



BITS Pilani Hyderabad Campus Department of Chemical Engineering



BITS Pilani
Hyderabad Campus

M. E. Admission 2021-22

The Legacy of BITS Pilani

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Birla Institute of Technology and Science, Pilani is a dream come true of its founder late Mr. G. D. Birla - an eminent industrialist, a participant in Indian freedom struggle and a close associate of the Father of Nation late Mahatma Gandhi. During its 50 years of existence as an institute of higher learning, BITS Pilani has expanded beyond Pilani to three more campuses at ***Dubai, Goa*** and ***Hyderabad***. BITS has just launched its fifth Indian campus, the BITS School of Management, in Mumbai. Today, BITS offers UG, PG and Ph.D. programs to over 17,000 students in various disciplines including Science and Engineering.



The Late Shri G. D. Birla

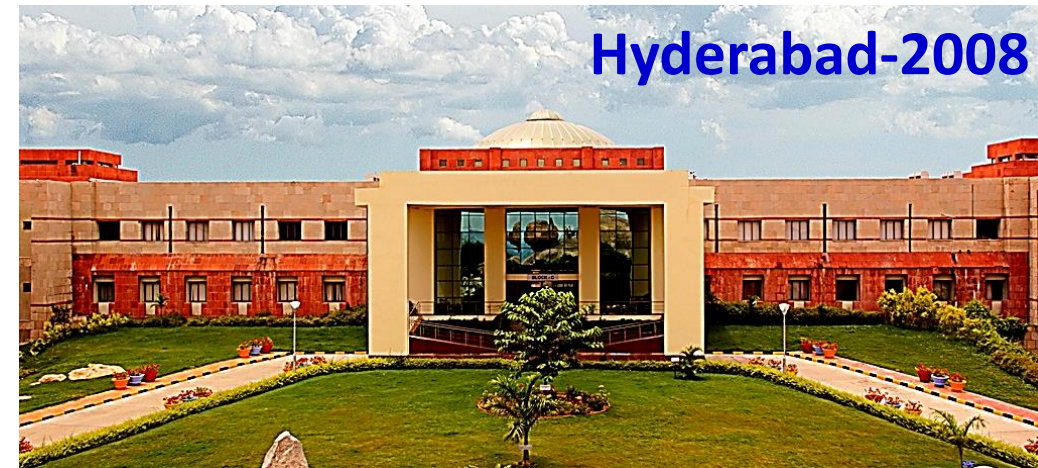
ज्ञानम परमं बलम: Knowledge is Supreme Power

BITS Pilani Campuses

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BITS Pilani – Where we stand now

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Declared as **Institute of Eminence** by the Govt. of India in 2020



NIRF 2020 Rank **#15** in University category



Nature Index India 2020 Rank **#9** in Physical Sciences category



QS Asia University Rankings 2021: Only private Institute from India in **Asia Top 200**

QS World University Rankings by Subject 2021

401-450 (World) and Top 12 (India) in Engineering & Technology

Top 4 (India) in Pharmacy

Top 11 (India) in Electrical & Electronic Engineering

Top 11 (India) in Mechanical Engineering

Top 12 (India) in Computer Science

Top 13 (India) in Chemical Engineering

Top 13 (India) Mathematics

Top 16 (India) in Chemistry

Top 16 (India) Business & Management studies

BITS Pilani: An Institute of Higher Learning

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>INR 330 crores of external research grant in last 5 years

The only non-Government institute to be chosen by DST to establish a Technology Innovation Hub on Bio-Cyber Physical Systems with a grant of INR 125 crores

Research led by students and about 860 faculty members leading to an h-index of 122, ~11700+ publications with ~1,25,000 citations as per Scopus Database and with 85+ patents filed in the last 5 years

BITS at #3 in terms of number of Indian start-ups founded by graduates of an institute

BITS Pilani Hyderabad Campus (BPHC)

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BPHC was established in the year 2008. The sprawling campus is built amidst lush greenery spreading over 200 acres of land at Jawahar Nagar, Shameerpet, Hyderabad. Surrounded by natural beauty, the campus is about 70 km away from Rajiv Gandhi International Airport and 27 km from Secunderabad railway station.



BITS Pilani Hyderabad Campus

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The campus is built with state-of-the-art infrastructure, modern laboratories, well-furnished classrooms, lecture theatre complexes, student activity center, auditorium, and playground all come together to make BPHC a well-equipped campus. BPHC is fully residential, housing over **5000 students**, around **250 faculty members** and **250 technical and support staff**.





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Department of Chemical Engineering, BPHC

MISSION: To develop new talents, leaders, researchers and entrepreneurs who can bring high level value addition to the Chemical & Allied industries and to the Academia

WHAT WE OFFER: Bachelors (B.E), Masters (M.E) and Ph.D. programmes

OUR STRENGTH:

Our students who get placed in reputed companies, join esteemed institutes for higher education, become successful entrepreneurs

Our faculty members who are actively working in cutting edge research to address challenges in Energy, Environment, and Healthcare

Our research facilities (>2.5 crores) and **external funding (>2.6 crores)** from Government agencies and Industries

Message from our HOD, Prof. I. Sreedhar

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Dear Aspirants,

Since establishment in 2008, the Department of Chemical Engineering has been running integrated first degree, higher degree and Ph.D. programmes. Our department boasts of highly qualified faculty with diverse research profiles, state of the art labs, flexible and industry relevant curriculum, strong university-industry linkage, excellent academic infrastructure besides lush green 200 acre campus.



Besides departmental labs, we have well-equipped Central Analytical Laboratory that houses various sophisticated instruments like SEM, XRD, XPS, NMR, FTIR, LC-MS, AAS, DSC, DTG, TGA, HPLC, etc. to cater to the needs of our research community. We are progressing well in terms of the research outcomes viz., publications in international journals, sponsored projects, patents etc. and strive hard to be one of the best Chemical Engineering Departments in the country in near future. Our campus is a part of BITS Pilani University standing 15th as per NIRF rankings 2020 and top most private university in the country. So, be a part of this journey and you will have a great satisfying experience towards the end of the programme. Good luck!

Why ME at BITS Hyderabad ?



The main objective of the ME program is to inculcate students into becoming well versed in wide variety of problem-solving based experimental and modeling skills so that they are industry ready and equipped to come up with logical and feasible solutions for engineering problems.

Higher Studies

- Few interested students also got admission in reputed national and abroad universities for higher studies

Practice School

- 6 months of industry training

Placements

- Overall placement is more than 95% during the last three years
- Our M.E Students from last three batches got placed in various reputed companies like Thirumalai Chemicals, Aizant Drug Research, Sai Life Sciences Pvt. Ltd, Pfizer Pharmaceutical Company etc.

Our Faculty

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Prof. Jaideep Chatterjee (Ph.D., Illinois Institute of Technology, Chicago)

Professor

Area of research: Water & waste-water Purification, Air Purification, Oil-water Interfaces, Capillarity, Porous media characterization, Surfactants, Foams & Emulsion



Prof. I. Sreedhar (M.Tech, IIT Delhi; Ph.D., BITS Pilani)

Associate Professor and HOD

Area of research: Catalysis, Reaction Engineering, Environmental Chemical Engineering.



Prof. Srikanta Dinda (Ph.D., IIT Kharagpur)

Associate Professor

Area of research: Heterogeneous Reactions & Catalysis, Synthetic & bio-polymer synthesis, CO₂ capture & utilization, Hydrocarbon cracking



Prof. Balaji Krishnamurthy (Ph.D., University of South Carolina, USA)

Associate Professor

Area of research: Energy systems, Batteries, Fuel cells, Microbial fuel cells, Computational & Experimental



Prof. A Ramesh Babu (Ph.D., BOKU, Vienna, Austria)

Associate Professor

Area of research: Pulp & Paper technology, Polymers & Composite Materials, Characterization of Fibres & Composites



Prof. Karthik Chetan V (Ph.D., McMaster University, Canada)

Associate Professor

Area of research: Material science, Biomaterials, Tissue engineering



Dr. D. Purnima (Ph.D., IIT Delhi)

Assistant Professor

Area of research: Waste utilization, Natural fibre reinforced composites, Synthetic fiber based materials, Polymer blends, Nanomaterials, Water remediation



Dr. Vikranth Kumar Surasani (Ph.D., Otto von Guericke University Magdeburg, Germany)

Assistant Professor

Area of research: Lattice Boltzmann Methods, Modelling & Simulation for Reactive Transport, Pore Network for Drying of Capillary Porous media.

Faculty Profiles

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[Dr. Satyapaul Singh Amarthaluri](#) (Ph.D., IISc Bangalore)

Assistant Professor

Area of research: Heterogeneous Catalysis, Photocatalysis, Clean Energy, CO₂ Sequestration



[Dr. Nandini Bhandaru](#) (Ph.D., IIT Kharagpur)

Assistant Professor

Area of research: Nanotechnology, Soft Lithography, Superhydrophobic surfaces, Polymer thin films.



[Dr. Pankaj Kumar](#) (Ph.D., IIT Hyderabad)

Assistant Professor

Area of research: Biofuels, Bio-refinery, Heterogeneous catalysis, Reaction Engineering



[Dr. Arnab Dutta](#) (Ph.D., National University of Singapore)

Assistant Professor

Area of research: Process Simulation, Process Integration, Optimization, Machine Learning, Techno-economic Assessment, Sustainable Energy Systems.



[Dr. Afkham Mir](#) (Ph.D., IIT Delhi)

Assistant Professor

Area of research: Energy storage devices, 2D materials, Graphene, Energy harvesting, Electrochemical engineering, Supercapacitors.



[Dr. Debirupa Mitra](#) (Ph.D., National University of Singapore)

Assistant Professor

Area of research: Surface modification, Antimicrobial coatings, Materials for biomedical applications



[Dr. Iyman Abrar](#) (Ph.D., IIT Delhi)

Assistant Professor

Area of research: Emulsions & microemulsions, Sustainable alternative fuels, Performance evaluation of IC Engine, Interfacial engineering



[Dr. Ramendra Kishor Pal](#) (Ph.D., Virginia Commonwealth University)

Assistant Professor

Biomaterials, Biochemical sensors, Soft electronics, Plasma medicine, Cold Plasma-based disinfection of pathogens



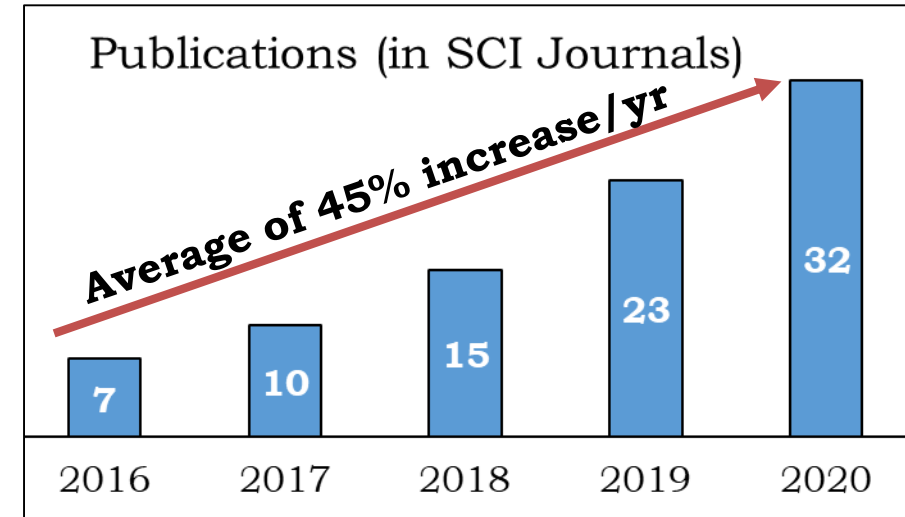
[Prof. Vedprakash Mishra](#)

Visiting Professor

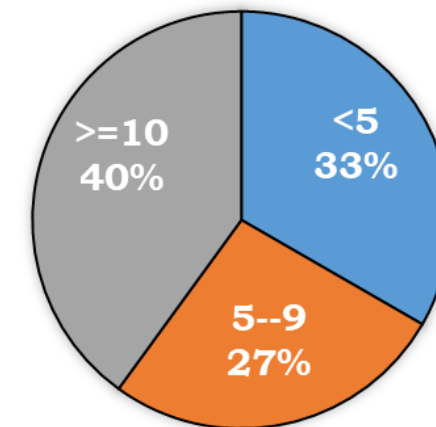
Research Accomplishments



- Motivated and dedicated faculty members provide a dynamic, outstanding hands-on learning experience for students
- Faculties are also engaged in local and international research projects that produce leading contributions to science and engineering
- Publications in esteemed journals like *Langmuir*, *Chemical Engineering Science*, *Journal of Cleaner Production*, *Journal of CO₂ Utilization*, *Catalysis Science & Technology*, *Soft Matter*, *Drying Technology*, *Journal of Materials Science*, etc.



i-10 Index Distribution

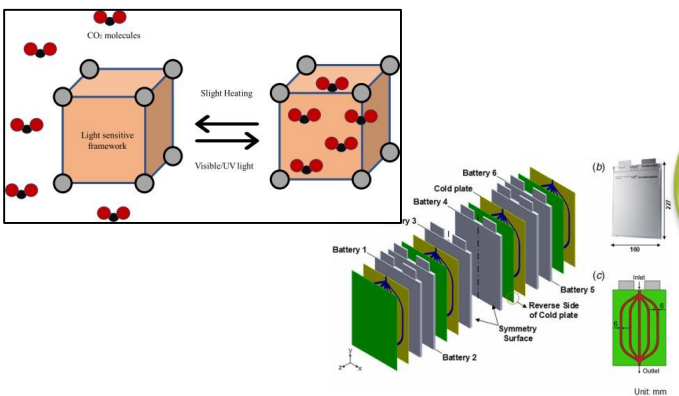


Research in Chemical Engineering, BPHC

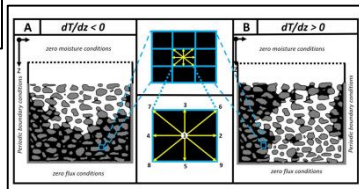
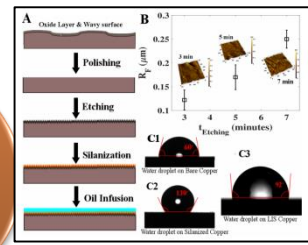
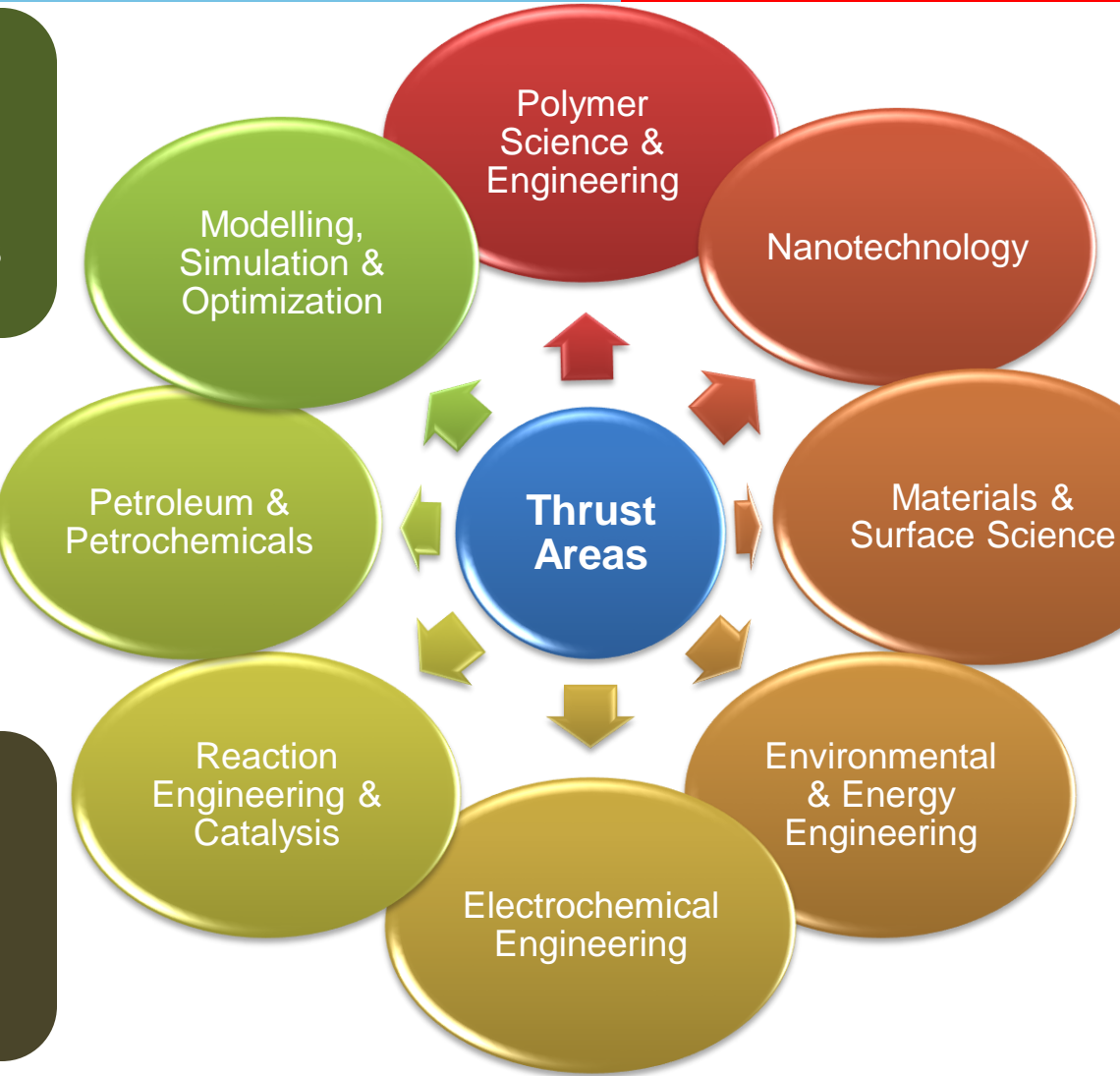


Reactive Transport Modelling
 Lattice Boltzmann Methods
 Process Optimization
 Machine learning & Surrogates

Fiber reinforced polymers
 3D Printing
 Layered materials
 Superomniphobic surfaces
 Surface modification



Fuel cells & Li-ion batteries
 Alternative fuels
 Endothermic fuel development
 Heterogeneous Catalysis
 Nanocatalysis



Membrane Separation
 Heavy Metal Removal
 Carbon Capture
 Interfacial Engineering
 Biomass valorization

Departmental Facilities

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Contact Angle Meter



Micro gas Chromatography



Potentiostat



BET Surface Analyzer



Automated Distillation Column



Plasma Cleaner



Liquid Chromatography



Super Mass colloidier



UV-VIS spectrometer



Fixed Bed Reactor



Rheometer



Microtome



Electrospinning Unit



Melt Flow Index tester



High pressure Parr reactor

Software available:
ANSYS-CFD, COMSOL,
MATLAB, ASPEN

Institute facilities

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Universal Testing Machine



Atomic Absorption Spectroscopy



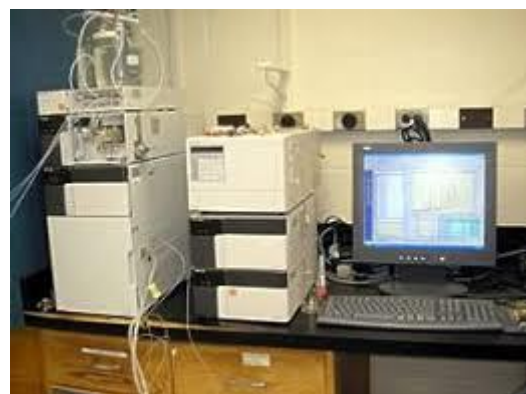
X-ray Photoelectron Spectroscopy



Field Emission SEM



Thermal Gravimetric Analysis



High Performance Liquid Chromatography



BET Surface Analyzer



Impedance /Gain-Phase Analyzer



Energy Dispersive XRF

More State-of-the-art Research Facilities are available at the [Central Analytical Lab](#)

Sponsored Research

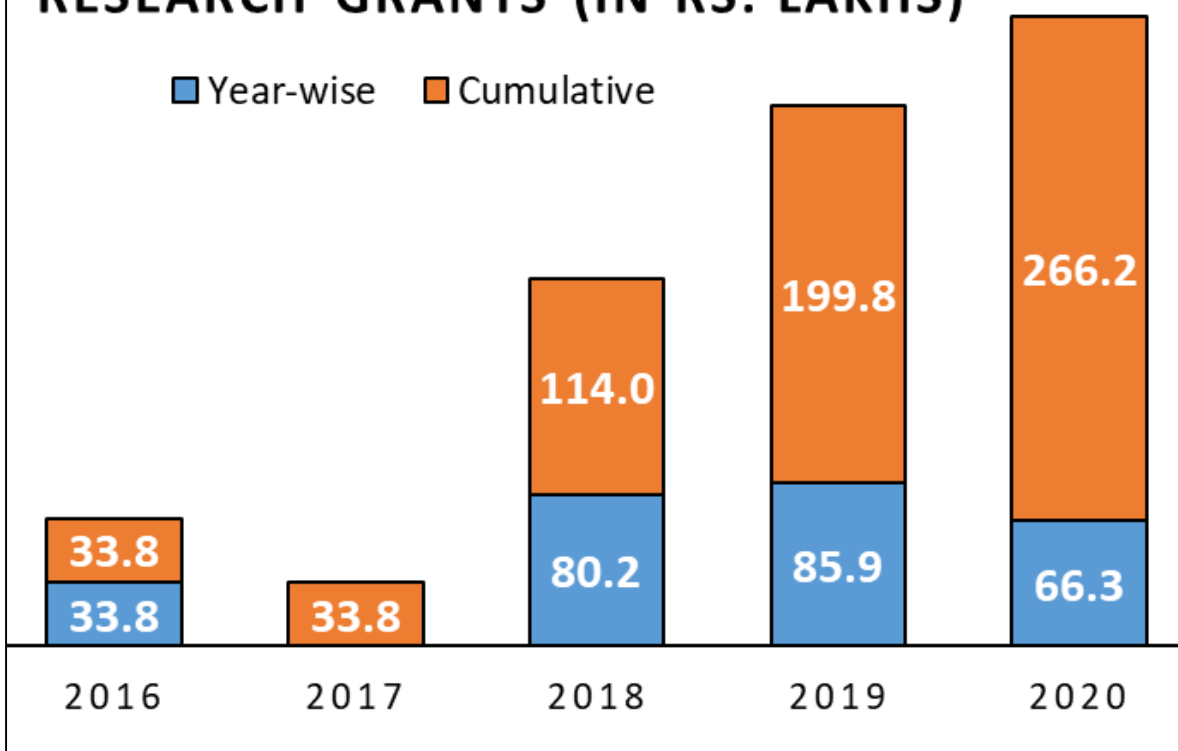


- >INR 2.6 crores worth externally funded research grants received in the last 5 years
- External grants sponsored by **CSIR, DST, SERB, DBT**
- Our ongoing projects are listed [HERE](#)

- Consultancy projects received in last 5 years: INR 87 lakhs from DRDO, HBL Power Systems Limited, Ardee Hytech

RESEARCH GRANTS (IN RS. LAKHS)

■ Year-wise ■ Cumulative



ME Program: Introduction



- ✓ Year of Commencement of PG Program in the Dept : **August 2015**
- ✓ Certifying agency & status: **An Institution Deemed to be University estd. vide Sec.3 of the UGC Act,1956 under notification # F.12-23/63.U-2 of Jun 18,1964; NAAC –Accredited (Yes): A grade; DSIR certificate (Yes)**
- ✓ GATE is not mandatory for admission in the M.E. Program.

Highlights



- ❖ Candidates admitted to a Higher Degree Programme will also be considered for **teaching assistantship** with stipend up to Rs. 13,400/- per month in addition to the GATE/GPAT scholarship (if any).
- ❖ The ME program provides students an intense **lab-oriented training** and the program is equipped with access to various characterization instruments
- ❖ Research/industry oriented training with one year dissertation(research work) or one semester dissertation and one semester of industry training (***Practice School***).

Who can apply?

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Integrated First Degree of BITS in the same discipline or its equivalent can apply

We offer M.E. in Chemical Engineering



Important dates and Deadline (Tentative)



Portal to apply online opens on	22nd April, 2021
Deadline for submission of completed application form online with prescribed fee	29th May, 2021
Revision / editing (online) in the application form by candidates	30th May, 2021
Announcement of admission offers to candidates based on GATE / GPAT score (Iteration 1)	10th June, 2021
Deadline for Payment of advance fees by candidates offered admission through GATE / GPAT (Iteration 1)	25th June, 2021
BITS HD Online Test	26th & 27th June, 2021
Announcement of admission offers to candidates based on BITS HD test and GATE / GPAT (Iteration 2) and shortlisting of candidates for the M.Phil. programme	5th July, 2021
Deadline for payment of advance fees by candidates offered admission through Iteration 2	15th July, 2021
Announcement of admission offers to candidates admitted through BITS HD test and GATE / GPAT (Iteration 3)	25th July, 2021
Deadline for payment of advance fees by candidates offered admission through Iteration 3	05th August, 2021
Deadline for payment of balance fees by all students offered admission to the HD program	15th August, 2021
Announcement of admission offers to candidates admitted through BITS HD test and GATE / GPAT (Iteration 4)	20th August, 2021
Deadline for payment of fees by students offered admission through Iteration 4 (Full payment)	25th August, 2021
Reporting date for admission in respective campus	29th August, 2021
Freshman Orientation Programme	31st August, 2021
Registration	1st September, 2021
Class work begins as per the registration of courses	2nd September, 2021

Selection procedure



- The admission is done by either qualifying **BITS-HD admission test** or **GATE**.
- Candidates seeking admission for M.E. Program in Chemical Engineering can apply through either of the two.
- The duration of test is 2.5 hrs. with 100 questions totaling to 300 marks containing two parts:
 - Part A (30% weightage): Mathematics, English Language Skills and Logical Reasoning.
 - Part B (70% weightage): Process Control, Chemical Process Calculations, Chemical Engineering Thermodynamics, Chemical Technology, Fluid Mechanics and Mechanical Operations, Heat and Mass Transfer, Chemical Reaction Engineering, Plant Design and Economics.

ME Program: Semester wise scheme



Year	Semester I	Units	Semester II	Units
I	Advanced Chemical Engg. Thermodynamics	5	Reaction Engineering	5
	Mathematical Methods in Chemical Engineering	5	Advanced transport phenomena	5
	Elective I	*	Research Methodology	5
	Elective II	*	Elective III	*
	Total	16 (min)	Total	16 (min)
	Semester III		Semester IV	
II	Elective IV to VII	16 (min)	PS/Dissertation	16/20
	OR Elective IV and V and Dissertation (9 Units)	16 (min)		
	OR Dissertation (16 units)	16		
	Total	16 (min)	Total	16/20



Course Curriculum (one year Dissertation)

Year	Semester I	Semester II
I	4-5 courses (16 credits)	4-5 Courses (16 credits)
II	Dissertation (32 credits)	

Core Courses (Compulsory)

CHE G622 Adv. Chem. Engg. Thermodynamics
CHE G523 Math. Methods in Chem. Engg.
CHE G641 Reaction Engineering
CHE G552 Advanced Transport Phenomena
BITS G661 Research Methodology

Elective Courses (3-7)

CHE F421 Biochemical Engineering
CHE F413 Process Plant Safety
CHE G512 Petroleum Refining and Petrochemicals
CHE G522 Polymer Technology
CHE G525 Chem. Process and Equipment Design
CHE G528 Nano Science & Technology
CHE G529 Paper and Pulp technology
CHE G532 Alternate Energy Resources
CHE G533 Petroleum Product Characterization
CHE G551 Advanced Separation Technology
CHE G617 Petroleum Refinery Engineering
CHE G619 Process Intensification
CHE G620 Energy Integration Analysis
CHE G554 Computational Fluid Dynamics
CHE G556 Electrochemical Engineering

How to apply?



- ❑ For further details refer our admission website- :
<https://www.bitsadmission.com/hdmain.aspx?id=1262015>
- ❑ For more information on ME Program, please check:
https://www.bitsadmission.com/hd/HD_Brochure_2020_version%206th%20June%202020.pdf
- ❑ For more information on the Department of Chemical Engineering, BITS Pilani Hyderabad Campus, please check: <https://www.bits-pilani.ac.in/hyderabad/chemicalengineering/chemicalengineering>

CONTACT:

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