



Course Specification

— (Bachelor)

Course Title: Introduction to Problem Solving

Course Code: 501110-2

Program: Bachelor in Computer Science

Department: Department of Computer Science

College: College of Computers and Information Technology

Institution: Taif University

Version: 1

Last Revision Date: 01-02-2024



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A. General information about the course:

1. Course Identification

1. Credit hours: (2)

2. Course type

A. University College Department Track Others
 B. Required Elective

3. Level/year at which this course is offered: (1st Level/1)

4. Course general Description:

The course presents fundamental concepts of problem-solving techniques in computer science and other computational sciences. Topics include: Problem-solving approaches and process, Arithmetic Expression, Debugging, Decision structures, Repetition Structures.

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

NULL

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

NULL

7. Course Main Objective(s):

In this course, student view, consider, analyze, design, plan, work, and solve problems from a computational perspective.
 To gain general knowledge about modern computing and the concepts and thinking processes underlying modern digital technologies.

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	2	100
2	Blended		
3	E-learning		
4	Correspondence		



No	Mode of Instruction	Contact Hours	Percentage
5	Other		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lecture	30
2.	Laboratory/Studio	0
3.	Tutorial	0
4.	Others (specify)	0
Total		30

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			
2.0	Skills			
2.1	To introduce concepts, techniques, and problem-solving skills in the field of computing.	S1	Lecture Problem Solving	Written Exams Quizzes
2.2	Ability to apply problem solving skills to solve common real-life problems.	S1	Lecture Problem Solving	Written Exams Quizzes
2.3	Ability to select appropriate solutions to problems.	S1	Lecture Problem Solving	Written Exams Quizzes



Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
2.4	Ability to write pseudo code and use other problem-solving tools to illustrate solutions.	S1	Lecture Problem Solving	Written Exams Quizzes
3.0	Values			

C. Course Content

No	List of Topics	Contact Hours
1.	Introduction to Computers and Programming	2
2.	Problem-solving process -I (Input and output, programming process)	2
3.	Problem-solving process-II (System development, pseudo-code)	2
4.	Problem-solving process-III (Flowchart)	2
5.	Arithmetic Expression-I (Variables and basic types, mathematical expressions, Order of Operations, Associativity of Operators, Grouping with Parentheses)	4
6.	Arithmetic Expression-II (Algebraic Expressions, Postfix expression, Prefix expression, Multiple Assignment and Combined Assignment)	4
7.	Tracing a Program (Focus on debugging: Hand tracing a Program, Focus problem solving: A case study)	4
8.	Tracing a Program (Focus on debugging: Hand tracing a Program, Focus problem solving: A case study)	4
9.	Decision Structures-II (Flowchart for Evaluating a Decision- (Single, double, multi-way, nested), Solving problems using decisions structures)	4
Total		30





D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Homework / Student Participation- Attendance	Every Week	10%
2.	Quizzes	Week 4, 7 and 12	10%
3.	Midterm Exam	Week 8	30%
4.	Final Exam	Week 16	50%

*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	<ul style="list-style-type: none"> Wang, Paul S. From computing to computational thinking. Chapman and Hall/CRC, 2016.
Supportive References	<ul style="list-style-type: none"> Sprankle, Maureen, and Jim Hubbard. Problem solving & programming concepts. Upper Saddle River, NJ: Pearson Prentice Hall, 9th edition, 2011
Electronic Materials	
Other Learning Materials	<ul style="list-style-type: none"> http://www.flowgorithm.org/download/index.htm

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	<ul style="list-style-type: none"> A Lecture room appropriate for maximum 25 students with a personal computer, a data show and a smart board.
Technology equipment (projector, smart board, software)	<ul style="list-style-type: none"> Video projector / data show





Items	Resources
Other equipment (depending on the nature of the specialty)	

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	<ul style="list-style-type: none"> Students Faculty members Coordinator Council Curriculum Committees 	<ul style="list-style-type: none"> Course exit survey Feedback from Faculty members Feedback from Course Coordinator Feedback from council Feedback from Curriculum Committees
Effectiveness of Students assessment	<ul style="list-style-type: none"> Students Faculty members Coordinator Council Curriculum Committees 	<ul style="list-style-type: none"> Course exit survey Feedback from Faculty members Feedback from Course Coordinator Feedback from council Feedback from Curriculum Committees
Quality of learning resources	<ul style="list-style-type: none"> Students Faculty members Coordinator Council Curriculum Committees 	<ul style="list-style-type: none"> Course exit survey Feedback from Faculty members Feedback from Course Coordinator Feedback from council Feedback from Curriculum Committees
The extent to which CLOs have been achieved	<ul style="list-style-type: none"> Students Faculty members Coordinator Council Curriculum Committees 	<ul style="list-style-type: none"> Course exit survey Feedback from Faculty members Feedback from Course Coordinator Feedback from council Feedback from Curriculum Committees
Other		

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

Assessment Methods (Direct, Indirect)





G. Specification Approval

COUNCIL /COMMITTEE	CS council
REFERENCE NO.	Meeting #11
DATE	07/03/2024

