FPT SCHOOL OF BUSINESS & TECHNOLOGY

MASTER OF SOFTWARE ENGINEERING

SYLLABUS

Course Name:	**Python for engineers**
Course Code:	PPR501
No of credits:	03
Time Allocation:	Study hours (150h) *- Contact hours (45h)* *- Final assessment (3h)* *- Self-study (102h)*
Prerequisite:	No

I. DESCRIPTION

This course builds on the success of the Python for Everybody course and will introduce fundamental programming concepts including data structures, networked application program interfaces, and databases, using the Python programming language.

In the Final Project, you'll use the technologies learned to design and create your applications for data retrieval, processing, and visualization

II. MAIN OBJECTIVES

By the end of the course, students will be able:

- explain the basics of programming computers using Python;
- understand fundamental programming concepts such as data structures
- create your applications for data retrieval and processing
- describe the basics of the Structured Query Language (SQL) and database design

Mapping CLOs to PLOs

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11	PLO12
CLO1	X											

CLO2	X											
CLO3		X										
CLO4		X										

III. TEACHING METHODS

To achieve the best course objectives, teaching methods and activities are used spontaneously, including:

- Teaching theory
- Group activities
- Group presentations

In addition, during the learning process, faculty can use different methods to achieve the teaching goals in the best way.

IV. STUDENT'S TASK

- Student is responsible for doing the final project given by instructor in class or at home and submitting it on time
- Constantly follow announcements from training dept. for up-to-date course information.

V. TEACHING & LEARNING MATERIALS

Textbook

- eBook: https://www.py4e.com/html3/
- Ngôn ngữ lập trình Python, PGS.TS. Phan Duy Hùng, Th.S Lê Đình Huynh.

  NXB Đại học Quốc Gia Hà Nội, 2022, ISBN: 978-604-379-529-5.

Reference

- https://www.python.org/doc/
- https://www.coursera.org/specializations/pythons

VI. SCHEDULE

Session	Content	CLO
1	Course Introduction Getting Started with Python Installing and Using Python Variables and Expressions	CLO1
2	Conditional Code Functions	CLO1
3	Loops and Iteration	CLO1
4	String, Files, List	CLO1, CLO2
5	Self-study at home	CLO1, CLO2
6	Dictionary, Tuple	CLO2
7	Self-study at home	CLO2
8	Regular Expressions	CLO3
9	Networks and Sockets	CLO3
10	Self-study at home	CLO3
11	Web Services and XML JSON and the REST Architecture	CLO3
12	Self-study at home	CLO3
13	Object Oriented Python, Exercise 1	CLO1, CLO2
14	Frequency Analysis of Signals & Systems	CLO2
15	Self-study at home	CLO1-CLO3

16	Basic Structured Query Language	CLO4
17	Self-study at home	CLO1-CLO4
18	Data Models and Relational SQL CRUD Database with python Give Assignment	CLO4
19	Self-study at home	CLO1-CLO4
20	Self-study at home	CLO1-CLO4
21	Retrieving, Processing, and Visualizing Data with Python Exercise 2	CLO3
22		CLO3
23	Self-study at home	CLO1-CLO4
24	Web programing with Flask Python Exercise 3	CLO4
25	Self-study at home	CLO1-CLO4
26	Using Python in Machine Learning	CLO1-CLO4
27	Self-study at home	CLO1-CLO4
28	Self-study at home	CLO1-CLO4
29	Present assignment (code + ppt)	CLO1-CLO4
30	Present assignment (code + ppt)	CLO1-CLO4

VII. ASSESSMENT

Assessment type	Symbol	Weight
ON-GOING		55%
1. Participation	P	10%

2. Individual (3 exercises)	I	45%
3. Team	T	
4. Quiz	Q	
FINAL ASSESSMENT (Assignment)	FE	45%
Completion Criteria: Average>=5 & Final assessment >=4 (Score:10) Detailed assessment in the Appendix		

APPENDIX: DETAILED ASSESSMENT

Assessment Category	Assessment Type	Weight	Minimum value to meet completion criteria	Duration	Learning outcomes	Number of questions	Scope of knowledge and skill of question	How
Participation	On-going	10	N/A	Throughout all sessions	CLO1-CLO4			Evaluation based on the following criteria: - **Class Participation**: This includes the student's attendance, active engagement in class discussions, and contributions to the lessons, as well as providing constructive feedback to improve teaching quality. - **Completion of Evaluation Forms**: Timely and adequate completion of course evaluation forms + Do not complete any: Poor + Complete 1% - 50%: Average + Complete 51% – 90%: Good + Complete 91% – 100%: Excellent
Exercise	On-going	45	N/A		CLO1-CLO4	Depend on lecturer	The content of the topics under the module	Evaluation based on the specific requirements of the question
Assignment	Final	45	4		CLO1-CLO4	1	Summary of the content of all topics	Evaluation based on the following criteria: - Accuracy and Correctness: Ensure the solutions are correct and error-free. - Creativity and Problem-Solving Ability: Demonstrate innovative solutions and critical thinking. - Completeness of the Product: Provide all required components and supporting documentation.

								- Presentation and Expression Skills: Present the assignment clearly with correct terminology. - Application of Theoretical Knowledge: Apply theory effectively to practical problems. - Timeliness and Adherence to Requirements: Submit on time and meet all assignment requirements.