What is ICT?

ICT (Information and Communication Technology) is a multidisciplinary field combining computer science, electronics, and communication.
It covers areas like:

- Software Development
- Embedded Systems
- IoT (Internet of Things)
- Machine Learning & Artificial Intelligence
- Networking
- VLSI Design
- Cloud Computing & DevOps
- Cybersecurity

Why ICT?

- ICT offers wide opportunities in government jobs, defence, and corporate sectors.
- Provides career paths in software development, web and mobile apps, DevOps, data engineering, blockchain, VLSI, embedded systems, AI/ML, and cybersecurity.
- ICT is one of the fastest-growing fields with global demand.

Diploma and Degree

- **Diploma in ICT**: Focuses on fundamentals and provides entry-level technical knowledge.
- **Degree (B.Tech ICT)**: Offers deeper learning with advanced subjects, research opportunities, projects, and multiple internships to prepare students for global opportunities.

Vision of the Institute

To foster an environment that empowers people, organizations, and societies through education, ideas, research, and training.

Mission of the Institute

- To provide quality education and thereby bring social transformation.
- To create leaders through innovation and entrepreneurship.
- To cultivate the culture of research advancements.
- To imbibe universal consciousness.
- To stimulate growth through industrial and international partnerships.

Core Values (LEADER)

- Lifelong Learning
- Empathy
- Adaptability
- Diversity
- Empowerment
- Respect

Department of ICT – Vision

To build students' capacity through quality education that enables them to address the problems of industries and society, and to become contributors.

Mission of ICT Department

- M1: Develop the ability to solve problems through project-based learning.
- M2: Provide a blended teaching and assessment approach to enhance learning.
- M3: Offer exposure to various domains so students can choose their area of interest.
- M4: Ensure continuous interaction with industries to make students industry-ready.

Program Specific Outcomes (PSOs)

- **PSO1**: Graduates will be able to identify, analyze, and solve real-time industrial problems in areas such as software development, embedded systems, VLSI design, IoT, and communication technologies.
- **PSO2**: Graduates will be able to contribute as analysts and developers in areas like cloud computing, DevOps, security, machine learning, artificial intelligence, and big data.

Program Educational Objectives (PEOs)

- **PEO1**: Apply engineering principles to solve real-world societal problems.
- **PEO2**: Work on multidisciplinary projects in diverse industrial environments.
- **PEO3**: Explore recent technological developments in ICT.
- **PEO4**: Enhance knowledge and skills through self-learning, certifications, and higher education.
- **PEO5**: Act ethically and be socially responsible as solution providers and entrepreneurs.

Department Achievements

- 12 projects selected in DST NewGen IEDC, funded ₹2 lakh each.
- 2 projects selected in SSIP, MU.
- 70+ IPRs registered by ICT students and faculty.
- Participation and awards in national hackathons and Skill India competitions.

Facilities (Labs and Components)

- 24×7 access to well-equipped laboratories.
- Industry-supported labs in VLSI, IoT, Cloud, Embedded Systems, and AI/ML.
- Flexible choice-based subject selection.

Faculty Achievements

- Faculty with 10+ years of teaching and research experience.
- Educated from top institutes like NIT, DA-IICT, Nirma University.
- Industry experts as adjunct faculty.

Course Curriculum

- **Early Semesters**: Basics of Electronics, Computer Programming, Data Structures, Operating Systems, DBMS, Communication Engineering.
- **Advanced Semesters**: AI, ML, IoT, VLSI, Cloud Computing, Cybersecurity, Blockchain, Big Data, Satellite Communication.
- **Final Year**: Capstone project and long-term internships.

Semester Vise Syllabus

Semester I

- Differential and Integral Calculus
- Electrical Circuits
- Basics of Electronics Engineering
- Reading & Writing for Technology / Speaking & Presentation Skills
- Introduction to Computer Programming
- Foundation Skills in Sensor Interfacing (Lab)
- ICT Workshop
- Physical Education / Sports / Yoga

Semester II

- Matrix Algebra and Vector Calculus
- Digital Electronics
- Engineering Drawing and CAD

- Object Oriented Programming
- Basics of Environmental Studies
- Introduction to R and R Studio (Lab)
- Value Education

Semester III

- Discrete Mathematics and Graph Theory
- Computer Organisation and Architecture
- Signals and Systems
- Professional Ethics
- Introduction to Communication Engineering
- Data Structures using C++
- Programming with Python (Lab)

Semester IV

- Probability and Statistics
- Microcontroller and Interfacing
- Analog and Digital Communication
- Database Management System
- Internet and Web Technology
- Operating System

Semester V

- Computer Networks
- Design and Analysis of Algorithms
- Digital Signal and Image Processing
- Creativity, Problem Solving & Innovation (Lab)
- Cognitive Aptitude – I
- Department Elective – 1
- Department Elective – 2

Electives (Choose Any 2):

1. Advanced Microprocessor
2. Optical Communication
3. Linux Administration
4. Applied Linear Algebra
5. .NET Technologies
6. VLSI Design
7. Engineering Electrodynamics
8. Information and Web Security
9. Machine Learning
10. Cross-Platform Mobile Application Development

Semester VI

- Optimization Techniques
- Software Engineering
- Artificial Intelligence
- Human Centered Design (Lab)

- Business Benchmark
- Cognitive Aptitude – II
- Department Elective – 3
- Department Elective – 4

Electives (Choose Any 2):

1. Sensors and IoT
2. RF and Microwave Communication
3. Cloud Computing
4. Computer Vision
5. Advanced Java
6. Advanced Web Technologies
7. Digital Design using Verilog
8. Satellite Communication
9. Cyber Security
10. Big Data Analytics
11. Theory of Computation
12. Game Programming & VR

Semester VII

- Capstone Project
- Information Theory and Coding
- Mobile and Pervasive Computing
- Management Information Systems
- Department Elective – 5
- Department Elective – 6

Electives (Choose Any 2):

1. VLSI Physical Design
2. Adhoc Wireless Networks
3. Cloud Developing
4. Deep Learning
5. Compiler Design
6. FPGA Based System Design
7. Software Defined Networks
8. Blockchain
9. Information Retrieval & NLP
10. Advanced Database

Semester VIII

- Major Project
- Department Elective – 7 (MOOC)
- Department Elective – 8 (MOOC)

Electives (MOOCs, Choose Any 2):

1. Analog Circuit Design
2. Spread Spectrum Communications
3. Cloud Architecture
4. Advanced Machine Learning
5. Object Oriented Analysis & Design

6. RTOS
7. Introduction to 5G
8. Introduction to DevOps Tools
9. Advanced Data Analytics
10. Soft Computing
11. Cloud Technical Essentials
12. Security Essentials
13. Machine Learning Essentials
14. Human Computer Interaction
15. Software Testing

Electives

Machine Learning, Cloud Computing, Cybersecurity, Blockchain, VR/AR, Human-Centered Design, Big Data, FPGA, 5G, Advanced Web & Mobile Development, Game Programming, Software Testing.

Student Clubs & Activities

- Total 4 clubs : Competitive Programming Club (CP club) , Circuitology Club, Data Science club(DS club) and Cloud Computing and Devops club(CCDC club)
- Technical clubs: Coding, IoT, AI/ML.
- Cultural, leadership, and sports clubs.
- Hackathons, coding contests, cultural fests, workshops, social activities.
- Confidence building events, World Engineering Day, Saturday activities.

Guest Sessions

Experts from Intel, Cisco, Qualcomm, University of Pitesti (Romania), Colorado State University (USA), and more.

Student Achievements

- Winners of Ghaziabad Hackathon 2024.
- Finalists in Skill India Competition 2024.
- Represented ICT at state and national levels.

Research & Patents

- 70+ patents/IPRs filed in Cyber-Physical Systems, IoT, Human-Centered Design.
- Research integrated via projects, internships, and publications.

International Opportunities

- 10–12 month international internships in AI/ML, Data Science, VLSI, Embedded Systems, Security, Cloud, and DevOps.
- Student exchange programs with foreign universities.

Placements

- Highest Package: ₹34.5 LPA
- Average Package: ₹5.27 LPA
- Top Companies : rtCamp 12-18LPA, simform – 6LPA, fintech global 10-15LPA, armakuni 6+LPA, Auston 6+LPA

Recent Placements

Career outcome B.Tech ICT 2022-26

 Yash Tilala – rtCamp – 12 LPA

 Abhay Nathwani – Fintech Global – Software Developer – 10 to 15 LPA

 Aryan Mahida – Simform Solution – SDE Trainee – 6 LPA

 Jay Mangukiya – Satva Solutions – Trainee SD – 3.5 to 6 LPA

 Aryan Mahida – Satva Solutions – Trainee SD – 3.5 to 6 LPA

 Aryan Langhnoja – Ace Data Analytics – Software Developer – 5.1 to 5.7 LPA

 Umang Hirani – Ace Data Analytics – Software Developer – 5.1 to 5.7 LPA

 Krish Mamtora – Roima Intelligence Inc – Technical Intern – 5 to 7 LPA

 Tvisha Gami – Websmith Solution – AI ML Engineer – 4 to 7 LPA

 Harsh Sanghvi – Websmith Solution – AI ML Engineer – 4 to 7 LPA

 Vidya Bharti Sinha – Mobiuso – Software Engineer – 4 to 5 LPA

 Bhavik Kaladiya – Azilen – DevOps – 4 to 5.5 LPA

- **Rishit Rathod – TSS – 4.2 LPA**
- **Vivek Chavda – VasyERP – Java Developer – 4.2 LPA**
- **Dhruvi Patel – Injala – .NET Developer – 4.5 LPA**
- **Rohan Roy – Improvised – DevOps – 4 LPA**
- **Dhruvi Patel – Synobiz Systems – SAP B1 Technical Consultant – 3 to 4 LPA**
- **Vatsal Parmar – Synobiz Systems – SAP B1 Technical Consultant – 3 to 4 LPA**
- **Hit Racchadiya – Cybercom – SDE – 3.6 LPA**
- **Ritesh Sanchala – Tech Extensor – .NET / Angular Developer – 3 to 5 LPA**
- **Ishika Sheth – Triyanshi – BDE – 3 LPA**

Evaluation Scheme

- Internal Assessments (Assignments, Quizzes, Presentations, Class Tests)
- Open Book exams
- Practical/Lab Work and Projects
- Project Base Learning
- Learning By Doing concept through Project
- Industry-based Internships and Capstone Projects
- Provodes field visitts