

## Objective of the Summer Internship Program

This internship/ training program is aimed to the need of Undergraduate and Post Graduate Students of Engineering who have enthusiasm to learn the new computational techniques and membrane fabrication methods for water treatment and reject management. This training program will cover numerical techniques, Matlab simulation, statistical analysis of data, and hands-on practice on membrane fabrication. The usage of computational method in mathematical modeling & Simulation in the internship program will automatically nurture the participants to grasp the fundamental concepts of linear and non linear algebra, differential equations implementation in various domain of engineering, science and technology in a deeper sense. Moreover, the proper interpretation of the results using statistical analysis and their tools, will also be taught to the participants in assessing to catalyze innovations, problem solving, and discover immediately to the problems that encounter in the field jobs. This will be accomplished by the extensive use of intuition, graphical plots and real world examples. Whether the participant is new to MATLAB, statistical tools, membrane fabrication for water purification or modeling or is looking for a mixed course, he/she will find this summer internship program a great platform to grasp it quickly in systematic manner. This course is designed not only to cover all the aspects of modeling and simulation, experimentation but also guide the proper content requirement for research paper publications.

### Course Outline

- ❖ Fundamentals of Computational Methods
- ❖ Linear & Non-linear algebra
- ❖ Differential equations
- ❖ Linear and nonlinear regression analysis using MATLAB/MS Excel
- ❖ Introduction to Statistics
- ❖ Design of Experiments
- ❖ Experimental Error Analysis
- ❖ Membrane Fundamentals and Configuration
- ❖ Flatsheet Membrane Fabrication by Flatsheet casting machine using Phase Inversion technique
- ❖ Case Study for Recovery Calculation
- ❖ Fabrication of Hybrid composites
- ❖ Slurry wear behavior of different coating system
- ❖ Effective utilization of Industrial waste/by-product and Tribological characteristics

## Resource Persons

The various sessions of this internship program will be preceded by faculty members of MNIT Jaipur, faculty of other reputed institutions like IITs, NITs, IIITs and experts from industries.

### Eligibility / Target Audience

This summer internship program is targeted towards UG, PG students and Faculty of Govt. / Govt. aided / self-financed engineering colleges who have interest in computational simulation and experimental work on membrane. All the undergraduate students who are appearing in the 4th and 6th semester examinations are eligible to apply.

### How to Apply / Registration

UG/PG/Ph.D Students (Chemical, Mechanical, Petrochemical, Biotechnology, Materials, Polymer, Food Tech)	Rs. 15000/-
Faculty	Rs. 7500/-

Fee will be payable through Online Transaction/NEFT/IMPS to the account of "The Registrar MNIT, Jaipur (TEQIP Phase III)" of Account No. 36875887782, State Bank of India, MNIT Campus Jaipur (IFSC Code: SBIN0015921). Duly filled application form in the prescribed format may be sent to the Coordinator so as to reach on or before 20<sup>th</sup> May 2019. The applicant may also send an advance scanned copy of the application form and transaction detail through E-mail. The selection is on first come first served basis depending upon the availability of the seats. Registration charges are non-refundable for selected participants. The participants will be intimated by May 21, 2019.

### Accommodation

Limited accommodation is available in the MNIT Hostels for outstation participants on nominal charge and first come first serve basis. The participant will not be paid any TA/DA. Charges of Institute Hostels Guest rooms are approximately **Rs. 200/- per day.**

### Venue

Deptt. of Chemical Engineering, Malaviya National Institute of Technology, Jaipur

## Registration Form

# Summer Internship Program

on

*Computational Techniques, Polymeric Membrane Fabrication, Wear and Friction of Materials*

27<sup>th</sup> May – 10<sup>th</sup> July 2019

Department of Chemical Engineering  
MNIT Jaipur – 302017 Rajasthan

Name: \_\_\_\_\_

Category (UG/PG): \_\_\_\_\_

Branch: \_\_\_\_\_

Year of Study: \_\_\_\_\_

Department: \_\_\_\_\_

Institute: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

\_\_\_\_\_

Phone (M) \_\_\_\_\_ (O) \_\_\_\_\_ E-

Mail: \_\_\_\_\_

Accommodation required? **Yes/ No**

Modules/days: \_\_\_\_\_

Registration fee Details

Transc. No. \_\_\_\_\_

Bank \_\_\_\_\_ Dt \_\_\_\_\_

For Rs \_\_\_\_\_ is enclosed.

The above information provided is true and to the best of my knowledge. If, selected, I agree to abide by the rules and regulations of the program and MNIT Jaipur.

**Date:** \_\_\_\_\_ **Signature of Candidate**

The applicant will be permitted to participate in the above program, if selected.

**Date:** \_\_\_\_\_ **Signature of Competent Authority**

### About MNIT Jaipur

Malaviya National Institute of Technology Jaipur (Deemed University) is one of the premier NITs, designated with the status of “Institute of National Importance” by MHRD. The institute was established in 1963, and its campus spreads over 325 acres of lush green area in the central location of Jaipur city. The institute offers undergraduate and postgraduate courses (B.Tech., M.Tech. /MBA/ M.Sc. & Ph.D.) to about 4500 students, in leading fields of engineering, technology, architecture, management & sciences. Through the internationally renowned faculty, laboratories with state of art equipments and excellent infrastructure, the institute is actively engaged in research, consultancy and developmental activities, besides imparting regular teaching.

### Chemical Engineering Department

The Department of Chemical Engineering was commenced in the year 1988 with 30 undergraduate students in the B. Tech. Chemical Engineering programme and has been doing its best to bring about excellence in academics achieved in the last 30 years. The PG Programmes of MTech. in Chemical Engineering and Ph.D. was started in year 2006 and 2004 respectively. The current sanctioned strength of the B.Tech. Chemical Engineering Program and M.Tech. Chemical Engineering Program is 100 and 25 respectively for Full time Courses. The department is well equipped with good undergraduate laboratories and research laboratories that have been strengthened and modernized under TEQIP (World Bank) grants and Institute grants funded from MHRD. The department provides a life-long learning experience, through its state of art laboratories, vast pool of courses, and industry-orientation. A strong collaborative framework with reputed universities in India and abroad, the department offers ample opportunities for individual growth.

### BENEFITS TO THE STUDENT INTERNS

- Individual Batch-wise staff Allocation & Assistance
- Materials cum Certifications
- Hands on Oriented Training
- Labs for their preparation
- Certificate on Internship Completion / Implementation

### Patron

Prof. Udaykumar R Yaragatti,  
Director, MNIT-Jaipur

### Advisor

Prof. R. K. Vyas

### Conveners

Prof. Kailash Singh  
Dr. Sushant Upadhyaya  
Dr. M. L. Meena  
Dr. Amar Patnaik

### Coordinators

Dr. Manish Vashistha  
Dr. Vikas Kumar Sangal  
Dr. Subbaramaiah V

### Address for Correspondence

#### Dr. Sushant Upadhyaya

Associate Professor  
Department of Chemical Engineering,  
Malaviya National Institute of Technology  
Jaipur  
J. L. N. Marg, Jaipur-302 017, Rajasthan  
Mobile: +91-9549654173  
Email: supadhyay.chem@mnit.ac.in

#### Dr. M. L. Meena

Associate Professor  
Department of Mechanical Engineering,  
Malaviya National Institute of Technology  
Jaipur  
J. L. N. Marg, Jaipur-302 017, Rajasthan  
Mobile: +91-9549654505  
Email: mlmeena.mech@mnit.ac.in

# Self-financed Summer Internship Program of Forty Five Days under TEQIP-III

with aim

“Theoretical to Experimental India”

on

*Computational Techniques,  
Polymeric Membrane  
Fabrication, Wear and  
Friction of Materials*  
27<sup>th</sup> May to 10<sup>th</sup> July 2019



Organized By

Department of Chemical Engineering  
Malaviya National Institute of Technology  
Jaipur- 302 017 Rajasthan- India  
(www.mnit.ac.in)