



Value-Added Course -SYLLABUS (2023-24)

B.E. (Electronics and Communication Engineering)

Course Code		L	T	P	C	IA	EA	TM	
Course Name	Real-Time Applications using Python	1	0	1	2	100	-	100	
Course Category	Value Added Course	Syllabus Revision					V.1.0		
Pre-requisite	Basic Programming Knowledge								
Course Objectives:									
The course should enable the students									
<ol style="list-style-type: none"> 1. To know basic data engineering concepts and supporting libraries in Python 2. To understand various image processing techniques 3. To integrate hardware and software components using python 4. To understand basic classification algorithms and their implementation 5. To improve the employability skills of engineering students. 									
Course Outcomes:									
On completion of the course, the student will be able to									
Course Outcomes	Description								
CO1	Apply data engineering concepts to prepare the data for analysis								
CO2	Explore various image processing techniques								
CO3	Integrate hardware and software components using python								
CO4	Implement basic classification, algorithmic models								
CO5	Develop their employability skills.								
Grading:									
Lab implementation – 25%				Participatory-based group Project – 25%					
Assessment/Assignment– 25%				Attendance - 25%					
Mode of delivery:									
<ol style="list-style-type: none"> 1. PowerPoint Presentation 2. Hands-on Training 									
Experiments									
1.	Introduction to Python <ul style="list-style-type: none"> ➤ Python Libraries ➤ Basic programming -Image Processing 								
2.	Cryptography <ul style="list-style-type: none"> ➤ Encode and Decoding 								
3.	GUI Implementation <ul style="list-style-type: none"> ➤ Alarm Clock 								
4.	Hardware Interfacing (Using Kit: Arduino) <ul style="list-style-type: none"> ➤ Switching of LED 								



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5.	Detection of Electrical Faults ➤ KNN
6	Heart rate Classification ➤ Decision Tree Classifier
7	Earth Quake Prediction ➤ Random Forest Classifier
8	Hardware Interfacing (Using Kit: Raspberry Pi)
Tools	
1	Python 3.10
2	Anaconda Environment
3	Arduino Board
4	Raspberry-Pi Kit
5	Computer with a powerful CPU/GPU, a minimum of 8GB of RAM, and large storage capacity.
Reference Book:	
1.	Jake Vander Plas, "Python Data Science Handbook", O'Reilly, 2016
2.	Andreas C. Muller, "Introduction to Machine learning with Python", O'Reilly, 2016
3.	John Paul Mueuller, Luca Massaron, "Python for Data Science for Dummies", Wiley,2019
4.	Samir Madhavan, "Mastering Python for Data Science", 2015