Message from Head CCE

Prof. Rajesh M. Hegde

Dept. of Electrical Engineering
http://home.iitk.ac.in/~rhegde/

I am extremely delighted to present the second newsletter of the Centre for Continuing Education (CCE), for the period October 2019 – December 2019. During this period the CCE has successfully conducted various short-term courses, workshops, conferences, and online certification programs.

The Institute Continuing Education Program Policy which was long due has now been approved and is available on the website of the CCE. Thanks are due to the PAC and the ICEPC for their outstanding efforts and help in formulating this policy. The SURGE (Under the Students-Undergraduate Research Graduate Excellence) program will run under the aegis of the CCE from 2020. The SURGE program is aimed at conducting short-term research based projects that enhance the research potential of the Under Graduate Students beyond their classroom studies and development. The Vigyan Jyoti program of Department of Science and Technology (DST) aimed at encouraging girl students to make a career in STEM will be organized by the CCE in the year 2020. Prof. Harish Verma, who is an adjunct faculty with CCE, has been honored with the prestigious Padma Shri in January, 2020. CCE was fortunate enough to have him organize a MOOC from August-October 2019 on Quantum Physics with more than 20,000 participants. The CCE is also in the process of developing a dedicated online ICT support system called IITK Online. IITK Online when operational is expected to be a one stop digital ecosystem for all online courses offered by IITK.

I am also elated to share that we will now be publishing the CCE newsletter every quarter. We are excited about these new developments and striving to expand the activities of CCE to offer more contemporary outreach programs.
CCE ACTIVITIES

- Symposia, Seminars, and Conferences
- Short Term Courses and Workshops
- AICTE sponsored QIP Programs
- Foreign Language Program
  http://www.iitk.ac.in/cce/FLP
- Online Certification Programs and MooCs
- Institutional collaboration Programs
- GIAN
  http://www.giangp.ac.in/
- TEQIP
  http://www.teqipiitk.in/
- E & ICT Academy
  https://ict.iitk.ac.in/
- SBERTC
  http://www.iitk.ac.in/sbertc/
- PMMMNM TT/ AgriMOOC
  https://tlc.iitk.ac.in/
- NPTEL
  http://www.iitk.ac.in/mtc/
- Swayam Prabha
  https://swayamprabha.gov.in/index.php/channel_profile/profile/16
- Vigyan Jyoti
- SURGE
  http://surge.iitk.ac.in/
The following outreach programs have been conducted successfully under the umbrella of the Centre for Continuing Education in the period between October-December 2019. These include AICTE sponsored QIP Programs (04), Short Term Programs (13), Conferences (03) Faculty Training programs (04)

04  AICTE Sponsored QIP Programs
13  Short Term Programs
04  Faculty Training Programs under Institutional collaboration with AKTU
03  Conferences
04
AICTE Sponsored QIP Programs
Completed during October - December 2019
01 Electromagnetic Interference and Compatibility (EMI/EMC) Techniques

Coordinator

Prof. M. Jaleel Akhtar
Dept. of EE, IIT Kanpur
http://home.iitk.ac.in/~mjakhtar/

One of the major challenges for RF Engineers in today’s world is to minimize the electromagnetic interference (EMI) within circuits and systems due to increasing usage of high speed and high frequency devices. The electromagnetic compatibility (EMC) is mainly a technique to deal with such types of situations, where the main emphasis is to propose an optimum design in order to minimize the electromagnetic coupling and interference. The main objective of this one week course was to provide the participants an insight into various techniques and procedures required for the design of electronic systems, which are in compliance with the EMC guidelines. The course provided a brief outline of EMC guidelines prevalent in various geographical regions, and imposed by a number of agencies including the Bureau of Indian Standards (BIS). The concept of effective shielding using modern procedures involving the use of FSS (frequency selective surfaces) structures and light weight nanocomposites was explained. The participants were exposed to the state of the art modeling and simulation software currently being used for EMI/EMC applications. Finally, we tried to provide a demonstration of experimental setups used for EMI/EMC applications.

Course Website: http://www.iitk.ac.in/mimt_lab/EMIworkshop/

02 Electroceramics for Energy Applications

Coordinators

Dr. Tanmoy Maiti
Dept. of MSE, IIT Kanpur
http://home.iitk.ac.in/~tmaiti/

Dr. Shobhit Omar
Dept. of MSE, IIT Kanpur
http://home.iitk.ac.in/~somar/

The objective of this course was provide an advanced understanding of electroceramics for the application of energy conversion and storage. Further, the course intended to render an understanding of physics and chemistry behind the designing of electroceramic materials. The importance of
these electroceramics were discussed with respect to various sustainable energy technologies like fuel cells, thermoelectrics, piezoelectrics, pyroelectrics. Furthermore, the utilization of electroceramics in energy storage applications, such as, Li/Na-ion batteries, high-energy density capacitors were reviewed. State-of-the-art problems and challenges were explained to provide a better appreciation of electroceramic materials and devices.

- Course Website: http://www.iitk.ac.in/cce/courses/2019/electroceramics-for-energy-applications/

03 Electrochemical Energy Generation and Storage Materials

14-18 November 2019

Coordinators

Dr. Sri Sivakumar
Dept. of Chemical Engg,
IIT Kanpur
https://www.iitk.ac.in/che/ss.htm

Dr. Raj Ganesh S. Pala
Dept. of Chemical Engg.,
IIT Kanpur
http://home.iitk.ac.in/~rpala/

Main Highlights of Course
- Fundamental aspect of electrochemistry
- Fundamentals of electrochemical energy storage devices: Battery and supercapacitor
- Photoelectrochemical hydrogen generation
- CO2 capture
- Hands-on session for electrochemical experiment

- Course Website: http://iitk.ac.in/cce/courses/2019/electrochemical-energy-generation/

04 Artificial Intelligence and Fuzzy Systems: Theories, Concepts and its Application

9-13 December 2019

Coordinator

Dr. Nishchal K. Verma
Dept. of EE, IIT Kanpur
http://www.iitk.ac.in/idea/
This course provided an essential background as well as recent developments in the field of Artificial Intelligence and Fuzzy Systems. Illustration of several challenges related to these fields were discussed in this course along with their applications into various real-life problems like computer vision, condition-based monitoring, bioinformatics, transportation, industrial automation, flight parameter estimation, security, healthcare, etc. The main thing about traditional and computing methods is that as complex as they may seem, they’re still machine-like. They need a lot of domain expertise as human intervention is only capable of what they’re designed for; nothing more, nothing less, whereas for such applications, fuzzy logic shows a lot more promise. Artificial intelligence aims to create intelligent machines having certain traits such as reasoning, decision making, analytics, learning, planning, problem-solving, etc. Artificial Intelligence and Fuzzy Systems can deal with real-world applications more efficiently by embedding the learning models and facilitating uncertainties.

Course Website: http://www.iitk.ac.in/idea/QIP2019/
13
Short Term Programs
Completed
during October - December 2019
01 Techkriti Open School Championship (TOSC) Student Driven Program

Coordinator
Prof. Siddhartha Panda
Dept. of Chemical Engineering,
IIT Kanpur
https://www.iitk.ac.in/che/spanda.htm

13 October 2019

02 Women in Sciences and Engineering

Coordinator
Prof. Bushra Ateeq
Dept. of BSBE
IIT Kanpur
http://iitk.ac.in/new/bushra-ateeq

19-20 October 2019

03 Handelling Large Scale Data & Data Analysis using R

Coordinator
Prof. Shalabh
Dept. of Mathematics & Statistics
IIT Kanpur
http://home.iitk.ac.in/~shalab/

21-25 October 2019
04 AgMoocs - MOOCs for Agriculture

Coordinator

Prof. T.V. Prabhakar
Dept. of Computer Science Engineering
IIT Kanpur
https://www.cse.iitk.ac.in/users/tvp/

Oct 25 to Dec 25, 2019

05 Ancient Indian Science and Technology

Coordinator

Prof. D.P. Mishra
Dept. of Aerospace Engineering
IIT Kanpur
http://www.iitk.ac.in/aero/dpm/

2 November 2019

06 PYTHON and MATLAB Project Course on Design and Performance Analysis of 5G Wireless Systems

Coordinator

Prof. Aditya K. Jagannatham
Dept. of Electrical Engineering
IIT Kanpur
http://home.iitk.ac.in/~adityaj/

13-19 November 2019
07 Earthquake Engineering Open House

Coordinator
Prof. Durgesh C. Rai
Dept. of Civil Engineering
IIT Kanpur
http://iitk.ac.in/new/durgesh-c-rai

14-23 November, 2019

08 Brain Inspired Robotics

Coordinator
Prof. Bishakh Bhattacharya
Dept. of Mechanical Engineering
IIT Kanpur
http://home.iitk.ac.in/~bishakh/

25-27 November 2019

09 2nd Global Regulatory Perspective Programme for Chairperson/ Member of ERC, Sydney, Australia

Coordinator
Prof. Anoop Singh
Dept. of Industrial & Management Engineering
IIT Kanpur
http://www.iitk.ac.in/ime/anoops/

27-29 November 2019
10. AIS on Operator Theory

**Coordinator**
Prof. Satyajit Guin
Dept. of Mathematics & Statistics
IIT Kanpur
https://iitk.ac.in/new/satyajit-guin

11. ACM India Winter School on High Performance Computing

**Coordinator**
Prof. Preeti Malakar
Dept. of Computer Science Engineering
IIT Kanpur
https://www.cse.iitk.ac.in/users/pmalakar/

12. Amyloids: In Disease to Promising Material

**Coordinator**
Prof. Ashwani Kumar Thakur
Dept. of Biological Sciences & Bioengineering (BSBE)
IIT Kanpur
https://www.iitk.ac.in/bsbe/ashwani-kumar-thakur
MOOC it with MOOKIT

Coordinator

Prof. T.V. Prabhakar
Dept. of Computer Science and Engineering
IIT Kanpur
https://www.cse.iitk.ac.in/users/tvp/

15 Dec - 15 Jan 2019

03 Conferences

Completed during October - December 2019
01 BIOTERM 2019

Coordinator
Prof. Ashok Kumar
Dept. of Biological Sciences & Bioengineering (BSBE)
IIT Kanpur
https://www.iitk.ac.in/new/dr-ashok-kumar

28 Nov - 1 Dec, 2019

02 Conference on Nonlinear Systems and Dynamics

Coordinator
Prof. Sagar Chakraborty
Dept. of Physics
IIT Kanpur
https://www.iitk.ac.in/new/sagar-chakraborty

12-15 December 2019

03 Society of Operations Management (SOM 2019)

Coordinator
Prof. Raghu Nandan Sengupta
Dept. of Industrial & Management Engineering
IIT Kanpur
https://www.iitk.ac.in/new/raghu-nandan-sengupta

19-21 December 2019
Faculty Training Program under Institutional Collaboration with AKTU

Completed during October-December 2019

Coordinator

Prof. Jayant K. Singh
Dept of Chemical Engg.
IIT Kanpur
http://home.iitk.ac.in/~jayantsk/
01 FTP on Condition Assessment and Retrofitting

**Instructors**

- Prof. Sudhir Mishra
  Dept. of Civil Engineering
  IIT Kanpur
  http://iitk.ac.in/new/sudhir-mishra

- Prof. Samit Ray Chaudhuri
  Dept. of Civil Engineering
  IIT Kanpur
  http://home.iitk.ac.in/~samitrc/

- Prof. Suparno Mukhopadhyay
  Dept. of Civil Engineering
  IIT Kanpur
  https://www.iitk.ac.in/new/suparno-mukhopadhyay

- Prof. Arghya Das
  Dept. of Civil Engineering
  IIT Kanpur
  https://www.iitk.ac.in/new/arghya-das

- Prof. Sudib Kumar Mishra
  Dept. of Civil Engineering
  IIT Kanpur
  http://iitk.ac.in/new/sudib-kumar-mishra

21-25 October 2019

02 FTP on Data Analytics with Python

**Instructor**

- Mr. Avneesh Jain
  CodeKraft

9-13 November 2019
03 FTP on Internet of Things (IoT) - I

Instructors
Prof. Laxmidhar Behera
Dept. of Electrical Engineering
IIT Kanpur
http://home.iitk.ac.in/~lbehera/

Prof. Vipul Arora
Dept. of Electrical Engineering
IIT Kanpur
http://home.iitk.ac.in/~vipular/

16-20 November 2019

04 FTP on Internet of Things (IoT) - II

Instructors
Prof. Laxmidhar Behera
Dept. of Electrical Engineering
IIT Kanpur
http://home.iitk.ac.in/~lbehera/

Prof. Vipul Arora
Dept. of Electrical Engineering
IIT Kanpur
http://home.iitk.ac.in/~vipular/

23-27 December 2019
Faculty in Focus

Prof. Shalabh is a faculty of Statistics in the Department of Mathematics & Statistics, IIT Kanpur. His areas of interest include Econometrics, Linear Regression Models, Measurement Error Models, Missing Data Models, Forecasting Techniques and many more. He has been conferred with several awards and fellowships from various national and international organizations. Awards like “National Award for Young Statisticians – Professor C.R. Rao Award” from the Ministry of Planning and Programme Implementation, Government of India, “Vigyan Ratna Samman” from the Council of Science & Technology, Uttar Pradesh and “Humboldt Fellowship” from Alexander von Humboldt Foundation, Germany are a few of his achievements, resulting from continual contributions in the field of science and statistics. His books are popular among the readers in statistics fraternity. He has conducted an array of workshops which have helped many academicians in understanding the statistical tools in practice and has helped in shortening the gap between the theoretical and applied statistics, facilitating many researchers in the implementation of statistics in real data analysis. His association with NPTEL and MOOC courses has helped many students from different streams in understanding the statistical concepts. He has also created web-based courses on Linear regression analysis, Analysis of variance, Design of experiments, Econometric theory and Sampling theory. With the growing demand for the use of Statistical software in data sciences, he has successfully taught the courses on the programming language of R software and descriptive statistics with R software through the video lectures on MOOC and SWAYAM platform.

Prof. Shalabh

Department of Mathematics & Statistics

http://home.iitk.ac.in/~shalab/
**CCE Staff**

- Anil Mehrotra
- Vinay Kumar
- Yogendra Singh
- Sudesh Gupta
- Kranti Singh
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