Programming 3

Basic Course Information

Course Number	01005084	Subject Category	Compulsory (M)
Class Format	Lecture	Credit Type and Number of Credits	1
Department	Mechatronics	Student Category	Year 2
Period of Study	Semester 1	Classes per Week	2
Required Materials	Laptop, Coding program (PyCharm), Google Colab (Optional)		
Instructor	Tanapon Keatsamarn	Teerapong Orachon	

Course Objective

Student can understand and explain the basic program by using Python with NumPy, Pandas, Matplotlib, and SciPy library. Student can use these library to implement a basic program and solve the problems including apply to interesting mini project.,

Evaluation(Rubric)

Evaluation(Rubric)	Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fail)
	Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fail)
Can explain how to write basic programs by using Python.	Can explain how to write basic programs by using Python detailedly and precisely.	Can explain how to write basic programs by using Python.	Can't explain how to write basic programs by using Python.
Can implement basic programs by using Python.	Can implement basic programs by using Python detailedly and precisely.	Can implement basic programs by using Python.	Can't implement basic programs by using Python.
Can solve problems by using computer programs of Python.	Can solve problems by using computer programs of Python detailedly and precisely.	Can solve problems by using computer programs of Python.	Can't solve problems by using computer programs of Python.

Relationship with Learning Outcomes

C(1) Ability to operate and administer the computer software and hardware

C(2) Ability to understand the operating system and to develop software to solve specific problems.

Please change

Teaching Method

Outline:	Student will study the python library NumPy, Pandas, Matplotlib, and Scipy. And use these library to program for solving the problem that have been received. Including student will make and present your interesting work from these library.
Class Format :	Lecture, Practice, Groupwork and Homework Assignments
Please Note :	The Midterm examination will provided but Final examination will not provided.

Course Plan

Semester 1	Contents and Method of Course	Goals	Related MCC		
1st week	NumPy(1) Creating Arrays, Array indexing, Array Slicing	Understand about NumPy	V-A	7	157
			V-A	7	164
2nd week	NumPy(2) Data types, Copy and View	Understand about NumPy	V-A	7	158
3rd week	NumPy(3) Array Shap, Reshape,Iterating	Understand about NumPy	V-A	7	162
			V-A	7	163
4th week	NumPy(4) Joint, Split, Search, Sort, Filter	Understand about NumPy			
5th week	NumPy(5) Mathematics and applications	Understand about NumPy	V-A	7	159
			V-A	7	160
6th week	Pandas: csv open file / create file, searching data	Understand about Pandas			
	S.E.5 06/20/2023				
7th week	Review before mid-term exam	Review week 1st-6th			
	Midterm Exam week	Midterm examination			
	Midterm Exam week	Midterm examination			
8th week	Return Midterm exam and Feedback	Return Midterm exam and Feedback			
9th week	Matplotlib(1) Plotting,Markers,Line,Labels	Understand about Matplotlib	V-A	7	161
	Holiday 08/01/2023				
10th week	Matplotlib(2) Grid,Subplots,Scatter	Understand about Matplotlib	V-A	7	161
11th week	Matplotlib(3) Bars,Histograms,Pie Charts	Understand about Matplotlib	V-A	7	161
12th week	SciPy (1) Constants, Sparse Data	Understand about SciPy	V-A	7	161
13th week	SciPy (2) SciPy with sound	Understand about SciPy			
14th week	Group work	Understand and apply knowledge in mini project	V-A	7	156
			V-A	7	161
15th week	Review before final exam & Group work cont.	Continue group work and review week 8th-14th			
	Final Exam week	no exam			
16th week	Presentation	Present your group work			

Do not

	Examination	Presentation	Mutual Evaluations between students	Report	Portfolio	Other
Basic Ability	0	0		40		
Technical Ability	30	30		0		
Interdisciplinary Ability	0	0		0		