

Finishing School Program (Online Internship)-2020

Name of Department	Department of Chemical Engineering
Module Name	Process Integration & Automation in Chemical Industries
Module Coordinators	1) Prof. Anish P. Jacob 2) Prof. Swati Gupta 3) Prof. Sulochana Nagar
Module Objective	To develop understanding and equip the learners with the technical know-how about process automation and system oriented, thermodynamics-based, integrated approaches to the analysis, synthesis and retrofit of process plant.
Module Content	i) Introduction to process integration and automation ii) Concepts Related to heat integration iii) Pinch Technology iv) Integration of Distillation Column v) Heat Integration of Evaporators vi) Integration of Heat pump and furnaces vii) Mass Integration viii) Chemical Plant Utilities. ix) De-Bottle necking x) Automation in production systems xi) Automation Principles and strategy xii) PLC, DCS and SCADA Basics xiii) Live interaction with industry person
Module Methodology	Online learning and Interactive sessions of 2-3 hours per day would be conducted on online learning platforms such as ZOOM/WEBEX/UNACADEMY. The sessions will be accompanied by tutorials. Assignment would be given on weekly basis. In addition to this, 1-2 online interaction(s) with industry personnel on the module theme will also be conducted every week. The performance of the learner would be assessed based on the assignment submission and a quiz at the end of the program.
Module Outcome/ Impact	After the successful completion of this finishing school module, The learners would acquire the technical knowledge of Chemical process Integration and Automation. This would enable them to develop a practical understanding of a Process industry setup and have an edge over others while appearing for interviews and selection in the core process industry sector after completion of their professional degree. In addition, this program will help the learners to assimilate the essence of chemical engineering applied to industrial scenario.

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Duration	30 days
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Day Wise Schedule				
	Date	Day	Module Contents to be covered/Interactive Session/Assignment/Quiz/Exercises/Daily practice sheets (DPP)/Tutorial/Project etc (10:00 AM onward, 2-3 Hrs/ Day)	Faculty
Week 1	18/05/2020	Mon	Introduction to process integration, Need for process integration, Idea Generation and Tutorial Session	Prof. Anish P. Jacob
	19/05/2020	Tue	Introduction to Process Automation, Current Process Industry scenario, Demonstration Video	Prof. Swati Gupta
	20/05/2020	Wed	Methods and Applications of Process Integration, Basic concepts of Process Automation, Tutorial	Prof. Sulochana Nagar Prof. Swati Gupta & Prof. Anish P. Jacob
	21/05/2020	Thu	Introduction to Chemical Plant Utility and their Features, Demonstration video and Exercise	Prof. Anish P. Jacob
	22/05/2020	Fri	Role of sensors and Actuator in automation, Live session with industry person	Prof. Swati Gupta Prof. Anish P. Jacob & Prof. Sulochana Nagar
	23/05/2020	Sat	Concepts related to Heat Integration & Introduction to Pinch Technology	Prof. Sulochana Nagar
Week 2	25/05/2020	Mon	Pinch Technology: Data Extraction & Tutorial	Prof. Sulochana Nagar
	26/05/2020	Tue	Process Model & Dynamics Behavior of Process and Exercise	Prof. Swati Gupta
	27/05/2020	Wed	Hot Composite Curve, Cold Composite curve & Tutorial	Prof. Sulochana Nagar
	28/05/2020	Thu	Basics of PLC and its features, Demonstration Video and Exercise	Prof. Swati Gupta
	29/05/2020	Fri	Energy Targeting & Grand Composite curve &	Prof. Sulochana Nagar

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			Tutorial	
	30/05/2020	Sat	Basics features of SCADA, Live session with industry person	Prof. Swati Gupta Prof. Anish P. Jacob & Prof. Sulochana Nagar
Week 3	01/06/2020	Mon	Maximum Energy Recovery (MER) Design, Heat exchanger networks and shell targeting	Prof. Anish P. Jacob
	02/06/2020	Tue	Introduction to DCS, Area Targeting & Assignment	Prof. Swati Gupta & Prof. Anish P. Jacob
	03/06/2020	Wed	Cost Targeting & Tutorial	Prof. Anish P. Jacob
	04/06/2020	Thu	Automation of Chemical Process Plant based on PLC & SCADA, ΔP Targeting	Prof. Swati Gupta & Prof. Anish P. Jacob
	05/06/2020	Fri	Pinch Design Method and Heat exchanger network optimization	Prof. Anish P. Jacob
	06/06/2020	Sat	Fundamentals of De-Bottle necking, Overview of an automatic industrial plant & Demonstration Video	Prof. Anish P. Jacob & Prof. Swati Gupta
Week 4	08/06/2020	Mon	Low cost DBN Opportunity & Live session with industry person	Prof. Anish P. Jacob Prof. Swati Gupta & Prof. Sulochana Nagar
	09/06/2020	Tue	Automation of Chemical Water Treatment and Control & Bottle neck tree analysis	Prof. Swati Gupta & Prof. Anish P. Jacob
	10/06/2020	Wed	Optimization of DBN & De-Bottle Options	Prof. Swati Gupta & Prof. Anish P. Jacob
	11/06/2020	Thu	Process Simulation for DBN & Combined heat and power design	Prof. Anish P. Jacob & Prof. Swati Gupta
	12/06/2020	Fri	Mass Integration, Integration of Distillation	Prof. Anish P. Jacob &

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			Column & Tutorial	Prof. Swati Gupta
	13/06/2020	Sat	Heat Integration of Evaporators & Demonstration Video	Prof. Sulochana Nagar
Week 5	15/06/2020	Mon	Integration of Heat Pump & Live Session with industry person	Prof. Anish P. Jacob Prof. Swati Gupta & Prof. Sulochana Nagar
	16/06/2020	Tue	Integration of furnaces and Demonstration video	Prof. Swati Gupta
	17/06/2020	Wed	Group Discussion and Interaction & Live session with industry person	Prof. Anish P. Jacob Prof. Swati Gupta & Prof. Sulochana Nagar
	18/06/2020	Thu	Fundamentals of Chemical Product design	Prof. Anish P. Jacob
	19/06/2020	Fri	Assessment Quiz	Prof. Anish P. Jacob Prof. Swati Gupta & Prof. Sulochana Nagar
	20/06/2020	Sat	Feedback & Interaction session	Prof. Anish P. Jacob Prof. Swati Gupta & Prof. Sulochana Nagar
Module Coordinators Email Id and Mobile Number		1) Prof. Anish P. Jacob – anishjaco@mitsgwalior.in , (9993370276) 2) Prof. Swati Gupta – swatig128@mitsgwalior.in , (9977820544) 3) Prof. Sulochana Nagar – saloninagar123@mitsgwalior.in , (7248489813)		

Eligibility and Important Instructions :-

1. The Online Finishing School Program (Online training/Internship) is designed only for Pre-final & Final Year students of Chemical Engineering Department.
2. The students may apply online.
3. The Online Finishing School Program/ Summer Internship Program is free for the participants of Pre-final & Final year students of MITS, Gwalior.
4. The participants outside the Institute may also join the Program on payment basis.

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5. This online module will be conducted under the Finishing School Program which will be considered equivalent to Online Internship of Pre-final year students who could not get any Training/ Internship during May – June 2020.
6. Duration of this program will be of five weeks which is equivalent to summer Internship period as per AICTE and the Institute policy. Daily no. of hours of online training may be flexible.
7. Certificates will be issued to candidates who have attendance 75% or more and also score more than 60% in the assessment test.