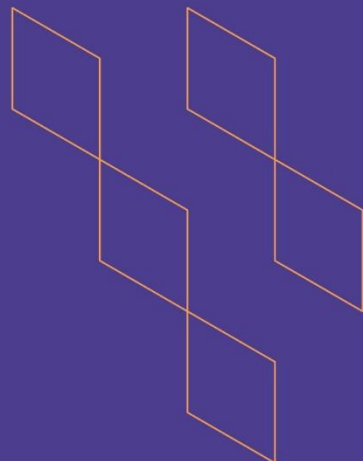




T-104
2022

Course Specification



Course Title: Introduction to Computing
Course Code: 111COMP-3
Program: Bachelor in Computer Science
Department: Computer Science
College: College of Computer Science and Information Technology
Institution: Jazan University
Version: V2
Last Revision Date: 01 January 2023



Table of Contents:

Content	Page
A. General Information about the course	3
1. Teaching mode (mark all that apply)	4
2. Contact Hours (based on the academic semester)	4
B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods	4
C. Course Content	5
D. Student Assessment Activities	7
E. Learning Resources and Facilities	7
1. References and Learning Resources	7
2. Required Facilities and Equipment	7
F. Assessment of Course Quality	8
G. Specification Approval Data	8



A. General information about the course:

Course Identification

1. Credit hours: 3

2. Course type

a. University ☐ College ☒ Department ☐ Track ☐ Others ☐

b. Required ☒ Elective ☐

3. Level/year at which this course is offered: Level-01/ Year-01

4. Course general Description

This course introduces the fundamental concepts and features of Computer. It includes the basics of computer hardware, software, input/output devices, computer network, computer user/client, computer architecture, programming, data representation, advantages and applications. This course also covers Python 3 programming language. This is an introductory course designed for any student interested in using computation to enhance their problem-solving abilities. Students will use their problem-solving abilities to implement basic programs in Python.

5. Pre-requirements for this course (if any): None

6. Co- requirements for this course (if any): None

7. Course Main Objective(s)

- Discuss the basic hardware and software components of a personal computers and their applications.
- Explain the basic fundamentals of data representation, algorithms, flowcharts and computer programming languages.
- Explain the fundamentals of Python programming.
- Explain the use of procedural statements - assignments, conditional statements, loops, iterations, strings and lists.

1. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1.	Traditional classroom	60	100
2.	E-learning		
3.	Hybrid <ul style="list-style-type: none"> • Traditional classroom • E-learning 		
4.	Distance learning (Self Learning)		



2. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	26
2.	Laboratory/Studio	26
3.	Field	
4.	Tutorial	
5.	Others (specify)	8
	Total	60

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

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Describe the major components of a personal computer, including input, output and process, storage, communications hardware and describe their functionalities.	K1	Class lectures and lecture notes	Midterm/ Assignment 1 / Final Exam/Final Lab
1.2	Define the fundamentals of Programming using procedural statements, use of conditional statements and Data Types.	K2	Research papers/ Class lectures/ lecture notes/ Case studies	Midterm/ Assignment 1/ Final Exam
...				
2.0	Skills			
2.1	Compare various types of Computers and Input / Output Devices.	S4	Class lectures/ lecture notes/Case studies	Final Exam/ Group Assignments
2.2	Design algorithms and flowchart for a basic given problem.	S1	Class lectures/ lecture notes/ Case studies / Brainstorming	Final Exam/ Assignments 1 /Group Assignments
2.3	Develop a program to solve a given problem using the language syntax and semantics.	S4	Class lectures/ lecture notes	Final Exam/ Group Assignments / Final Lab



Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
...				
3.0	Values, autonomy, and responsibility			
3.1	Ability to work in a team to solve a given problem.	V1	Small group discussion / Brainstorming/ Class discussion to train students to think independently	Group Assignments/ Final Exam
3.2				
...				

C. Course Content

No	List of Topics	Contact Hours
1.	Chapter – 1 INTRODUCTION TO THE WORLDS OF COMPUTERS What is a computer? Hardware Data vs. Information, Software, Computer Users, End users, Programmers, Computer categories.	2T + 2P
2.	Chapter – 2 THE SYSTEM UNIT: PROCESSING AND MEMORY Data and Program Representation, Digital Data Representation, Byte, Bit, Bit pattern, Data Types, Data representation: Coding Systems for Text-Based Data, Image representation methods, Audio representation, and Video representation. The Binary Numbering System: Binary Number, Decimal Number, Hexadecimal Number, Octal Number, Binary to Decimal Conversion, Decimal to Binary Conversion, Inside the System Unit, The Motherboard, The CPU, Memory.	2T + 2P
3.	Chapter – 3 PROGRAMMING Algorithms, Flowchart, Pseudo Codes, Programming Languages, Machine Languages, Low Level Languages, High Level Languages, and Natural Languages.	2T + 2P





4.	Chapter – 4 VARIABLES, EXPRESSIONS AND STATEMENTS Values and types, Variable names and keywords, Statements, Operators and Operands, Order of Operations, Modulus Operator, String operations, Asking the user for input, Comments and Converting User Input with Python.	4T + 4P
5.	Chapter-5 CONDITIONAL EXECUTION Boolean expressions, Logical Operators, Conditional Execution, Chained Conditionals, Nested Conditionals, More Conditional Execution Steps and Patterns and Catching exceptions using try and except.	4T + 4P
6.	Chapter – 6 LOOPS & ITERATIONS While loops (Indefinite), Infinite loops, using break, Using Continue, None constants and variables, For Loops (Definite), Iteration Variables, Loops Idioms, Largest or smallest.	6T + 6P
7.	Chapter – 7 STRINGS & LISTS Getting the length of a string using len, Traversal through a String with a loop, String Slices, the in operator, String comparison, searching a String, Parsing and Replace, Prefixes. Lists Constant, List Collections, Lists and Definite loop, Mutable Lists, Range Function, List Slicing and Building List from Scratch. Dictionaries and files, Looping and dictionaries and Advanced text parsing. Tuples Assignments, Comparing Tuples, Using Tuples as Keys in Dictionaries and Multiple Assignment with Dictionaries.	3T + 3P

Total		23T+23P

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Assignment-1	3 rd – 4 th Week	10%
2.	Exam-1/Midterm	4th-5th week	15%
3.	Assignment-2	6th-7th week	10%
4.	Exam-2	8th week	5%



No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
5.	Lab Exam + Lab Assignment	As per schedule	20%
6.	Final Theory Exam	As per schedule	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

Required Textbooks	<ul style="list-style-type: none"> Understanding Computers Today and Tomorrow, Deborah Morley, Charles S. Parker, Course Technology, Cengage Learning, 15th Edition, 2015, ISBN: 9781285767277. Python for Everybody: Exploring Data in Python 3 by Dr. Charles Russell Severance (Author), Sue Blumenberg (Editor), Elliott Hauser (Editor), Aimee Andron (Cover Design) 2nd Edition, 2016, ISBN-13: 978-1530051120
Essential References	<ul style="list-style-type: none"> Python Crash Course: A Hands-On, Project-Based Introduction to Programming by Eric Matthes, No Starch Press, 1 edition (November 1, 2015), ISBN-13: 978-1593276034 Think Python: How to Think Like a Computer Scientist by Allen B. Downey O'Reilly Media; 2 edition (December 28, 2015), ISBN-13: 978-1491939369 Learn Python 3 the Hard Way: A Very Simple Introduction to the Terrifyingly Beautiful World of Computers and Code (Zed Shaw's Hard Way Series) by Zed Shaw 1st Edition, Addison-Wesley Professional; 1 edition (July 7, 2017), ISBN-13: 978-0134692883
Supportive References	
Electronic Materials	<ul style="list-style-type: none"> https://www.codecademy.com/learn/python https://learnpythonthehardway.org/book/ https://developers.google.com/edu/python/ https://code.tutsplus.com/articles/the-best-way-to-learn-python--net-26288 http://www.bestechvideos.com/2007/03/02/advanced-python-or-understanding-python http://www.cs.hmc.edu/csforall/ http://www.swaroopch.com/notes/python/ http://opentechschool.github.io/python-beginners/en/index.html
Other Learning Materials	Online tutorial

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	<ul style="list-style-type: none"> Classroom equipped with projector, whiteboard, and sufficient seating arrangements. Lab with software installed and individual computer terminal for each student.
Technology equipment (projector, smart board, software)	Whiteboards and projectors for classroom and lab. Following software for lab work: <ul style="list-style-type: none"> PyCharm Jupyter Notebook
Other equipment (depending on the nature of the specialty)	None

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	Indirect (Course evaluation survey form)
Effectiveness of students assessment	CRC / QAU / HoD	Direct (Course reports / result analysis)
Quality of learning resources	Track leaders / CRC	Indirect (Review, meetings and star rating with suggestions for further modification and improvements)
The extent to which CLOs have been achieved	CRC / QAU	Direct (CLO assessment template further verified at course coordinator, Track leader and QAU level)
Other		

Assessor (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

G. Specification Approval Data

COUNCIL
/COMMITTEE

DEPARTMENT COUNCIL



REFERENCE NO.

DATE

01/01/2023

