Dhirubhai Ambani University

Formerly known as
Dhirubhai Ambani Institute of
Information and Communication Technology

M.Tech. (ICT)
with specialization in
Software Systems

Academics

Service to Society

DAU

Research & Innovation

Admissions 2025

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DA-IICT was founded in 2000 as a unique university devoted to the cutting-edge interdisciplinary area of Information and Communication Technology (ICT). ICT was emerging as the technology of the future bringing in the fourth Industrial Revolution. Well known and highly qualified faculty members joined DA-IICT and developed a curriculum and research program steeped in all aspects of ICT, societal, scientific, and technical. This spirit has been nurtured for the last 23 years and DA-IICT wants to continue its excellence in interdisciplinary teaching and research well into the future.

The Act No. 6 of 2003 of the Gujarat Legislature provided for the establishment of the DA-IICT and conferred on it the status of a University. On 30 November 2004, the DA-IICT was included in the list of Universities maintained by the University Grants Commission under Section 2(f) of the UGC Act, 1956. DA-IICT is a member of the Association of Indian Universities (AIU) as approved by the AIU at its 84th Annual Meeting held during 12-14 November 2009. The National Assessment and Accreditation Council, Government of India has accredited DA-IICT with an A$^+$ Grade in 2023.

The Legislative Assembly of Gujarat passed the DA-IICT Amendment Act Bill on 28th February 2024 and the DA-IICT Act (Amendment) 2024, which paved the way for the formation of the Dhirubhai Ambani University, and came into force by the announcement in the Gujarat Government Gazette dated 13th May 2024. Consequent upon the said amendments, the institute transforms itself into a multi-disciplinary university of new and emerging technologies and will establish institutions in other disciplines such as law, management etc.

Vision and Mission
The vision of the institute is to become a globally recognized institution that offers innovative programs, outstanding faculty, an atmosphere of innovation, a responsive administration, a vibrant campus and a collaborative learning environment that continuously adapts to the changing landscape of research and innovation and the future of work. Toward this, we plan to design and deliver academic programs in both disciplinary and multidisciplinary domains to prepare students for a rapidly evolving work environment.

Govt. of Gujarat conferred the status of **Centre of Excellence** in January 2022

NAAC (Accreditation): A+ Grade (Year- 2023)

Gujarat State Institutional Rating Framework (GSIRF) awarded **Five-Star Rating in the last three years**

Selected as one of the **Nodal Institutes to mentor Innovators** by the Industries Commissionerate, Govt. of Gujarat

Alumni who have excelled as **entrepreneurs** (founded and co-founded over 100 companies), **technocrats** (CTO, CEO), **bureaucrats** (IAS, IRS, IPS, IES), **academicians** (NUS, University of Chicago, University of Toronto, IIT Madras)
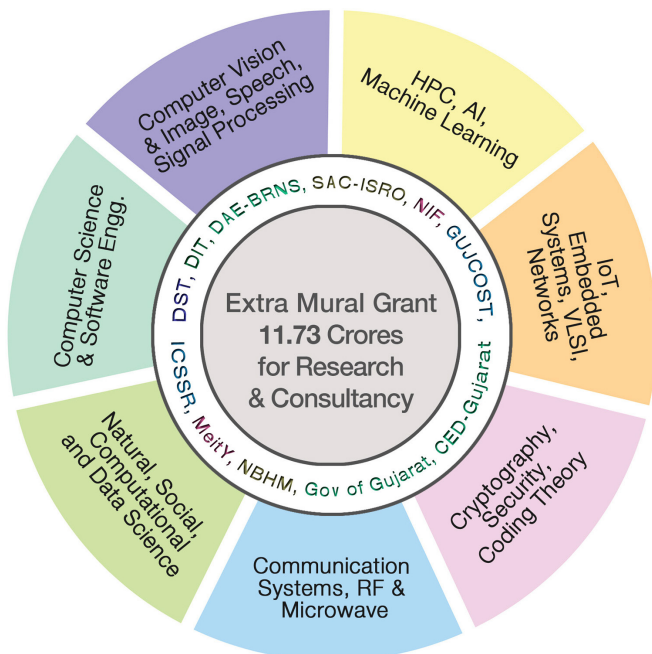
Annual Student Scholarships: INR 4-5 Crores

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Academics and Research at DAU

Interdisciplinary and Multidisciplinary Research Oriented Academic Programs

Program Level	Name of the Program	Duration	Unique Features
Doctoral	PhD	4-6 years	- Entry through national level entrance test & interview
PG	MTech (ICT)	2 years	- Thesis and Project mode
	MSc (IT)	2 years	- Industry oriented IT program
	MSc (Data Science)	2 years	- Hands-on program
	MSc (Agriculture Analytics)	2 years	- In collaboration with IIRS & AAU
	MDes (CD)	2 years	- Fusion of ICT and Design
UG	BTech (ICT)	4 years	- 1st institute in India to offer **unique program** in ICT in 2001
	BTech (Hons in ICT; minor in Computational Science)	4 years	- 1st institute in India to offer UG program in Computational Science
	BTech (Mathematics and Computing (MnC)	4 years	- Intersection of Computer Science & Applied Mathematics to solve
	BTech Electronics and VLSI Design (EVD)	4 years	complex problems

Extra Mural Grant 11.73 Crores for Research & Consultancy

DST, DIT, DAE-BRNS, SAC-ISRO, NIF, GUJCOST, CED-Gujarat, Gov of Gujarat, NBHM, MeitY, ICSSR

- Computer Vision & Image, Speech, Signal Processing
- HPC, AI, Machine Learning
- Computer Science & Software Engg.
- IoT, Embedded Systems, VLSI, Networks
- Natural, Social, Computational and Data Science
- Communication Systems, RF & Microwave
- Cryptography, Security, Coding Theory

Sponsored Research Projects: 32

Consortia Projects (DST, MeitY): 4

Industry / Consultancy Projects: 2

Major MOUs / LOUs
- Institut Superrieur D'electronique De Paris (ISEP), Catholic University of Paris, France
- Springer Science-Business Media Singapore
- Oregon University, USA
- University of Evora, Portugal
- Texas A & M University
- University of Milano, Italy
- University of Hildesheim, Germany

Conferences/ Workshops/ Summer Schools Organized : 25

Publications: **600**   *h* - index: 48

MTech in ICT

We witnessed in this century the convergence of computing technology and communication technology. A new discipline has emerged as Information and Communication Technology (ICT). Dhirubhai Ambani Institute of Information and Communication Technology (DA-IICT) since its inception is committed to impart knowledge in the domain of ICT which is one of the most sought-after disciplines in the current era. Towards this goal, Institute introduced MTech in ICT. Postgraduate programs such as MTech require more in-depth study in a vertical. Hence, we have introduced many specializations under the MTech (ICT) program. One such relevant specialization introduced from this academic session is System Software.

Software Systems

Software, in its most general sense, is a set of instructions or programs instructing a computer to do specific tasks. Alan Turing first proposed the theory of software in 1935 in his essay "Computable numbers with an application to the Entscheidungsproblem". System software serves as a base for application software. It controls the basic (and invisible to the user) functions of a computer and comes usually preinstalled with the machine. System software includes device drivers, operating systems, compilers, text editors, and utilities helping the computer to operate more efficiently. It is also responsible for managing hardware components and providing basic non-task-specific functions.

The System Software research group of the ICT department in DA-IICT provides knowledge about writing software that makes use of the programming abstractions supported by modern operating systems. It also aims to cover the fundamentals of algorithm design to enhance the problem-solving skills necessary for developing efficient software systems in various applications. The main objective of this course is to understand and learn how complexity and change are engineered during large software development. And also, to divide the problems into various complexity classes based on the resources required to solve them. This will focus on the methodologies (processes), techniques (methods), and tools that can be used to successfully design and validate large software systems. This will also introduce the different attacks and threats in computer networks including network mapping, port scanning, sniffing, DDoS, reflection attacks, attacks on DNS, and leveraging P2P deployments for attacks. Basics of blockchain and cryptocurrencies will also be introduced.

The core research areas and on-going projects are in the areas of
- Algorithm design technique
- Software development methodologies
- Applications of ML and AI in analyzing software products
- Modern distributed data storage
- Architectures of various distributed systems
- Secure networking protocols
- Introduction to communication complexity
- Distributed database design
- Bitcoin blockchain and bitcoin exchange
- Verification and testing of software systems
- AI and ML for security testing

The DA-IICT research group has led to various publications in Book chapters, Journals and Conferences of repute, bringing several funded projects and incubation of many start-ups. The department has strong research group, relevant curriculum, expertise faculties and dedicated labs for supporting various Ph.D and M.Tech. students in System Software specialization. The department provides wide range of core System Software subjects together with many electives from other domains such as machine learning, cryptography, IoT, computational theory to make the program more comprehensive and dynamic. The department is committed in delivering both excellences in teaching and highquality research. Research in System group at DA-IICT is focused on providing ICT based solutions to the problem, which are of national importance. And also enable the students to build highly scalable and implementable solutions which will benefit the industry.

The MTech course in Software System is beneficial for the students in:
- Acquiring the strong foundation in the basics of software system
- Research aspects of software testing
- Problem solving skills for efficient software system
- Architectures of various distributed systems
- The complexity analysis of algorithm design
- Learning the security aspects of a model
- To successfully design and validate large software systems
- Building of own start up
- Research on the topics related with national importance
- Succeed in highly scalable and implementable solutions related jobs

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Characterization of program:
Programming, Security, Distributed Systems, Networks, Software Lifecycle, Blockchain.

Uniqueness of the program:
Practice Oriented and case study based program
The program primarily aims to cater to the following audience:

- Traditional Science, Engineering Graduates with understanding the complexity analysis of an algorithm, basic programming skills and inclination towards software lifecycle.

- Professionals who are thinking about enhancing their skills in Software testing, Networking , Security and building up their position in industry as well as outreach in research area.
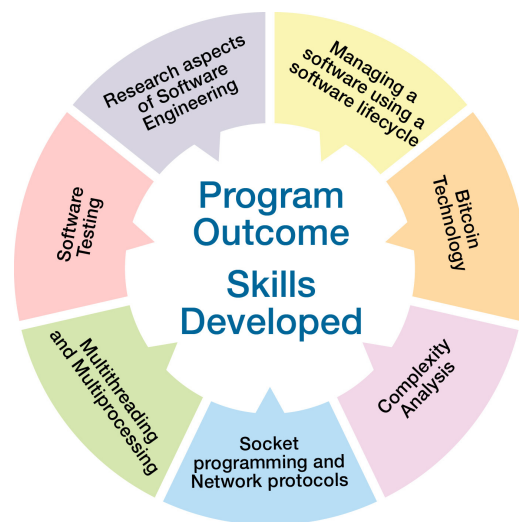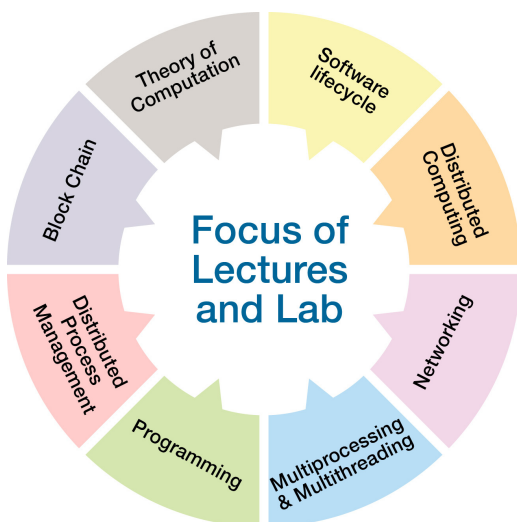
Program Structure and Objectives
The primary objective of the MTech in System Software which is an exceptional program that empowers working experts to have some expertise to address the increasing needs in the rapidly expanding area of software development, distributed systems, network, security. The growth of companies in digital space has led to a huge demand for requirement of a robust system which can help the company to grow.

This has led to an increase in demand for experts in the field of network, security and cloud-based computing. Hence, it is absolutely necessary nowadays, to develop manpower with such skills in order to develop and maintain such robust systems.

As students come from different academic backgrounds, it is important to get everybody up to speed and on the same level. To do so, we offer several foundation levels courses in the first semester. In subsequent semesters, pedagogical approach focused on learning by doing is incorporated in the form of mini-projects and case-studies in addition to advanced courses. The program relies on a wide range of teaching methods including lectures, tutorials, case study analysis, lab exercises, projects as well as extras throughout the year.

The one-year thesis is designed to facilitate students to do research. A thesis gives the student a valuable opportunity to delve into interesting research for greater depth of learning in their career area. The students do their thesis under the guidance of faculty member(s) and they are able to perform research on a cutting-edge topic related to system software's. The objective is to provide students with a complete research experience in relation to their thesis.

Focus of Lectures and Lab

Theory of Computation · Software lifecycle · Block Chain · Distributed Computing · Distributed Process Management · Networking · Programming · Multiprocessing & Multithreading

Program Outcome
Skills Developed

Research aspects of Software Engineering · Managing a software using a software lifecycle · Software Testing · Bitcoin Technology · Multithreading and Multiprocessing · Complexity Analysis · Socket programming and Network protocols

Autumn Semester (Semester-I)

Course Name	Credits (L-T-P-C)
General Elective (Math)	3-0-0-3
General Elective (Technical)	3-0-0-3
Communication and Technical Writing	2-0-0-2
Programming Lab	1-0-4-3
Specialization Core I: Advanced Algorithms	3-0-2-4

Winter Semester (Semester-II)

Course Name	Credits (L-T-P-C)
Minor Project	0-0-6-3
Specialization Core II – Advanced Software Engineering	3-0-2-4
Specialization Elective I - II (Choose any two)	3-0-0/2-3/4

      Distributed Systems, Distributed Databases,
      Approximation Algorithms, Information Security,
      Current Trends in Software Systems

Summer

Major Project I (Summer)	0-0-8-4

Autumn Semester (Semester-III)

Course Name	Credits (L-T-P-C)
Specialization Elective III - IV (Choose any two)	3-0-0/2-3/4

      Big Data Processing, Blockchains and Cryptocurrency,
      Advanced Computer Networks,
      Software Specification and Verification,
      Multimedia Security and Forensic

Major Project I (Autumn)	0-0-12-6

Winter Semester (Semester-IV)

Major Project II/Industrial Training Project	0-0-24-12
General Elective (Math)	3-0-0-3

      Probability and Random Variables, Linear Algebra,
      Optimization, Introduction to Graph Theory

General Elective (Technical)	3-0-0/2-3/4

      Operating Systems, Machine Learning,
      NLP, Cloud Computing, Introduction to AI, HCI

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All India Category: Total Seats: 17
GATE 13 & Non-GATE 4
Gujarat Category: Total Seats: 9

Eligibility Criteria

GATE Qualified candidates
A candidate with a qualifying degree in any one of the following:

- BE/BTech (CS/IT/EL, ECE, Electrical, Instrumentation)
- M.Sc. degree in Computer Science / Electronics / Mathematics / Statistics
- M.Sc. degree of DA-IICT
- M.C.A. degree (3 year program)

The aggregate marks in the qualifying degree should not be less than 60% or equivalent as per the norm set by the degree awarding Institute/University.

Non-GATE candidates
- MSc (CS), MCA, BE/BTech (CS, IT, CSE)

The aggregate marks in the qualifying degree should not be less than 65% or equivalent as per the norm set by the degree awarding Institute/University.

Candidates appearing in their final degree examination and expecting to complete it by July 2025 may also apply. However, their final admission will be subject to the condition that they obtain an aggregate of marks required based on mode of admission i.e. GATE/Non-GATE, or its equivalent as per the norms set by the degree granting Institute/University. All admitted candidates have to submit their degree certificates or proof of completion of degree, before 30 October 2025 failing which their admission is liable to cancellation.

Age: There is no age limit applicable to this program.

Selection Process

Admission to All India category of M. Tech. (ICT) with specialization SS, ML, VLSI&ES and WCSP will admit candidates through two channels: GATE and NON-GATE.

Admission through GATE Channel:

Candidates who have a valid GATE score in the disciplines of Electronics & Communication Engineering (EC), Electrical Engineering (EE), Computer Science & Information Technology (CS), Instrumentation Engineering (IN) and Data Science & Artificial Intelligence (DA), only can apply.

The final merit list for admission will be prepared on the basis of valid GATE score only.

Specialization GATE Discipline
- Machine Learning (CS/EC/EE/DA)
- Software Systems (CS)
- VLSI and Embedded Systems (EC/EE/IN)
- Wireless Communication & Signal Processing (EC)

Admission through Non-GATE Channel:

The selection of candidates in Non-GATE category will be based on the entrance test to be conducted at selected centers all over the country. The tentative list of centers is: DAIICT Gandhinagar, Ahmedabad, Bhopal, Bengaluru, Chennai, Mumbai, Hyderabad, Patna, Jaipur, Kolkata, New Delhi, Pune, Rajkot, Surat, Udaipur, Bhavnagar, Bhilai, Bhubaneswar, Chandigarh, Guwahati, Jammu, Kochi, Lucknow, Pant Nagar, Porbandar, Ranchi and Vijayawada. The final merit list for admission will be prepared on the basis of the aggregate score in the entrance test.

The candidates can give up to two preferred specializations based on their eligibility conditions. Counseling for allotment of the specialization will be done online. Applicants are advised, from the date of announcement of first merit list, to check for e-mail communications from the Institute to learn about the admission status and steps they need to take to continue with the counseling process.

Note: The decision of the Competent Authorities of DA-IICT regarding eligibility and selection of any candidate shall be final.

How to Apply
Candidates submit an online application by clicking on the link given on the Institute website.

Admission Offer
The short-listed candidates will be offered admission (confirmed/waitlisted) in order of their merit.

Important Dates
Online application website opens
18th March 2025
Last date for submission of online applications
20th May 2025
Entrance test for Non-GATE Category
15th June 2025

For Inquiries
Email: pg_admissions@daiict.ac.in
Voice call: 079 69 08 08 08
For more details please visit: www.daiict.ac.in

Fees Structure*
At the time of admission an amount of Rs. 1,15,000 (Rs.90,000 towards Tuition Fee for the First Semester and Rs. 25,000 towards Caution Deposit) is to be paid. The registration fee is payable at the time of registration and hostel rent on allotment of the hostel room.

Tuition fee	Rs. 90,000 per Semester
Registration Fee	Rs. 2,500 per Semester
Caution Deposit	Rs. 25,000 (Refundable at the end of the program)
Hostel Rent	Rs. 35,000 per semester
Food	On actuals. There are multiple food options available in the campus (The expense will be approximately Rs.5,500 pm)

*Subject to revision every Academic Year from 8 to 10%.

Education Loan
The Institute will facilitate the students to avail educational loan from selected Banks. The bank officials will be present on campus at the time of registration of admitted students so as to enable the students to obtain details on procedures and terms and conditions of the loan. The students can also avail loan from banks of their choice and in either of the case; the Institute will extend support in completing the loan documentation process.

Financial Assistance
- **GATE Admitted Students:** Eligible for a monthly stipend of Rs. 15,000 in the form of a Teaching Assistantship during the first semester.

- **Non-GATE Admitted Students:** Eligible for a monthly stipend of Rs. 12,500 in the form of a Teaching Assistantship during the first semester.

- **Subsequent Semesters:** Continuation of the stipend depends on meeting the academic requirements.