

Resource Persons

Expert Faculty will be from international institution, reputed academic institutions, IIT Madras, IIT Bombay, IPE Vizag, NIT Warangal & NIT Karnataka and industry/company professionals from Honeywell, Siemens and Yokogawa.

Eligibility for Participation

The FDP is more beneficial and so open to the faculty of AICTE approved Institutions, PG and PhD researchers, persons from industry / R & D Organizations / Consultants, participants from host Institute.

Course Fee

There is no registration fee but registration confirmation is must. The certificate will be issued to the participant who have minimum 80% attendance, 70 % qualifying marks in test and submitting feedback against attended FDP. For more details refer this link <https://atalacademy.aicte-india.org/FAQs>

No. of Seats: Minimum 100

How to apply: Participants are required to apply through AICTE ATAL registration Link <https://atalacademy.aicte-india.org/signup>

Selection Criteria: As per AICTE ATAL guidelines & first-cum-first-serve basis.

Contact Details

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One week AICTE Training and Learning
Online Faculty Development Programme
on

Recent progress in Process Modelling, Simulation and Process Control
(06th – 11th January, 2025)



Patron
Dr. G. Aghila
Director, NIT Trichy



Chair Person
Dr. M. Arivazhagan
HOD/Chemical Engineering



Coordinator
Dr. T. K. Radhakrishnan,
Professor (HAG),
Department of Chemical
Engineering



Co-Coordinator
Dr. K. Sankar,
Assistant Professor,
Department of
Chemical Engineering



Organized by



Department of Chemical Engineering
National Institute of technology Tiruchirappalli
Trichy - 620015

About NITT

The National Institute of Technology (formerly Regional Engineering College) Tiruchirappalli was established as a joint venture of the Government of India and the Government of Tamil Nadu in 1964. The institute was granted Deemed University status with the approval of the UGC / AICTE and Government of India in 2003 and renamed as National Institute of Technology, Tiruchirappalli (NIT-T). NIT-T has been declared as institution of national importance by National Institute of Technology act 2007. National Institute of Technology, Tiruchirappalli has carved a mark on the National scene last year by being ranked first among all the NITs and 9th among all the technical institutes in the country by the Institute Ranking framework (NIRF) of the Government of India. The institute received High impact Entrepreneurship Campus Award jointly awarded by the Ministry of Skills Development and Entrepreneurship. The Institute now offers ten under graduate courses and twenty-six postgraduate courses in various disciplines of Science, Engineering and Technology besides Ph.D. programme in all the departments.

About Department

The Department of Chemical Engineering was established in 1967. The department has the distinction of being ranked as one of the top seven Chemical Engineering divisions in India with a group of well qualified faculty, staffs and motivated students. The department is recognized as one of the leading departments offering B.Tech. (Chemical Engineering), M.Tech. (Chemical Engineering), M.Tech. (Process control and Instrumentation) in collaboration with ICE department, and Ph.D. programme. The National Board of Accreditation (NBA) has granted accreditation to all PG and UG courses offered by the department. The Department has built up good research, analytical, instrumentation and computational facilities through funding from the Ministry of Human Resources Development and research projects from Government Agencies and Industry. Core research specialization of the Department includes Process modeling and control (Linear and non-linear predictive control, modeling) Energy (Alternate fuels, fuel cell technology, bio-energy), Environment (Biochemical and bioprocess separations, wastewater treatment, membrane technology, sonochemical processes, electrochemical operations), and Advanced Materials (Particulates, functional materials).

About the FDP

Modelling, Simulation and Control of a chemical process is an important topic and is a necessary tool in the early design of a chemical or any of industrial process system. By performing the modelling and simulation of a system, one can easily predict the future result without operating the real process systems. For a better operational outcome of a process in a plant, it is essential for the operating personnel or R&D sections to be an expert in areas such as system simulation (Aspen, Simba, MATLAB etc.), system identification techniques, different optimization techniques, various controller options etc. Acquiring knowledge on these topics will be highly helpful for faculty and research scholars. Hence, the objective of this programme is to provide the basics of process simulation, simulators, and various controller techniques. Also, updating the knowledge of linear and nonlinear controller synthesis and implementation with the process systems is additional benefits. Accordingly, the FDP sessions are consciously designed to cover the theoretical background of the interested topics. Real time examples will be demonstrated considering the practical applications. Undoubtedly, through this course, the knowledge gained by the participants will reflect in their near future work (research and development, Professional teaching, engineering job aspect, student higher studies).

Course content

- ✓ Mathematical modelling and simulation
- ✓ Linear and Nonlinear controller synthesis
- ✓ Parameter estimation
- ✓ System identification
- ✓ Process optimization

Objectives

This program is planned to provide knowledge and its update to the faculty and research scholars with this recent status and progress in process modelling and control. It is aimed to give exposure of process modelling, linear and nonlinear process control, parameter estimation, process optimization techniques and their applications. The proposed course is structured and included with hands-on sessions to realize the model development and its simulation, linear and nonlinear controller synthesis, process optimization and implementation. The ultimate goal is to expose the recent trends in process modelling and control to the participants. Accordingly, the course content has been designed carefully to impart professional level knowledges.

Day 1	Day 2	Day 3	Day 4	Day 5	Day 6
<p>6:00 PM to 6:30 PM</p> <p>Inaugural Session</p>	<p>6:00 PM to 7:30 PM</p> <p>Session 3</p> <p>Topic: Multimodel control of nonlinear systems</p> <p>Expert Name: Dr. A. Seshagiri Rao Professor Department of Chemical Engineering, IIFE Vizag, Experience: 16 Years</p>	<p>6:00 PM to 7:30 PM</p> <p>Session 5</p> <p>Topic: Advanced control of wastewater treatment plants</p> <p>Expert Name: Dr. A. Seshagiri Rao Professor Department of Chemical Engineering, IIFE Vizag, Experience: 16 Years</p>	<p>6:00 PM to 7:30 PM</p> <p>Session 7</p> <p>Topic: Recent progress in Chemical Process Modeling</p> <p>Expert Name: Prof. A. Sarath Babu Professor Department of Chemical Engineering, NIT Warangal, Experience: 36 Years</p>	<p>6:00 PM to 7:30 PM</p> <p>Session 9</p> <p>Topic: Linear dynamics and process control</p> <p>Expert Name: Dr Chinta Sankar Rao Assistant Professor Department of Chemical Engineering, NIT Karnataka, Experience: 10 Years</p>	<p>2:00 PM to 3:30 PM</p> <p>Session 11</p> <p>Topic: Industrial process control and optimization problems</p> <p>Expert Name: Ulaganathan Nallasivam Principal scientist, ABB corporate research group, Bangalore, Experience: 30 Years</p>
<p>6:30 PM to 8:00 PM</p> <p>Session 1</p> <p>Topic: Applications on Reinforcement learning techniques for process control.</p> <p>Expert Name: Dr. Satheesh Kumar Perappu, Senior Researcher (Artificial Intelligence), Karnataka, India. Experience: 8 Years</p>	<p>7:30 PM to 9:00 PM</p> <p>Session 4</p> <p>Topic: Modelling, control and optimization of microalgae production systems</p> <p>Expert Name: José Luis Guzmán, Professor, Department of Informatics, University of Almería, Almería (Spain), Experience: 20 Years</p>	<p>7:30 PM to 9:00 PM</p> <p>Session 6</p> <p>Topic: Data-Driven Process Modelling for Control and Optimization.</p> <p>Expert Name: Sudhakar Kathari Senior Research Scientist, Honeywell, Bengaluru, Karnataka, India. Experience: 8 Years</p>	<p>7:30 PM to 9:00 PM</p> <p>Session 8</p> <p>Topic: System identification and adaptive control</p> <p>Expert Name: Vivek Shankar Pinnamaraju, Senior Scientist, ABB Innovation Centre, Karnataka 560048. Experience: 6 Years</p>	<p>7:30 PM to 9:00 PM</p> <p>Session 10</p> <p>Topic: AI and its industrial application.</p> <p>Expert Name: D Kesavan R&D Team Manager ABB Global Industries and Services Limited, Karnataka India. Experience: 17 Years</p>	<p>3:30 PM to 5:00 PM</p> <p>Session 12</p> <p>Topic: Introduction to Kalman filters</p> <p>Expert Name: Narayana BVL Technical Lead, Nexteer Automotive Ltd, Karnataka, India. Experience: 20 Years</p>
<p>8:00 PM to 9:30 PM</p> <p>Session 2</p> <p>Topic: RL application in process modeling</p> <p>Expert Name: Kirubakaran Velswamy Holistic Empirical Learning Platform, Alberta Canada Experience: 25 Years</p>					<p>5:00 PM to 6:30 PM</p> <p>Session 13</p> <p>Topic: Modeling and Control of FOPTD system</p> <p>Expert Name: Venkatesh Modala Nexteer Automotive India Technical Centre, Karnataka. Experience: 6 Years</p>
					<p>6:30 PM to 7:30 PM</p> <p>Online Test and Feedback</p>
					<p>7:30 PM to 8:00 PM</p> <p>Valedictory session</p>

Experts from Academics/Institution:

S.No.	Resource Persons	Photo
1	Name: José Luis Guzmán Designation: Professor Department of Informatics University of Almería, Almería (Spain) Years of Experience: 20	
2.	Name: Prof. A. Sarath Babu Designation: Professor Department of Chemical Engineering, NIT Warangal, Years of Experience: 36	
3.	Name: Dr. A. Seshagiri Rao Designation: Professor Department of Chemical Engineering, IIPE Vizag, Years of Experience: 16	
4.	Name: Dr Chinta Sankar Rao Designation: Assistant Professor Department of Chemical Engineering, NIT Karnataka, Years of Experience: 10	

Experts from Company/Industry:

S.No.	Resource Persons	Photo
5.	Name: Kirubakaran Velswamy Holistic Empirical Learning Platform 4123 Tompkins way NW Edmonton T6R3E6 Alberta Canada Years of Experience: 25	
6.	Name: Dr. Satheesh Kumar Perappu, Designation: Senior Researcher (Artificial Intelligence), Bengaluru, Karnataka 560048. Years of Experience: 8	
7.	Name: Sudhakar Kathari Designation: Senior Research Scientist, Honeywell, Bengaluru, Karnataka, India. Years of experience: 8	
8.	Name: Vivek Shankar Pinnamaraju, Designation: Senior Scientist, ABB Innovation Centre, Bengaluru, Karnataka 560048. Years of Experience: 6	
9.	Name: D Kesavan Designation: R&D Team Manager ABB Global Industries and Services Limited, Bangalore 560048 Karnataka India.	
10.	Name: Ulaganathan Nallasivam Designation: Principal scientist, ABB corporate research group, Bangalore.	
11.	Name: Venkatesh Modala Nexteer Automotive India Technical Centre - SEZ Unit Marathahalli Outer Ring Road, Bangalore-560037 Years of Experience: 6	
12.	Name: Narayana BVL Technical Lead, Nexteer Automotive Ltd, Karnataka. India. Experience: 20 Years	

How to Register

1. Log in to the ATAL Academy Portal at <https://www.aicte-india.org/atal>
 - If you are not already registered, first sign up at <https://atalacademy.aicte-india.org/signup>
 - Choose the role as a Participant during signup and complete your profile details.
2. After logging in, navigate to the FDP tab.
3. Use the following filters:
 - Type: ATAL
 - Month: February
 - Thrust Area: Mechanical
 - Mode: Online
4. Press Ctrl + F and search for the application number 1731050300 to locate our FDP card.
5. Click the '+' button to apply

Note: Please obtain the NOC from the relevant authority (HOD/Principal/Dean) of your institute, with their signature and seal. The NOC format is provided on the next page. You will be able to apply only after uploading the NOC.

For any queries, feel free to call  7427960065 (Dr. K. Sankar, Assistant Professor, NIT, Tiruchirappalli).

Letter Head

Participant NOC Format

Subject: NOC for Attending ATAL FDP

Ref No. _____

Date: _____

To Whomsoever It May Concern

This letter is to express No Objection on Mr./Mrs./Ms./Dr. < Participant name > in attending the six days ATAL FDP on “Recent progress in Process Modelling, Simulation and Process Control” through online mode conducted at National Institute of Technology Tiruchirappalli from 06th January 2025 – 11th January 2025.

This certificate is issued as per requirement of AICTE for successful conduction of ATAL Faculty Development Program.

Yours Sincerely,

(Sign & Stamp)

HoI/Competent Authority

Institute Name and Address