Type of Course : Value Added Course		
Course Code: VACA203	**Title:** Machine Learning with Python	**Duration:** 40hrs
Course offered to- BCA 2nd year, B.Sc. (H) CS 2nd year	**Course Coordinator:** Ms. Shivangi Ghildiyal	
Course Overview	This **VAC(Value Added Course)** is offered by the **Faculty of Computer Applications.** It has 8 modules to complete this course, upon completion you will be awarded a Certificate. In this value added course you will learn technologies like Python and ML algorithms. This course is for all the students studying in the Faculty of Computer Applications. The following are the details.	
Course Prerequisites	Interest to learn ,Laptop, Understanding of Basic Programming Concept of any language and Mathematics (Linear Algebra, Probability and statistics).	
Objectives	• To setup the environment to run the python programs • To Understand the essential concepts of Python programming • To understand concepts about Data Types and Looping statements • To learn the fundamentals of Machine Learning. • To understand basic component of an intelligence system. • To explore applications of machine learning. • To understand different types of machine learning algorithms and tools. • To learn how to use machine learning model to solve real world problem.	
Course Outcome	• List various approaches of Machine Learning. • Master machine learning on python • Use Machine learning for personal use • Describe machine learning algorithms to solve the real-world problems. • Develop machine learning models. • Classify data using Logistic regression • Identify appropriate models for solving machine learning problems. • Apply learning techniques to solve real world machine learning problems. • Evaluate and interpret the results of the algorithms.	
Module No.	**Module Title**	**No. of hours (per module)**
Module I	**Introduction**	**2**
Introduction to Python, Setting up the environment, Installing Python with an Anaconda, Running python program, Python's execution model, Demo on python IDEs and code editors (Jupyter Notebook, Visual studio code) Keywords, Identifiers, Simple Program to display Hello world in Python.		
Module II	**Working with variables to manage the data**	**4**
Rules to declare variables, Built-in Data Types: Numbers, Boolean, Immutable sequences, Mutable sequences, Set types, Mapping types – dictionaries and its operations, List and its operations, Tuples and its operations, Operators and its type in Python.		
Module III	**Decision making and flow control**	**3**
Iterating and Making Decisions: Conditional programming: if, if-else, if elif else, Looping statement in python : for and while, Nesting of loops, Jump statements : break, flow chart of break statement, continue, flow chart of continue statement and pass keyword.		

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Module IV	**Functions in Python**	**4**
Functions, the building blocks of code: Use of functions, Scopes and name resolution, Input parameters, Return values, Recursive functions, Anonymous functions: lambda function, use of lambda function along with built in functions like filter(), map() and reduce().		
Module V	**Python Libraries required for Machine Learning**	**8**
Numpy: key operations using numpy, **Pandas:** key operations on Data Frames, **Matplotlib:** Visualizing data, creating graphs, Introduction to scikit-learn		
Module VI	**Introduction to Machine Learning**	**3**
Introduction and history of Machine Learning, Overlap between Data Science, Machine Learning and AI, Applications of Data Science in day to day life & Machine Learning in the modern context.		
Module VII	**Supervised Learning and Linear Regression**	**8**
Difference between supervised, unsupervised and semi-supervised learning and Reinforcement learning, Linear Regression, Loss function, Method of gradient descent		
Module VIII	**Classification and Logistic Regression**	**8**
Introduction to classification problems and Types of classification - Binary Classification, Multi-Class Classification, Logistic Regression		
Text Books	1. Introduction to Machine Learning with Python: A Guide for Data Scientists, Andreas C. Müller and Sarah Guido, O'Reilly, 2016.	
Reference Books	1.Python Cookbook, 3rd Edition by David Beazley (Author), Brian K. Jones (Author)	
Mode of Evaluation	Quizzes, Class Test	

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Department of Computer Applications

02 Nov 2020

CIRCULAR

VALUE ADDED COURSE (Machine Learning with Python)- BCA , B.Sc.(H)CS

Students of BCA and B.Sc.(H) CS 2nd year are hereby informed that value added course "Machine Learning with Python" is scheduled from 18th November 2020 in your respective classroom, Academic Block-III.

Schedule:

- Time Slot: 03:00 PM to 05:00 PM
- Key Speaker: Ms.Shivangi Ghildiyal
- Duration: 2 hrs

Program Overview:

The objective of this course is to develop python skills of students who are ready to deal with complexities in the computing world and are able to maintain machine learning skills as per the requirement.

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Mr. Jitendra Choudhary

(HOD)

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MACHINE LEARNING WITH PYTHON

Organised By:

FACULTY OF COMPUTER APPLICATIONS

Head
Department of Computer Applications
Faculty of Computer Applications
Invertis University, Bareilly (U.P.)

HOD:
Mr. Jitendra Choudhary

Speaker:
Ms. Shivangi Ghildiyal

DATE
18 Nov- 16 Dec 2020

TIME
03 PM TO 05 PM

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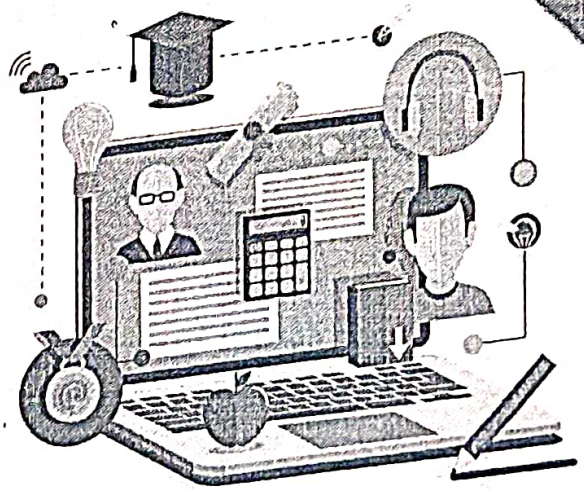
COURSE OVERVIEW

This course's goal is to teach you machine learning ML algorithms and how to utilise them with scikit-learn, pandas, and other Python tools. Graphs and plots can be made using the Matplotlib library to visualise real-world data.



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SPEAKER
MS. SHIVANGI GHILDIYAL

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