures, Arrays, and Loops.					
5. Pre-requirements for this course (if any)**:**					
None					
6. Co-requisites for this course (if any)**:**					
None					
7. Course Main Objective(s):					
Prepare the students with the basic concepts of programming so that they can read and understand any programming language and develop the required skills to build/write a program whenever they require.					

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	90	100%
2	E-learning		

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

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	45
2.	**Laboratory/Studio**	30
3.	**Field**	
4.	**Tutorial**	15
5.	**Others (specify)**	
Total		90

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 understanding**			
1.1	Describe the basic concepts of programming.	K1	TS:1- Interactive lectures using PowerPoint slides with more examples in the class. TS:2- Engaging the students in problem-based learning through tutorials. TS:3- Lab Demonstrations TS: 4 – Recall the topics discussed in the last lecture by asking questions to the students. TS: 5 - Associating the topics in each chapter with the CLO.	- Locally Developed Exams such as Quiz, Mid & Final Exam with scoring rubrics - Assignments involving critical and logical thinking questions. - Quizzes

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
			TS:6 –Conducting oral quizzes by the end of each chapter TS:7 – Giving more example programs in the lecture. TS: 8 – Discussion with the students in the class hours.	
2.0	**Skills**			
2.1	Construct programs with basic programming elements	K1, S2, S4	TS:1-Interactive Lectures using PowerPoint slides with more examples TS:2- Engaging the students in problem-based learning through Tutorials. TS:3- Lab Demonstrations TS: 4 – Recall the topics discussed in the last lecture by asking questions to the students. TS: 5 – Associating the topics in each chapter with the CLO. TS:6 – Conducting oral quizzes by the end of each chapter. TS:7 – Giving more example programs in the lecture. TS: 8 – Discussion with the students in the class hours	- Locally Developed Exams such as Quizzes and mid and final lab/theory Exams with scoring rubrics - Assignments involving critical and logical thinking programs. - Giving lab exercises at the end of each lab activity
2.2	Apply the concept of flowcharts and algorithms in solving problems.	K1, K3	TS:1-Interactive Lectures using PowerPoint slides with more examples. TS:2- Engaging the students in problem-based learning through Tutorials. TS: 3 – Discussion with the students in the class hours.	- Locally Developed Exams such as Quizzes, Mid Exam, and Final Exam

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
2.3	Apply function concepts of programs.	K1, S2, S4	TS:1 - Interactive lectures using PowerPoint slides with more examples in the class. TS:2- Engaging the students in problem-based learning through Tutorials TS:3- Lab Demonstrations TS: 4 – Recall the topics discussed in the last lecture by asking questions to the students. TS: 5 – Provide online links (internet resources) in the slides at the end of each chapter to the students know more about the topics discussed in the lecture. TS:6– Conducting oral quizzes by dividing the students into groups and asking them the questions at the end of the lecture involving complex topics programs in the lecture and asking the students to write a program at the end of the lecture. TS: 8 – Discussion with the students in the class hours.	- Quiz, Lab Assessment, Lab Final Exam, Final Exam.
2.4	Create programs with advanced programming elements.	K3, S2, S4, S5	TS:1-Interactive Lectures using PowerPoint slides with more examples. TS:2- Engaging the students in problem- based learning through Tutorials. TS:3- Lab Demonstrations TS: 4 – Recall the topics discussed in the last lecture by asking questions to the	- Locally Developed Exams such as Quiz, Mid & Final lab/theory Exams with scoring rubrics. - Assignments involving critical and

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
			students. TS: 5 – Providing online links (internet resources) in the slides at the end of each chapter to the students know more about the topics discussed in the lecture. TS:6 – Conducting oral quizzes by dividing the students into groups and asking them questions at the end of the lecture involving complex topics. TS:7 – Give more example programs in the lecture and ask the students to write a program at the end of the lecture. TS: 8 – Discussion with the students in the class hours.	logical thinking programs. - Giving lab exercises at the end of each lab activity.
3.0	**Values, autonomy, and responsibility**			
3.1	Assess program execution	S5	TS:1-Interactive Lectures using PowerPoint slides with more examples. TS:2- Engaging the students in problem-based learning through Tutorials. TS:3- Lab Demonstrations TS: 4 – Recall the topics discussed in the last lecture by asking questions to the students. TS: 5 – Provide online links (internet resources) in the slides at the end of each chapter so the students know more about the topics discussed in the lecture. TS:6 – Conducting oral quizzes by dividing the	- Locally Developed Exams such as Quiz, Mid & Final lab/theory Exams with scoring rubrics. - Assignments involving critical and logical thinking programs. - Giving lab exercises at the end of each lab activity.

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
			students into groups and asking them questions at the end of the lecture involving complex topics. TS:7 – Give more example programs in the lecture and ask the students to write a program at the end of the lecture. TS: 8 – Discussion with the students in the class hours.	

C. Course Content

No	List of Topics	Contact Hours
1.	Introduction to Programming language and its types, Introduction to assembler, interpreter and compiler	12
2.	Introduction, Flowcharts, Algorithm	12
3.	Elementary Programming	12
4.	Mathematical Functions Characters and Strings	6
5.	Selections	6
6.	Loops	12
7.	Methods	6
8.	Arrays	12
9.	Multi-Dimensional Arrays	12
Total		**90**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Midterm Exam	7th week	20%
2.	Lab Assessment	TBA	10%
3.	Assignment	10th week	10%
4.	Quizzes	TBA	10%

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
5.	Final Lab Exam	15th week	10%
6.	Final Theory Exam	16th week	40%

*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	Liang, Y. Daniel. Introduction to Java Programming and Data Structures, Comprehensive Version. Pearson, 2017.
Supportive References	
Electronic Materials	NetBeans with JDK as an IDE
Other Learning Materials	

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Lecture Room with 30+ seats with PC, Auto Projector, and a whiteboard.
Technology equipment (projector, smart board, software)	The laboratory is equipped with network so that the students have their privacy in accessing their own files with limited permissions of accessibility. Projectors installed in the labs to carry out lab demonstrations and presentations
Other equipment (depending on the nature of the specialty)	

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

Assessment Areas/Issues	Assessor	Assessment Methods
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