Fall 2022	
GENERAL COURSE INFORMATION	
Course Code and Title	**CSBP119: Algorithms and Problem Solving**
Prerequisite	None
Co-requisite	None
Credit Hours	3 Hrs.
Contact Hours	2 sessions of 75-minute lectures
Course Coordinator	Dr. Rafat Damseh (rdamseh@uaeu.ac.ae)

SECTION INFORMATION	
Lecture Instructor	**Dr. Rawhi Alrae** **Email:** rawhi@uaeu.ac.ae **Phone:** +971 3 713 (5542) **Office Location/Hours**: CIT E1/3129 Mon Wed: 12:30 – 2:00 , Tue Thu: 11:30 – 12:30

CATALOGUE DESCRIPTION

Introduction to problem-solving methods and program development including: the role of algorithms in the problem-solving process, implementation strategies for algorithms, the concept and properties of algorithms, and basic algorithms. Program design strategies including implementation using a programming language which supports modular design and includes: I/O, events, control structures, arrays, functions.

TEXTBOOK & LEARNING RESOURCES

TEXTBOOK:
Starting out with Python, Tony Gaddis, 5th edition. Pearson. ISBN: 9780136679110, 2021

Reference Books:

- *Introduction to Computation and Programming Using Python: With Application to Understanding Data Second Edition,* Guttag, John, MIT Press, 2016. ISBN: 9780262529624.
- Python Basics: A practical Introduction to Python 3, 4E, https://static.realpython.com/python-basics-sample-chapters.pdf

TEACHING & LEARNING METHODOLOGIES

Software packages (PyCharm), Lectures, White and Smart Board instructions, Problem Solving, discussions.
PyCharm: https://pycharm-community-edition.en.softonic.com/download

COURSE LEARNING OUTCOMES (CLOs)

Upon the successful completion of the course, students will be able to:

1. Translate a problem expressed in English, mathematics or a diagram to a computer program.
2. Implement algorithms using programming constructs (variables, control structures, methods).
3. Solve problems using suitable data structures.
4. Implement searching, summing and selecting algorithms.

TOPICAL OUTLINE

Time Line (Instructional Week)	Topic(s)	CLOs	Course Activities/ Teaching & Learning Methods
Week 1	• Introduction (Ch.1)	1	Lecture/Class discussion

Week 2 Week 3	• Input, Processing, and output (Ch.2) • Variables & Constants (Ch.2)	1, 2	Lecture/Problem Solving /Class discussion
Week 4	• Decision Structures & Boolean Logic (Chap. 3) ○ If, if-else ○ If-elif-else	2	Lecture/Problem Solving /Class discussion
Week 5 Week 6	• Repetition structures (Ch.4): For loop, while loop, sentinel, nested loops	2	Lecture/Problem Solving /Class discussion
Week 7	• Functions (Ch.5): Pre-defined functions & the Math module	1,2	Lecture/Problem Solving /Class discussion
Week 8	• Review & Midterm Exam		
Week 9	• Function (Ch.5) : user-defined functions, ○ Void functions ○ Value-returning functions ○ Converting functions to module	2,4	Lecture/Problem Solving /Class discussion
Week 10	• Strings (Ch.8)	3,4	Lecture/Problem Solving /Class discussion
Week 11	• File I/O & Exceptions (Ch.6)	3,4	Lecture/Problem Solving /Class discussion
Week 12 Week 13 Week 14	• Lists & Tuples (Ch.7) ○ One-dimensional lists ○ Slicing ○ Two-dimensional lists ○ Tuples	3,4	Lecture/Problem Solving /Class discussion
Week 15	Review before the final exam		
Week 16	Final Exam		

GRADING		
Assessment Methods	Weight	Due Date
Quizzes	20%	One every 3 weeks
Assignments	20%	One per month
Midterm	25 %	8th week of instructions
Final	35 %	16th week instructions
Rubrics	Grade distribution for each question will be shown on the exam/quiz/assignment paper.	
Feedback	Feedback on progress in the course will be regularly provided to students to keep them informed and provide them with opportunities to improve their performance.	

COURSE POLICIES

Attendance

Students shall be required to attend all classes, practical sessions, seminars and examinations related to the course in which they are registered. A student who misses 15% of the class meetings allotted for a course will receive an "FA" (Fail for Absences) grade in the course. If there is a valid reason for the absence, which has been approved by the Dean in the semester in which the absence occurred, the student will be granted Administrative Withdrawal from the course and will receive a final grade of "AW". Students are responsible for checking and tracking their attendance records for each course

via e-Services. For more details on attendance policies, students ought to consult the university policies at: http://www.uaeu.ac.ae/en/about/procedures/admissions_and_enrollment/pro-ae_03_en.pdf.

Academic Integrity

Academic integrity is of central importance to education at UAEU. Students have the responsibility to know and observe the requirements of the UAEU Code of Academic Honesty available: https://www.uaeu.ac.ae/en/catalog/plagiarism_and_academic_integrity.shtml and the penalties resulting from violation of this code. This code forbids cheating, fabrication or falsification of information, multiple submission of academic work, plagiarism, abuse of academic materials, and complicity in academic dishonesty. Cheating in any form and on any academic work results in serious penalties that include dismissal from the university.

Students with Special Needs

Students with special needs are encouraged to discuss their needs with the course instructor. You need to contact the Special Needs Services Center at +971 3 7134264 or email (disabilityservices@uaeu.ac.ae). All academic accommodations must be arranged through that office: http://www.uaeu.ac.ae/en/student_services/special_needs/ .

Student Support Services

If you need more support, please go to the Student Academic Success Program: http://www.uaeu.ac.ae/en/university_college/sasp/. This program provides students with academic support services such as Independent Learning Centers (ILCs), Tutorials, Writing & Speaking Centers. All students are encouraged to use these Centers.

COURSE CONTRIBUTION

Contribution of CLOs to Programs Learning Outcomes (PLOs)				
	CLO1	CLO2	CLO3	CLO4
BSc in CS	PLO1, PLO6	PLO2	PLO1	PLO2
BSc in IT	PLO1	PLO2	PLO1	PLO2
BSc in ISEC	PLO1	PLO2	PLO1	PLO2
BSc in CE	PLO1	PLO2	PLO1	PLO2

PLOs of all programs are available at:
http://www.cit.uaeu.ac.ae/en/programs/undergraduate/