Important Dates:
Last date for online registration: Course dates: February 11th to 15th, 2019

Course details can be viewed at: http://portal.iitb.ac.in/ceqipapp

Who is expected to benefit from this course?
Teachers, graduate students and industry participants who work in electrical systems, electronics, communication, instrumentation and allied areas will benefit from the course.

Venue for Course:
Course will be held in the Seminar Room, Van Vihar Guest House, IIT Bombay

Date and Time of Desk Registration: 9:00 AM
February 11th, 2019 at the course venue, IIT Bombay

REGISTRATION
All the participants have to register for the course online at the following registration portal http://portal.iitb.ac.in/ceqipapp

Course fees: Industry: Rs. 23,600 (including GST) Academia: Rs. 17,700 (including GST)

Eligibility and requirements: All industry and academic participants are eligible. Laptops are required. Participants should bring their own laptops; laptops will not be provided.

Accommodation: A few IITB guest house rooms are available on a first-come first-served basis. Please write to cep@iitb.ac.in for details.

Scientific Computing with Python for Electrical Engineers
(Short Term Course)

February 11th - 15th, 2019

Course Coordinator:
Prof. Kumar Appaiah

Office of Continuing Education & Quality Improvement Programme
Indian Institute of Technology Bombay Powai, Mumbai - 400 076
Introduction: The use of computing tools has become pervasive in the field of electrical, electronic and communication engineering, and every subdiscipline has benefited from various software tools that allow efficient design and analysis of EE systems. In this context, the Python programming language proved to be an effective tool for building engineering software and several popular tools have become mature tools for practising electrical engineers. Foundational libraries like NumPy and SciPy have provided a base on top of which tools for numerical computation, signal processing, machine learning and other topics have been built. Moreover, the generic nature of the Python language allows easy integration with general purpose software, including databases, web applications and graphical user interfaces. This course aims to introduce these powerful tools and their capabilities to the attendees using hands-on learning and problem solving. The main objectives of this course are:
- To provide basic familiarity with Python and related tools
- Provide hands-on design and analysis of electrical, electronics, communication and signal processing related systems in Python

Course outline:
Lectures + hands-on practice (morning slots):
- Introduction to Python, history, syntax
- Advanced Python, data structures, NumPy
- Introduction to SciPy, linear algebra, differential equations
- Plotting using matplotlib, working with images, audio
- Introduction to Scikit (machine learning)

Hands-on exercises and tests (afternoon slots):
- Introduction to the online test interface
- Basic Python and NumPy interactive session
- Advanced NumPy, matrices and differential equations
- Advanced SciPy, plotting, multimedia processing
- Scikit and advanced topics

Faculty: The course will be conducted jointly by Prof. Kumar Appaiah, Prof. Mahesh B. Patil and Prof. Madhu Belur of the Department of Electrical Engineering, IIT Bombay.

Laptop: Since the course is completely hands-on, a laptop is required for each participant. Participants must bring their own laptop for the course. Laptops will not be provided by the course organizers.

Attendance policy: Attendance of all sessions is mandatory for the completion of the course.

Course Evaluation: An online evaluation test will be conducted during the final session of the course.