University of Asia Pacific (UAP)
Department of Computer Science and Engineering (CSE)

Course Outline

Program:	Computer Science and Engineering (CSE)
Course Title:	Object Oriented Programming II: Visual and Web Programming
Course Code:	CSE 301
Semester:	Spring 2025
Level:	3rd Year 1st Semester
Credit Hour:	3.0
Name & Designation of Teacher:	Durjoy Mistry, Lecturer Bidita Sarkar Diba, Lecturer Nahida Marzan, Lecturer
Office/Room:	7th floor, Teacher's room
Class Hours:	**Section A:** **Section B:** **Section C:** **Section D:** Sunday (08:00 AM- 09:20 AM), Tuesday (12:30 PM -13:50 PM) **Section E:**
Consultation Hours:	TBA
E-mail:	bidita@uap-bd.edu
Mobile:	**+8801773117526**
Rationale:	This course will cover the main aspects of an object-oriented programming language (example: Python). Students will learn how to use Python according to proper Object-Oriented Programming principles. This course covers the Python language syntax and then moves into the object-oriented features of the language.

Prerequisite (if any)**:** CSE 203, CSE 211

Course Synopsis: This course will cover the main aspects of **Framework Platform (Django):** Introduction, features, components, architecture of a Framework platform. **Object-Oriented Programming principles (Python)**: Inheritance and Polymorphism: Polymorphic support in framework based languages, understanding Base Class/Derived Class Casting rules, Interfaces: Understanding Interface Types, Implementing an Interface, Invoking Interface Members at the Object Level. **File I/O and Isolated Storage:** Exploring the System I/O Namespace, the Directory (Info) and File (Info). Windows Forms: Introduction to Windows forms like simple window, text editor, List View, Tree View controls etc. Web Platform: Introduction to web server and web programming, introduction to any scripting language, HTML and Scripting language Tags, HTML forms, Retrieve data from form elements using Get and Post Methods, String Manipulation, Database Connection, Executing SQL queries, Session Control and Cookies.

Course Objectives (CLO): The objectives of this course are:

1. Learn OOP principles and features and how to apply them in real life problems.
2. Learn how to properly apply OOP concepts in Web and System development
3. Learn how to use the Django Framework developing a web application.
4. Become familiar with Django views, models and URLs.

Course Outcomes (CLO) and their mapping with Program outcomes (PO) and Teaching-Learning Assessment methods:

CLO No.	CLO Statements: Upon successful completion of the course, students should be able to:	Corresponding PLOs (Appendix-1)	Bloom's taxonomy domain/level (Appendix-2)	Delivery methods and activities	Assessment Tools	K	P	A

CLO1	Understand the basic concepts of Interpreted and Compiled Programming Languages, web programming, web application along with Framework and database.	a	Understand	Lecture, multimedia,	Quiz, Written exam	K3	P1	A1
CLO2	Construct problem solutions using high-level programming language (Python) and its OOP features.	b	Apply	Lecture, Problem Solving	Quiz, Written exam	K4	P3	A3
CLO3	Design a web application using web programming languages (HTML, CSS, JavaScript, and Bootstrap).	c	Apply	Lecture Problem Solving	Written exam	K5	P2	A3
CLO4	Analyze how to develop a web application using a web framework (Django).	e	Create	Lecture Problem Solving	Written exam	K6	P7	A2

Weighting COs with Assessment methods:

Assessment Type	% weight	CLO1	CLO2	CLO3	CLO4
		PLO-1	PLO-2	PLO-3	PLO-5
Final Exam	**50%**	10	10	10	20
Mid Term	**20%**	10	5	5	
Class performance, Quizzes, Assignment	**30%**	CT1/CT3 10	CT2+Ans1 20		
Total	**100%**	**30**	**35**	**15**	**20**

Course Content Outline and mapping with Cos

Weeks	Topics / Content	Course Outcome	Delivery methods and activities	Reading Materials
Week 1:	Introduction to Course Content Introduction to Course Content , introduction to high-level programming language (Python). (Basic Syntax) , web application	CLO1		Course Outline Python official documentation: Chapter 1, 2, 3
Week 2:	Python (List, Tuple, Set, Dictionary)	CLO1, CLO2,		Python official documentation: Chapter 4; Other Materials to be delivered during lecture
Week 3:	Python (Condition, Loop, Function) Python (Module, File, I/O)	CLO1, CLO2,		Python official documentation: Chapter 5; Other Materials to be delivered during lecture
Week 4-5:	**Object-Oriented Programming principles** CT 1	CLO1, CLO2, CLO3		Python official documentation: Chapter 9; Other Materials to be delivered during lecture
Week 6-7:	**web programming**, introduction to any scripting language, **HTML** and Scripting language Tags, HTML forms, Retrieve data from form elements using Get and Post Methods,	CLO4		Materials will be provided in the class
Mid Term Exam				

Week 8:	Architecture of a Framework :Django (Introduction, Project Structure), Django (URLs, Views)	CLO1, CLO5		Django Documentation; Python official documentation: Chapter 9; Other Materials to be delivered during lecture
Week 9:	Django (Models, Database, Admin)	CLO1, CLO5		Django Documentation; Other Materials to be delivered during lecture
Week 10:	Django (User account)	CLO1, CLO5		Django Documentation; Other Materials to be delivered during lecture
Week 11:	Django, OOP (Polymorphism, Abstract class and Interface) CT 3	CLO1, CLO3, CLO5		Django Documentation; Other Materials to be delivered during lecture
Week 12:	Django, OOP (Decorator, Magic Methods, Abstract class and Interface)	CLO1, CLO3, CLO5		Django Documentation; Other Materials to be delivered during lecture
Week 13:	Django, OOP (Association, Aggregation and Composition) CT 4	CLO1, CLO3, CLO5		Django Documentation; Other Materials to be delivered during lecture
Week 14:	Review Class (OOP, Framework) OOP (Association, Aggregation and Composition)	CLO1, CLO3, CLO5		Materials to be delivered during lecture

Minimum attendance: 70% class attendance is mandatory for a student to appear at the final examination.

Textbook: Python Crash Course: A Hands-on, Project-based Introduction to Programming - Eric Matthes

Recommended References: Python Crash Course: A Hands-on, Project-based Introduction to Programming - Eric Matthes
Python Tutorial (Official Publication) – Guido van Rossum and the Python development team
Django Documentation (2.2) - Django Software Foundation

Grading System: As per the approved grading scale of the University of Asia Pacific (Appendix-3).

Special Instructions: **Late attendance:** Students who will enter the class after the attendance call will be marked as absent.

Assignment: Assignment will be given throughout the semester. Copied assignments will be graded as zero. Late submission will result in a 50% deduction in score.

Class Test: There will be no make-up quizzes.

Student's responsibilities: Students must come to the class prepared for the course material covered in the previous class (es).
They must submit their assignments on time.

Prepared by (Course Teacher)	**Checked by** (Chairman, PSAC committee)	**Approved by** (Head of the Department)

Appendix-1:
Washington Accord Program Outcomes (PO) for engineering programs:

(a) Apply knowledge of mathematics, natural science, engineering fundamentals and an engineering specialization as specified in K1 to K4 respectively to the solution of complex engineering problems.

(b) Identify, formulate, research literature and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences. (K1 to K4)

(c) Design solutions for complex engineering problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations. (K5)

(d) Conduct investigations of complex problems using research-based knowledge (K8) and research methods including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions.

(e) Create, select and apply appropriate techniques, resources and modern engineering and IT tools, including prediction and modeling, to complex engineering activities with an understanding of their limitations.

(f) Apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice and solutions to complex engineering problems. (K7)

(g) Understand and evaluate the sustainability and impact of professional engineering work in the solution of complex engineering problems in societal and environmental contexts. (K7)

(h) Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice. (K7)

(i) Function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings.

(j) Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

(k) Demonstrate knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

(l) Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Knowledge Profile

K1 A systematic, theory-based understanding of the natural sciences applicable to the discipline

K2 Conceptually based mathematics, numerical analysis, statistics and formal aspects of computer and information science to support analysis and modelling applicable to the discipline

K3 A systematic, theory-based formulation of engineering fundamentals required in the engineering discipline

K4 Engineering specialist knowledge that provides theoretical frameworks and bodies of knowledge for the accepted practice areas in the engineering discipline; much is at the forefront of the discipline

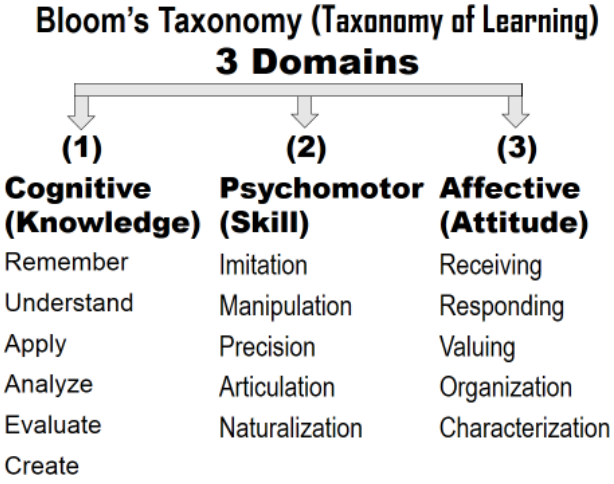
K5 Knowledge that supports engineering design in a practice area

K6 Knowledge of engineering practice (technology) in the practice areas in the engineering discipline

K7 Comprehension of the role of engineering in society and of the identified issues in engineering practice in the discipline: ethics and the engineer's professional responsibility to public safety; the impacts of engineering activity in economic, social, cultural, environmental and sustainability terms

K8 Engagement with selected knowledge in the research literature of the discipline

Appendix-2



Appendix-3
UAP Grading Policy:

Numeric Grade	Letter Grade	Grade Point
80% and above	A+	4.00
75% to less than 80%	A	3.75
70% to less than 75%	A-	3.50
65% to less than 70%	B+	3.25
60% to less than 65%	B	3.00
55% to less than 60%	B-	2.75
50% to less than 55%	C+	2.50
45% to less than 50%	C	2.25
40% to less than 45%	D	2.00
Less than 40%	F	0.00