

SSN College of Engineering
Department of Chemical Engineering

Three Days Training Programme on
MATLAB for Process Control
(20th - 22nd July 2016)

Objective:

To train the aspirants learn and teach MATLAB basics and its usage for Process Control applications.

Preamble:

Chemical Engineering problems are more often modeled with linear, nonlinear, ordinary and partial differential equations.

Process Control emphasizes the importance of computers in this modern age of process industries.

MATLAB[®] is a well regarded software among science and engineering community. Engineering problems represented by appropriate mathematics can be solved with MATLAB at ease. Simulink is one of the GUI tools of MATLAB.

Course Contents: (please refer the detailed schedule as attached)

- Mathematical models in Chemical Engineering
- Basics of MATLAB, Simulink.
- Review of Process Control
- Solving typical Chemical Process Control problems with MATLAB, Simulink

Target Audience:

(Chemical engineering and allied branches)

- Faculty
- Budding Engineers
- Undergraduate (pre-final / final years) students
- Post Graduate students

Requisite from Participants: (preferably)

- Laptop with
 - Windows Operating System
 - MATLAB (if possible)

Deliverables:

- Lectures and Training sessions, with a maximum of 30 candidates
- Lectures and training sessions will be handled by the coordinators
- Course materials in the form of booklet
- Softcopy of MATLAB, Simulink example programs.
- Working Lunch.

Venue: Chemical Engineering Department, SSN College of Engineering

Duration: 20th to 22nd July 2016, (Wednesday, Thursday and Friday); 8:30 am to 3:15 pm

Registration Fee: Rs. 2,000/- (Rupees Two Thousand only)

The registration fee shall be sent in the form of Demand Draft (DD) in favour of “**The Principal, SSN College of Engineering**”, payable at **Chennai** along with the registration form, giving the particulars of Name, address to the Coordinator.

Accommodation can be provided in our college hostel with nominal payment, on request. Participants can avail the transport facilities of the college.

Last date for receipt of registration form along with the DD by post is **11th July 2016**.

Coordinators and Trainers:

M. Subramanian, Kilaru Harsha Vardhan, and B. Chitra

Department of Chemical Engineering

SSN College of Engineering, Kalavakkam, OMR, Chennai – 603 110

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Dr. M. Subramanian has 13 years of teaching experience, 2 years in industry and 5 years in research. He has hands-on experience in MATLAB, and Simulink. He obtained his doctorate from IIT Madras, and authored a book titled “*An Insight into Chemical Engineering*”.

Mr. Kilaru Harsha Vardhan has 17 years of teaching experience. He is currently pursuing Ph.D. in the area of Process Control. He has hands on experience on Chemical Engineering Simulation softwares like Aspen plus, Hysys, ChemCad and MATLAB.

Mrs. B. Chitra has 8 years of teaching experience. She has taught Process Control course several times to undergraduate students. She is currently pursuing her Ph.D in the area of nano-fluids. She has hands-on experience in ANSYS, Aspen Plus, and MATLAB.

About our Institution:

Sri Sivasubramaniya Nadar College of Engineering, (SSN CE) is the outcome of the vision and initiative of **Padma Bhushan Dr. Shiv Nadar**, Chairman of HCL Technologies Ltd. and a pioneer in the field of Information Technology. The Institution reflects the ideals of its founder and seeks to achieve excellence as an academic institution and advanced research centre. The Management Committee members Mr. R. Srinivasan, Chairman, SSN Institutions, **Mrs. Kala Vijayakumar, President**, SSN Institutions and the **Principal Dr. S. Salivahanan** facilitate the good governance of the college.

The institution was established in 1996 on a sprawling campus of 250 acres on Rajiv Gandhi Salai (OMR) known as cyber corridor of Chennai. The institution offers eight B.E. / B.Tech degree programmes in EEE, ECE, CSE, IT, Biomedical, Mechanical, Civil, and Chemical Engineering. It also offers several M.E/M.Tech degree programmes, in addition to MBA and MCA. The admission is done purely on the basis of merit. The Institution's under graduate and post graduate programmes have been accredited by NBA. The college has consistently stood top among colleges affiliated to Anna University

Department of Chemical Engineering of SSN offers B.Tech program in Chemical Engineering, and M.Tech program in Environmental Science and Technology. It is well-equipped with the state-of-the art laboratories and softwares like ChemCAD and ASPEN. The Department has previously organized several workshops in the areas such as Nanotechnology, ChemCAD, Pollution Control, besides the annual National Level Technical Symposium “CHEMICZNA”. Fourteen faculty headed by **Dr. R. Parthiban** are working in this department. Besides teaching, active research in the fields of Nanotechnology, Natural products utilization for wastewater treatment, and other novel areas are being carried out. More details can be obtained at: <http://www.ssn.edu.in>

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Tentative Schedule:

Session	Detail	Duration
Day 1	8:30 am to 3:15 pm	
Lecture 1	Inaugural lecture on Mathematical Models in Chemical Engineering	45 min
Lecture 2	Basics of MATLAB Array operations, matrix addition, multiplication, dot operator, math functions, plot, script m-file, function mfile, program flow loops	60 min
Lecture 3	MATLAB for Engineering Mathematics Roots of polynomial, curve fitting, interpolation, differential equations, non-linear equations, symbolic integration	60 min
Lunch Break (12:00 noon to 1:00 pm)		
Hands On 1	MATLAB for Chemical Engineering – Level I Matrix operations, plot, looping constructs, polynomials, interpolation	60 min
Hands On 2	MATLAB for Chemical Engineering – Level II Nonlinear equations, ordinary differential equations, optimization	60 min
	Exercise problems (home work)	15 min
Day 2	8:30 am to 3:15 pm	
Hands on 3	Review of Process Control Transfer function, open-loop response	60 min
Hands on 4	Review of Process Control Closed-loop response, stability analysis	60 min
Lecture 4	Basics of Simulink Block diagram, source, sinks, gain, math functions, integrator, transfer functions	60 min
Lunch Break (12:00 noon to 1:00 pm)		
Hands On 5	Simulink for Process Dynamics & Control	120 min
Hands On 6	Exercise problems (home work)	
Day 3	8:30 am to 3:00 pm	
Review	MATLAB / Simulink for Chemical Engineering Solving the exercise problems given on the previous day, and any other.	60 min
Lecture 5	Stability analysis with MATLAB / Simulink	60 min
Hands On 7	Process Control Lab visit	60 min
Lunch Break (12:00 noon to 1:00 pm)		
Discussion	Typical projects based on MATLAB / Simulink for Chemical Process Control	75 min
Closure	Summary and Feedback	45 min

Department of Chemical Engineering
SSN College of Engineering, Kalavakkam – 603 110, OMR, Chennai

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Registration Form

Name: _____ **Age:** _____ **Gender:** Male/Female

Qualification: _____

Category: Student / Faculty / Engineer / Others

Office Address:

E-mail:

Mobile No:

Accommodation Required: YES / NO (Limited availability - prior request is needed- charges extra at nominal rate)

Prior Knowledge level and Interest of Participant:

MATLAB: Nil / Introductory / Intermediate / Advanced

Simulink: Nil / Introductory / Intermediate / Advanced

Reason for Attending this programme: _____

Demand Draft (DD) Details: Amount Rs. 2000/- (Two thousand only)

DD Number: _____ Date: _____ Bank: _____

Signature of the Participant

Sponsorship Certificate

Dr/Mr/Ms. _____ of _____ department is a bonafide faculty member / student of our college. He/ She is sponsored to attend the Three days Training Programme on MATLAB for Process Control, during 20th to 22nd July 2016.

Date:

Signature of Head / Principal

(Office Seal)

Kindly send this filled-in form along with registration fee in the form of Demand Draft to:

Mrs. B. Chitra, Assistant Professor, Department of Chemical Engineering,
SSN College of Engineering, Kalavakkam – 603 110, OMR, Chennai.

Email: chitrab@ssn.edu.in, Phone: 98946 78270