

Personal details:

- 1. NAME** : Dr. Narendra Madhavlal Patel
2. DESIGNATION : Professor of Chemical Engineering
3. QUALIFICATIONS

- PhD (Chemical Engg.) 2016 IIT Gandhinagar
- M. Tech (Chemical Engg.) 2000 IIT Bombay, Mumbai
- B.E. (Chemical Engg.) 1990 DDIT, Nadiad, Gujarat University

4. OTHER COURSES

- **Intensive program on Cleaner Production** organized by National Cleaner Production Centre at Ahmedabad.
- **Multifunctional Reactor for Process Intensification** organized by MUICT Mumbai sponsored by MHRD
- Engineering Orientation course, Academic Staff College, Guj. Uni. & NIT
- C# programming, ISTE training program at LDCE, Ahmedabad.
- Workshop for Faculty development for Institutional reforms.

5. THESES :

- **PhD** : Strategies for Enhanced Performance of Single and Multi-Objective Optimization using Evolutionary Algorithms: Applications to Dynamic Optimization
- **M. Tech** : Modeling and Simulation of Multi-component Distillation

6. EMPLOYMENT DETAILS

Sr. No.	Name of Institute / Organization	Designation	Duration		Remarks
			From	To	
1	Shri K. J. Polytechnic Bharuch	Lecturer in Chemical Engg	18-3-1991	28-10-1991	Adhoc
2	Shri K. J. Polytechnic Bharuch	Lecturer in Chemical Engg	30-10-1991	10-11-1993	Adhoc
3	Govt Polytechnic, Valsad	Lecturer in Chemical Engg	29-01-1994	30-03-1995	Regular (GPSC)
4	L.D. College of Engineering Ahmedabad	Lecturer in Chemical Engg	31-03-1995	18-5-2004	Regular (GPSC)
5	L.D. College of Engineering Ahmedabad	Assistant Professor of Chemical Engg	19-5-2004	22-08-2007	Adhoc promotion
6	Government Engineering College, Valsad	Associate Professor of Chemical Engg	23-08-2007	25-10-2012	Worked as I/c Principal from Dec 2008 to October 2012.
7	Vishwakarma Government Engineering College, Chandkheda, Ahmedabad	Associate Professor of Chemical Engg	26-10-2012	26-08-2020	Worked as Head of Dept. from Oct 2012 to July 2018
8	Government Engineering College, Valsad	Professor of Chemical Engg	27-08-2020	continue	Promotion as Professor

7. PROFESSIONAL MEMBERSHIP

- Life Member, Indian Institute of Chemical Engineers (IIChE)
- Life Member, Indian Society for Technical Education (ISTE)
- Life Member, Association of Chemical Technologist India (ACTI)

8. AREAS OF INTEREST

- Process Modelling, Simulation and Optimization
- Multi-Objective data sorting and Optimization; algorithms and applications
- Artificial Neural Network applications
- Reactor Network Synthesis and attainable region for reactors
- Numerical and Stochastic Computations
- Energy Efficient Process Synthesis and process intensification

9. PATENT FILED

1	Title	Split air cooler using evaporative cooling of water
	Application No	201821000044
	Date of Application	01-01-2018
	Date of Publish	08-03-2019
	Applicants	Prof. Narendra M Patel Prof. Beena K Sheth Prof. Rupal R Patel
	Status	Applied for Examination
2	Title	Synthesis of Pd deposited Micro Mesoporous Iron Oxide(MMIO) for Aniline Production
	Application No	201821000119
	Date of Application	02-01-2018
	Date of Publish	29-03-2019
	Applicants	Prof. Narendra M Patel Prof. Kamlesh R. Gurjar Kaumik J. Gandhi
	Status	Application Published
3	Title	Flexible Canvas Water Storage Pot
	Application No	TEMP/E-1/41929/2018-MUM
	Ref. No.	201821038587
	Date of Application	11-10-2018
	Applicants	Beena K Sheth Narendra M Patel Dhaval Chauhan
	Status	Provisional Application
4	Title	Hydro Jet Ejector for Cooling Using Water Alcohol Emulsion
	Application No	TEMP/E-1/10019/2019-MUM
	Ref. No.	201921009504
	Date of Application	12-03-2019
	Applicants	Dr. Dharmendra D Mandaliya Dr. Narendra M Patel Gagiya Vishal
	Status	Provisional Application

10. PUBLICATIONS

Papers Selected/Presented at International Conferences

Sr. No.	Name of Topic (Title)	Name of seminars / conference	Level & Place
1	Water as Refrigerant	Chemcon-2005	Delhi, India
2	Energy from Rubber Waste	Chemcon-2005	Delhi, India
3	Extruder Design Optimization using Genetic Algorithm	Rubber Expo-2005	Bombay
4	Short Fiber Rubber Composites	Chemcon-2006	Bharuch, India
5	Genetic Algorithm for Humidity Controller System Design and Simulation	Chemcon-2006	Bharuch, India
6	Alien Genetic Algorithm for Exploration of Search Space	ICMOC 2011	Durgapur, India
7	Box-Complex Assisted Genetic Algorithm for Optimal Control of Batch Reactor	ADCHEM 2015	Whistler, British Columbia, Canada
8	Fast Mesh Sorting in Multi-Objective Optimization	ADCHEM 2015	Whistler, British Columbia, Canada
9	Multi-objective optimization for productivity and yield maximization in fed-batch reactor	CHEMCON 2015	Guwahati, India
10	Multi-objective dynamic optimization for productivity of batch reactors	CHEMCON 2015	Guwahati, India
11	Multi-Objective Optimal Control Study of Fed-Batch Bio-Reactor	DYCOPS 2016	Trondheim, Norway
12	Box-Complex Assisted Constraint Handling for Evolutionary Multi-objective Optimization	ECTA 2016	Porto Portugal
13	Comparative Study of Interpolating Functions in CVP: Application to Ethanol Production in a Fed-Batch Reactor	ECTA 2016	Porto Portugal
14	Effective Constraint Handling by Hybridized Cuckoo Search Algorithm with Box-Complex Method	ECTA 2016	Porto Portugal

Research Publications (International Journal :Published)

1. Patel, N., Padhiyar, N., 2015. Modified genetic algorithm using Box Complex method: Application to optimal control problems. Journal of Process Control 26, 35-50.

Research Publications (International Journal :Submitted)

1. Patel, N., Padhiyar, N., 2016. Multi-Objective Dynamic Optimization Study of Fed-Batch Bio-Reactor, Journal of Process Control, submitted on June 15, 2016.
2. Patel, N., Padhiyar, N., 2016. A Fast Mesh Sort Selection in Genetic Algorithm for Multi-Objective Optimization, International Journal of Bio-Inspired Computation, submitted on June 24, 2016.
3. Tyagi, D., Patel, N., Padhiyar, N., 2016. Comparative Study of Interpolating Functions in CVP: Application to Ethanol Production in a Fed-Batch Reactor, Journal of Biotechnology, submitted on May 17, 2016.
4. Zade, A., Patel, N., Padhiyar, N., 2016. Effective Constraint Handling by Hybridized Cuckoo Search Algorithm With Box-Complex Method, International Journal of Bio-Inspired Computation, submitted on June 24, 2016.

Research Publications (International Conference: Published in Proceedings)

1. Patel, N., Padhiyar, N., 2010. Alien Genetic Algorithm for exploration of search space, Proceedings of International Conference on Modelling Optimisation and Computing, AIP Conf. Proc., volume 1298, pp. 325-330. (ICMOC 2010, National Institute of Technology Durgapur, India. October 28-30, 2010.)
2. Patel, N., Padhiyar, N., 2015. Box-Complex Assisted Genetic Algorithm for Optimal Control of Batch Reactor, Proceedings of the 9th International Symposium on Advanced Control of Chemical Processes, 331-336. (ADCHEM 2015, Whistler, British Columbia, Canada, June 7-10, 2015.)
3. Patel, N., Padhiyar, N., 2015. Fast Mesh Sorting in Multi-Objective Optimization, Proceedings of the 9th International Symposium on Advanced Control of Chemical Processes, 937-942. (ADCHEM 2015, Whistler, British Columbia, Canada, June 7-10, 2015.)
4. Patel, N., Padhiyar, N., 2016. Multi-Objective Optimal Control Study of Fed-Batch Bio-Reactor, Proceedings of the 11th IFAC Symposium on Dynamics and Control of Process Systems, including Biosystems, 91-96. (DYCOPSCAD 2016, Trondheim, Norway, June 6-8, 2016.)

Talks Delivered

Sr. No.	Name of Topic (Title)	Name of seminars / conference	Level & Place
1	Computer Aided Design	Energy Management & Optimization in Chemical Process Industries	ISTE-AICTE STTP at NIRMA
2	Chemical Process Optimization	Training Program (18 hrs)	Reliance Refinery Jamnagar
3	Computer Aided Design and Process Optimization	Expert Lecture	VVP Engineering College, Rajkot
4	Mixed Language Programming	Engineering Computations using MATLAB	STTP at LDCE
5	Modeling & Simulation, Filtration and Drying	CENCE	State, Ahmedabad
6	Introduction to Advance Computational Techniques	Advance Computational Techniques	ISTE-AICTE STTP at LDCE
7	Multi Objective Optimization	Optimization: Theory and Practice	ISTE CTE STTP
8	Optimization: Pattern Search and Box-Complex methods	Optimization: Theory and Practice	ISTE CTE STTP

11. PRESENT JOB RESPONSIBILITIES

ACADEMICS	
<ul style="list-style-type: none"> Class Room Instructions 	Under Graduate and Postgraduate courses on <ul style="list-style-type: none"> CAD Modeling & Simulation Process Optimization Process Synthesis
<ul style="list-style-type: none"> Laboratory Instructions 	Under Graduate and Postgraduate courses on <ul style="list-style-type: none"> CAD & Process Optimization Modeling and Simulation Numerical Computations
<ul style="list-style-type: none"> Curriculum Development 	<ul style="list-style-type: none"> Participated in DACUUM for Safety in Chemical and Polymer Industries under CIILP Participated in DACUUM for Chemical Engineering Curriculum under CIILP Organized Interactive meet on Chemical Engineering Education in Changing Business Scenario jointly with IChE(ARC) Assisted in Organizing Curriculum Development Workshop under TEQIP Networking.
<ul style="list-style-type: none"> Developing Learning Resource Material 	<ul style="list-style-type: none"> Developed computer program for Multicomponent Distillation Simulation. Developed Simplex Algorithm Linear Programming Solver. PowerPoint Presentations on <ul style="list-style-type: none"> CAD Process Optimization Optimization Techniques Advanced Computational Techniques Modeling & Simulation HENS Developing Pattern Search & Box complex method based equation solver.
<ul style="list-style-type: none"> Laboratory Development 	<ul style="list-style-type: none"> Developed computer program for Liquid Level controller Simulation. Managing Computers laboratory at Dept. Proposed new software and equipments under TEQIP and state grant and prepared specifications.
<ul style="list-style-type: none"> Student Assessment and Evaluation 	<ul style="list-style-type: none"> Regular class tests. Conducting regular course seminars and presentations. Weekly assignments Working as Examiner and paper setter at Gujarat University for UG and PG courses. Working as Examiner and paper setter at D D University Nsdiad, Nirma University, South Gujarat University, North Gujarat University, Saurashtra University, Sardar Patel University.
<ul style="list-style-type: none"> Co-curricular and Extracurricular Activities 	<ul style="list-style-type: none"> Arranging Industrial visits. Coordinated Chemiot Vessel in LAA Techniques. Organised students presentations programs like Quintessence series, SEMCOM with IChE(ARC), QUIZ, Elocution competition, etc. Organizing regular expert lectures on recent topics. Working as faculty coordinator and coordinating activities under CHRUPLESA like: Special Day Celebrations like Ozone Day, Safety Day etc.

	<ul style="list-style-type: none"> - Personality development programs. - Special Talks like cancer awareness. - Students guiding and counseling and helping their personal ethical moral and overall character development.
<ul style="list-style-type: none"> • Continuing Education Activities 	<p>Organized and attended training programs on:</p> <ul style="list-style-type: none"> - Environment Audit - Advanced Computation Techniques - Cleaner Production in Chemical Industries - Computational Methods for CAD, Optimization & Simulation In Chemical & Polymer Engg - Engineering computational Techniques using MATLAB <p>Organizing workshop on Chemical Engineering for Non Chemical Engineers, CENCE since 2001.</p> <p>One of the member for organizing special programs like:</p> <ul style="list-style-type: none"> - Turnaround Strategy of GSFC, Vadodara - Innovations Lifeline of chemical Ind. - Interactive meet on Realizing Energy Efficiency and Renewable Energy - Interactive meet on Energy Efficiency and Renewable Energy
<ul style="list-style-type: none"> • Updating knowledge 	<p>Attended Training programs on</p> <ul style="list-style-type: none"> - Engineering Orientation course - Testing of Rubber Raw Materials-TRM-2003 - Intensive program on Cleaner Production - Industrial Training at Macro Polymer Pvt. Ltd., Mac Dye Chem Industries, Sahyog Chemicals, Nirav Dyes. - C# programming - Multifunctional Reactor for Process Intensification - Nanotechnology and Its Applications <p>Attended Seminar and short courses on</p> <ul style="list-style-type: none"> - Iron Trap Products and TSQ products applications is Pharmaceutical Environment and Food industries - Daicel Chiral HPLC Columns. - Good Governance - Emerging Consulting Opportunities - Design Selection and Construction features of Reformers and HeatExchangers - Office Procedure and Service Rules - Tracer Study

RESEARCH & CONSULTANCY	
<ul style="list-style-type: none"> • PhD Supervisor at GTU 	<ul style="list-style-type: none"> - Currently guiding four students registered with GTU for PhD. - Working as DPC members of three students at GTU
<ul style="list-style-type: none"> • R&D Activities 	<ul style="list-style-type: none"> - Developed computer program for Extruder Design Optimization using Genetic Algorithm. - Evaporative cooling of water for Air conditioning - Photochemical Degradation of H-acid Effluent - HENS using Genetic Algorithm - Ethanol production from Maize. - Oxrich combustion - Biodiesel for Algae - Vacuum Heat Pump Cycle
<ul style="list-style-type: none"> • Industry Sponsored Projects 	<ul style="list-style-type: none"> - Developed computer program for Humidity Controller Simulation for Textile Process Unit. - Butanol Recovery from butanol water mixture for Macro Polymers. - Polysulphones blend with ABS - Cleaner Production assessment - Green house gases reduction in pumping - Yield improvement for 6-Chloro Methopobate
<ul style="list-style-type: none"> • Consultancy & Testing Services 	<ul style="list-style-type: none"> - Worked as team member for Schedule-I Environmental Audit - Worked as team member for Environmental Management System Adequacy certification - Design and performance analysis of equipments. - Analytical Testing as per IS methods. - Excise and Custom department's technical opinion and report preparation assignments.
<ul style="list-style-type: none"> • Industry Institute interactions 	<ul style="list-style-type: none"> - Organizing Seminars on recent topics. - Pedagogy with industry professionals and consultants for curricular development and recent advancements. - Hon. Secretary of Indian Institute of Chemical Engineers, Ahmedabad Regional Centre. - Executive committee member of Association of Chemical Technologist India. - Guiding Industries sponsored PG Dissertations. - Regularly visiting industries. - Acquiring sponsorship from industries for various co-curriculum & extra curriculum activities. - Developed experiments by help of industries. - Coordination Library and Book Bank of IICChE(ARC) - Centre Superintendent for AMIICChE Examination