

Faculty Development Program  
On  
**Recent Trends in Control System  
Engineering**

**RETRECSE-2020**

Under the banner of  
**Electronics and ICT academy at National Institute of  
Technology Patna**

**22<sup>nd</sup> June to 28<sup>th</sup> June, 2020**



**Patron**

**Prof. P. K. Jain**  
Director, NIT Patna

**Convenor**

**Prof. Ramesh Kumar**  
Head, EE, NIT Patna

**Coordinators**

**Dr. Lloyds Raja**  
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Dept. of Electrical Engineering,  
NIT Patna

**Organized by**

Electronics and ICT Academy, National Institute of  
Technology Patna, Patna- 800005. India.  
[www.nitp.ac.in/ict/](http://www.nitp.ac.in/ict/)

**Supported by**

Ministry of Electronics and Information Technology,  
MeitY, Govt. of India.

**About NIT Patna**

National Institute of Technology Patna is the 18<sup>th</sup> National Institute of Technology created by the Ministry of H.R.D. Government of India after rechristening the erstwhile Bihar College of Engineering Patna on 28.01.2004. NIT Patna marked its humble beginning in 1886 with the establishment of pleader's survey training school which was subsequently promoted to Bihar College of Engineering Patna in 1924. This made this institute the 6<sup>th</sup> oldest Engineering Institute of India. The Institute is situated on the south bank of holy river Ganges behind Gandhi Ghat (where the ash of father of the Nation, Mahatma Gandhi was offered in the river Ganges). The campus has a picturesque river view with historic buildings presenting a spectacle of architectural delight and natural beauty. The Institute imparts high level education training, research and development in science, engineering technology and humanities along with high quality education and values at UG, PG and Ph.D. level. At present the Institute offers courses in six major technical disciplines viz. Architecture, Civil Engineering, Computer Science & Engg., Electrical Engg., Electronics & Communication Engg. And Mechanical Engg. It also consists of well-established departments of Physics, Chemistry, Mathematics and Humanities and Social Sciences.

**Electronics and ICT Academy**

The Ministry of Electronics and Information Technology, Government of India has instituted seven Electronics and Information & Communications Technology (ICT) Academies of which, the academy of NIT Patna is one. The Academy at NIT Patna aims to design and organize basic as well as specialized training programmes in niche areas of electronics and ICT for the development of required knowledge base, skills and tools to equip the teaching community with better knowledge and understanding.

**Objective and Scope**

This FDP on "Recent Trends in Control System Engineering" brings an opportunity for academicians, research scholars and PG/UG students across various engineering disciplines and mathematics to explore the field of control engineering. This program will help participants not only to grasp the various control engineering concepts but also their applications. In this era of interdisciplinary research and practice, control engineering concepts are widely used across other engineering domains as well. Therefore, knowing the basics and design techniques enables one to think, create and make efficient use of control engineering for solving problems in their respective domains. Therefore, this is an attempt to get experts related to control engineering from premier institutes of India and abroad to give participants a good exposure to the emerging trends in the field of control engineering.

**Objectives of the Program**

- To impart knowledge of principles and practices in control engineering for academicians, researchers and students
- To promote the use of control engineering concepts for problem solving in other engineering domains
- To introduce some cutting edge research trends in the field of control engineering

**Topics to be covered**

- Introduction to control system engineering
- Time response and frequency response analysis
- PID Control
- Process identification and control
- State space analysis
- Sliding mode control
- Nonlinear control
- Learning based control
- System estimation and Observer design
- System identification for artificial tongue

- Model discretization
- Fault detection and isolation
- State estimation
- Kalman filter based glucose monitoring

### Resource Persons

For expert lecture, design and simulation sessions:

1. Dr. S. Janardhanan, IIT Delhi
2. Dr. Shubhendu Bhasin, IIT Delhi
3. Dr. Ahmad Ali, IIT Patna
4. Dr. Abhinoy Kumar Singh, IIT Indore
5. Dr. Vidya Sagar Yellapu, SJTU, China
6. Dr. Neeli Satyanaraya, MNIT Jaipur
7. Dr. Sumit Jha, MNNIT Allahabad
8. Dr. Rahul Radhakrishnan, SVNIT Surat
9. Dr. Arunangshu Ghosh, NIT Patna
10. Dr. Moina Ajmeri, NIT Patna
11. Dr. Md Nishat Anwar, NIT Patna
12. Dr. Ruchi Agarwal, NIT Patna
13. Dr. Gagan Deep Meena, NIT Patna
14. Dr. Lloyds Raja, NIT Patna

### One-week FDP includes

Seven Days Training will be taken by a group of experts from IISc, IITs, NITs with the experience ranging from several years to several decades in delivering sessions in India and abroad. The training hour is 5-6 hours/ each day. Mode of training is Instructor-led live online.

- **40 Hours Instructor-led live online Hands-on based learning & Interactive Query Session.**
- Soft copy of study material, Training PPTs & Projects code
- Participants will get recorded sessions after completion of training
- eCertificates will be given to participants who attend more than 70% sessions in the workshop, attendance for each session will be taken.

### Who Can Participate

Faculty members of UGC/AICTE recognized Universities and Engineering colleges all over India, Research scholars (Ph.D. only), Students and Industry personals. However, priority will be given to the faculty members.

### Registration Fee

- **Faculty/ Research Scholar (Ph.D.): Rs. 500/-**
- **Students (B.Tech/PG): Rs. 500/-**
- **Industry and others: Rs. 1000/-**

### Registration Process

1. Registration fee should be paid through online mode, the account details for this purpose is

**Account Name: NIT Patna**

**Account No.: 50380476798**

**IFSC Code: ALLA0212286**

2. Registration link:

<https://forms.gle/rn4iZKbWYefbpWYi6>

3. The brochure of the program may be downloaded from the Institute website [www.nitp.ac.in](http://www.nitp.ac.in).

### 4. Deadline for registration: 20 June 2020 11:59 PM

**Total 200 seats and the selection will be done on first-cum-first-serve basis.** A PDF file of the online filled registration form with proof of registration fee paid should be sent by email to **Dr. Lloyds Raja. (email: [lloyds.ee@nitp.ac.in](mailto:lloyds.ee@nitp.ac.in)).**

<http://www.nitp.ac.in/ict/>

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**22<sup>nd</sup> June to 28<sup>th</sup> June, 2020**

### REGISTRATION FORM

1. Name (block letter): .....
2. Gender: .....
3. Caste:.....
4. DOB:.....
5. Designation .....
6. Organization: .....
7. Address for communication: .....  
.....  
.....  
Pin code: ..... Ph. No.: .....
- E-mail: .....
8. Highest Academic Qualification: .....
9. Specialization: .....
10. Experience (in years):  
(a) Teaching: ..... (b) Industrial: .....
11. Aadhar No:.....

DECLARATION : I do hereby agree to abide by the rules and regulations of the FDP.

Place: .....

Date:.....

.....  
Signature of the Applicant