

Scope Course: Python for Engineers; Basic to Advance (Hands-on)

Yr. 2018, Winter Session

Dept: EXTC

Instructor names: Dr. Preetida V-Jani, Prof. Vijaya Kamble, Prof Lynett Tudose

Hours: 40 Hrs (10 hrs Preparation material + 20 hrs Hands on + 10 hrs project assessment)

Course Schedule: 7-8th April 2018, 9-4p (M1+M2 +M3), 9-10th April, 4-5:30p (M4)

Capacity: 20 Students only

Syllabus:

M1: Getting started with Python 3 for Engineers

- 1.1 Scientific computing with tools and workflow
- 1.2 The Python language
- 1.3 NumPy: creating and manipulating numerical data
- 1.4 Matplotlib: plotting
- 1.5 Scipy : high-level scientific computing
- 1.6 Getting help and finding documentation

M2: Packages and applications: An overview

- 2.1 Statistics in Python
- 2.2 Sympy: Symbolic Mathematics in Python
- 2.3 Scikit-image: Image processing .
- 2.4 Scikit-learn: machine learning in Python

M3: Introduction to python in Speech Processing

- 4.1 Importing the speech file and plotting spectrogram
- 4.2 Basic parameter extraction:
Short Time Energy, Short Time Zero Crossing Count (ZCC), Pitch Period
- 4.3 Frequency domain parameters
- 4.4 Cepstrum domain parameters
- 4.5 Speech recognition

M4: Introduction to python in neural Networks

- 3.1 Perceptron learning with python
- 3.2 Multilayer Perceptron learning with python
- 3.3 Competing network with python
- 3.4 learning vector quantizer network with python