An ONLINE Faculty Development Programme on

Recent advances in Intelligent Systems and Nonlinear Control (RISNC-2020)

12 –16 October, 2020

Technically co-sponsored by IEEE Malabar Subsection

Coordinators:

Dr. Shihabudheen K V

Dr.K M Arun Neelimegham

Organized by

Department of Electrical Engineering

National Institute of Technology Calicut

NIT Campus P.O.,

Kozhikode ,Kerala– 673601

About the Department

Electrical Engineering Department of NIT Calicut was established in 1961. The Department offers an undergraduate program in Electrical and Electronics Engg., post graduate programmes in Instrumentation & Control Systems, Industrial Power and Automation, High Voltage Engineering, Power System and Power Electronics as well as research programmes leading to Ph.D. Degree

About NIT Calicut

National Institute of Technology Calicut (NITC) is fully centrally funded by Ministry of Education and is governed by the NIT Act 2007. Institute has ten departments, three schools and nine research centers. It offers eleven UG, and thirty PG programmes along with the Ph.D programme in various fields of Architecture, Planning, Science, Technology, Engineering and Management. Members of the faculty have active collaborations with universities and elite institutions within and outside India for research and have active consultancy for industries. For details, see the website: www.nitc.ac.in

About Calicut

God's own country Kerala, has plenty of places that are of historical and tourist interest. Kozhikode also known as Calicut, is a city in the state of Kerala in southern Indian on the Malabar Coast. This region is a major knowledge hub of Kerala and it proudly hosts many institutions of national eminence such as NITC, IIMK, NIELIT, CWRDM, Kerala School of Mathematics, IISR etc. Calicut is well connected by rail/road/air to major cities in India. Apart from the serene beaches on the west and the high ranges of the Western Ghats on the east, there are many landmark places that attract attention of the tourists. NITC is 22 km off the city limits towards east and is located at Chathamangalam.

About the programme:

The objective of this programme is to transfer knowledge and to impart special skills to those engaged in the promotion and facilitation of **theory** and **applications** of **Intelligent systems and Nonlinear Control**. This event is organized to focus on the **practical** and **applied** aspects of modelling and designing of various **controllers** using **intelligent algorithms** for complex **nonlinear systems.** Essential concepts of nonlinear control useful for design of intelligent systems will be provided. Finally innovative ideas and solutions for latest problems prevailing in control like **model predictive control**, **machine learning control**, **control of cloud computing systems** (**control in IoT**) will be explored.

Topics covered:

- Modelling of Stochastic and intelligent system
- Neural networks and control
- Fuzzy logic control
- Reinforcement learning
- Nonlinear control
- Sliding mode control
- Model predictive control
- Control of negative imaginary systems
- Control of Cloud computing systems
- Hands on: Intelligent modeling, control and case studies.

Resource persons:

All the sessions will be handled by faculty experts from IITs/NITs and experts from leading Academic /R&D/Industry.

How to apply

Registration form in the prescribed format duly filled up in all respects, should reach the coordinator through google form **https://forms.gle/YkYezNrNBmtj8DQG6** before the last date. The registration fee has to be paid through online transfer. The registration fee is non-refundable.

Category of Participants	Fee
Faculty/ Industry/R&D	Rs. 357(300+18% GST +1 % cess
Research scholars/PG students	Rs. 119 (100+18% GST +1 % cess

The bank details are given below for online transfer.

Account Name: Director NIT Calicut,
Continuing Education Programme,
Account No: 37618269594;
Branch: SBI NIT Calicut, IFSC code: SBIN0002207
Last date for registration is 5th October 2020.
Mention "RISNC" in remarks/comments during online transaction.

Eligibility:

Faculty members from various Engineering Colleges/Institutions can apply.
Working professionals and practicing engineers from various Research Organizations and Industries can also apply.
Few Research scholars and PG students are also encouraged to apply

Address for Correspondence:

Dr. Shihabudheen K V, Assistant professor, EED.
Dr. KM Arun Neelimegham, Assistant Professor, EED.
Programme Co-ordinators
National Institute of Technology Calicut
NIT Campus P.O. Pin 673601, Calicut, Kerala.

Email: shihabudheen@nitc.ac.in
arunkm@nitc.ac.in

Scan the QR code to download the registration form.
Last date for registration is **5th October 2020.**

Online Faculty Development Programme

Recent advances in Intelligent Systems and Nonlinear Control

REGISTRATIONFORM

1. Name: ……
2. Date of birth: …… Gender : ……
3. Designation: ……Department: ……
4. Institution: ……
5. Mobile: …… e-mail: ……
6. Highest Qualification: ……
7. Specialization: ……
8. Category: Academic/Industry/Student……
9. Registration Fee paid: Rs. 357/Rs. 119……
10. Online transaction reference no.& date:……

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Self- Endorsement

I here by certify that Mr. /Ms. /Dr. …… am an employee / Student of ----------and hereby register for the online FDP on **"Recent advances in Intelligent Systems and Nonlinear Control"**at National Institute of Technology Calicut during 12-16 October 2020.

Place:

Name & Signature of the participant

Date:

FDP on "Recent advances in Intelligent Systems and Nonlinear Control" , October 12-16,2020

TENTATIVE COURSE SCHEDULE

	10.00 AM to 11.30 AM	11.30 AM to 12.00 NOON	12.00 NOON to 01.30 PM	01.30 PM to 02.30 PM	2.30 PM to 4.30 PM	04.30 PM to 05.00 PM
Day 1 12/10/2020 (Monday)	**Sesssion-1**		**Sesssion-2**		**Sesssion-3**	
	Inauguration	Break	**Introduction to Stochastic Modelling** (Dr. Abraham T Mathew, NIT Calicut)	Break	**Introduction to modelling using ANN and Hybrid Systems** (Dr. G N Pillai, IIT Roorkee)	Discussion
Day 2 13/10/2020 (Tuesday)	**Sesssion-4**		**Sesssion-5**		**Sesssion-6**	
	Mathematical foundation for modelling and control (Dr. Sudhish N George, NIT Calicut)	Break	**Modelling of physiological system** (Dr. Karan Jain, NIT Jalandhar)	Break	**Introduction to Machine Learning in Control** (Dr. Sastry P S, IISC Bangalore)	Discussion
Day 3 14/10/2020 (Wednesday)	**Sesssion-7**		**Sesssion-8**		**Sesssion-9**	
	Reinforcement learning (Dr. C Lakshminarayanan, IIT Palakkad)	Break	**Hands on-1: Case study on intelligent modelling using Matlab** (Mathworks)	Break	**Hands on-2: Intelligent Control using Matlab** (Mathworks)	Discussion
Day 4 15/10/2020 (Thursday)	**Sesssion-10**		**Sesssion-11**		**Sesssion-12**	
	Introduction to Nonlinear Control (Dr. Jeevamma Jacob, NIT Calicut)	Break	**Advancement in Sliding Mode Control** (Dr. Mija S J, NIT Calicut)	Break	**Intelligent model predictive control** (Dr. Shihabudheen KV/Dr. Arun Neelimegham)	Discussion
Day 5 16/10/2020 (Friday)	**Sesssion-13**		**Sesssion-14**		**Sesssion-15**	
	Control of negative imaginary system (Dr.Parijat Bhowmick, University of Manchester)	Break	**Control of cloud computing systems** (Dr. P S Saikrishna, IIT Tirupathi)	Break	**Hands on-3: Case study on model predictive control** (Mathworks)	Valedictory function