

Diamond Jubilee Programme 2019-20
Department of Chemical Engineering

TEQIP III Sponsored

5-Days Workshop on
“Process Modelling and Simulation
using Aspen Plus and Application of
Artificial Intelligence in Process
Industries”

17th – 21st February, 2020





About the program

- There is a drastic change of business environment in last 20 years. Shrinking profit margin of chemical process industries (CPI) due to globalization, uneven level playing field in international chemical business give rise to cut-throat competition among process industries and has changed the global chemical business scenario.
- Maximization of profit, continuous improvement of operation, sustainability, enhanced reliability to reduce production cost are buzzwords in today's CPI. Industries are slowly shifting their priority to energy efficiency, real-time process simulation and optimization, AI based modelling, environment friendliness, and sustainability.
- With the advent of faster computers, online simulation and optimization, advance process control, real time plant monitoring, online equipment fault diagnosis, big data based process parameters data analytics, artificial intelligence and IOT based sensors and technology paved their way in process industries.
- Data analytics and AI based interpretation is helping efficiency improvement of all core business processes of chemical industry, including manufacturing, marketing and sales, and R&D. Data based decision making , in short called digital, provides the means to unlock a new level of productivity enhancement.
- However, People need to learn new skills to do business in new way.



Main focus

Modelling and simulations by Aspen software: Main focus of this short term course is to provide hands-on experience to solve real life process modelling and simulation problems by Aspen Simulation software and also use different recent optimization techniques to solve real life optimization problems.

Main aim is to train the attendees on modelling and simulations to solve industrial case studies from basic level to advanced level. At the end of the course attendees will be enriched with hands-on experience of different aspects of Aspen simulation software and can learn how Aspen simulation can be used to optimize the industrial equipment to reduce production cost.

AI Based Modelling and optimization:

In this workshop, delegates will receive hands-on experience to build AI based model for complex chemical equipments like reactors, furnaces etc. where development of realistic phenomenological model is extremely difficult.

Stochastic optimization techniques will be used to optimize the input space of AI model to maximize profit.

Real life examples and industrial case studies will be solved in this workshop.



The subthemes of the course:

Modelling and simulations by Aspen software

AI Based Modelling and optimization:

Application of AI in process industries

Machine learning



About the institute

National Institute of Technology Durgapur (NITD) is a leading technical institute offering undergraduate, postgraduate and doctoral programs in various disciplines of engineering, technology, science, social science and management. NITD was established as a Regional Engineering College (REC) in 1960 as a joint venture of the Government of India and Government of West Bengal. REC Durgapur was converted to NIT Durgapur under the full administrative and financial control of the Ministry of Human Resource Development of Government of India with a Deemed University status on 3rd July, 2003. Subsequently NITD has been given the status of a University by the UGC Act. The Institute was declared an Institute of National Importance by the Government of India on August 15, 2007.

The city of Durgapur is recognized as one of the fastest developing Tier-II cities in the national scenarios. Durgapur is situated at a distance of about 180 KMs from Kolkata. It is located right on the major railway and expressway (NH-2) connecting Kolkata to Delhi and Durgapur can be reached from Kolkata (and vice versa) in ~ 2 hrs. 30 minutes.



About the department

The Department of Chemical Engineering of National Institute of Technology, Durgapur, was established with active support of UNESCO. The department was built up by a team of dedicated faculty members with the help of a host of visiting professors deputed by UNESCO to NIT Durgapur. Some of the faculty members were trained abroad under UNESCO program, and a number of equipment and instruments were donated by UNESCO to the department. The B.E. course in Chemical Engineering was started in 1964 and the first batch of students were awarded the degree in 1969. The Post-graduate program with the specialization 'Production Fertilizers' was introduced in 1968, along with the doctoral program in Chemical Engineering. Currently the department provides full-time B.Tech, M.Tech and full-time as well as part-time PhD courses in Chemical Engineering.

Other information



WHO CAN ATTEND THE COURSE

Personnel both from industry and academics having the years-long experience of implementation of such technologies will be delivering the lectures. Naturally, people from academics and industries will have a vibrating platform for interaction and get largely benefitted from the course.

BOARDING & LODGING

Limited shared accommodations may be made available by the organizer on first come first served basis in the institute guest house. Moreover, several good hotels are available in and around Durgapur. Participants may contact directly or through the coordinator(s) for accommodation in hotels. No TA/DA will be paid to the participants by NIT Durgapur.

VENUE FOR PROGRAMME

Seminar Room, S. N. ROY BUILDING, NIT Durgapur

Course fee

Industry personnel: Rs. 5000/-

Faculty members/Scientists: Rs. 3000/-

Students and Research scholars: Rs 1000/-

MODE OF PAYMENT : Demand draft or online transaction

*The Demand Draft will be drawn in favour of “**CEP NIT Durgapur**”, payable at Durgapur.*

Bank Details for online transaction:

Bank: SBI, REC Durgapur Branch

Account name: CEP NIT Durgapur

Account number: 37850318679

IFSC: SBIN0002108

Last date of receiving completed application form– February 03, 2020 (Scanned copy also may be sent by email). Without demand draft or details of online transaction applications will not be accepted.

Intimation of selection for the course – February 05, 2020

Registration fee includes registration kit, study/lecture materials, refreshment, and lunch during the program.



Resource Persons (Tentative)

- Prof. Anupam Basu, Director, NIT Durgapur
- Prof. Sudeshna Sarkar, HOD, Computer Science Dept., IIT Khargpur
- Prof. P. Roy, Ex-Professor, Chemical Engineering Dept., Calcutta University
- Mr. Sumit Dutta, Vice-President, Haldia Petrochemicals
- Dr. Rajesh P Barnwal, Sr. Scientist, CSIR-CMERI, Durgapur
- Mr. Souvick Chatterjee, Mathworks India
- Ms. Spandhana Gonuguntla, Mathworks India
- Dr. Sandip Kumar Lahiri, Associate Professor, NIT Durgapur
- Dr. Abhiram Hens, Assistant Professor, NIT Durgapur
- Dr. Bikash Kumar Mondal, Assistant Professor, NIT Durgapur



Contact detail

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