

What is ICT ?

ICT (Information & Communication Technology) is a multidisciplinary branch combining **Computer Science, Electronics, Communication, and IT**. It focuses on **software development, embedded systems, networking, AI, IoT, Data Science, Cloud, VLSI, and Cybersecurity**

- Why ICT after 10th or 12th

ICT has a **very wide scope** – students can enter fields like **AI/ML, Data Science, IoT, Cloud Computing, Robotics, Cyber Security, VLSI, Software & Web Development, Mobile App Development, Embedded Systems, Networking** etc.

The syllabus is **practical and future-oriented** (projects every semester, internships, industry tie-ups, expert talks) which prepares students for both **jobs and higher education**

Students also get chances in **research, innovation, hackathons, IPRs, and international exposure**

- Diploma and degree

Diploma (after 10th) :

- Diploma is **3 years**, mainly focusing on **fundamentals of electronics, programming, hardware, networking, and software basics**.
- After diploma, students can take **direct admission into Degree (B.Tech ICT) in 2nd year** (lateral entry).

- Degree (**B.Tech ICT @ Marwadi University**)

- **8 semesters (4 years)** with subjects ranging from basics (electronics, programming, mathematics) to advanced (AI/ML, Cloud, IoT, VLSI, Blockchain, Cyber Security, Big Data, etc.)
- Includes **internships** (6 weeks in 4th & 6th sem, 6 months in 8th sem)
- Focus on **project-based learning**, research, innovation, and industry tie-ups.
- Prepares students for **placements, higher education, or startups**.

Department Vision and mission

Vision: To build students' capacity through quality education that enables them to address industry and societal problems while becoming contributors.

Mission (4 key areas):

- M1: Develop problem-solving abilities through project-based learning
- M2: Provide blended teaching and assessment approaches to enhance learning
- M3: Provide exposure to various domains for students to choose their area of interest
- M4: Maintain continuous industry interaction to prepare industry-ready students

Program Educational Objectives (PEOs)

Five objectives covering:

- PEO1: Applying engineering principles to solve real-world societal problems
- PEO2: Working on multidisciplinary projects in diverse industrial environments
- PEO3: Exploring recent ICT technological developments
- PEO4: Enhancing knowledge through self-learning, certifications, and higher education
- PEO5: Acting ethically and socially responsible as solution providers and entrepreneurs

Program Specific Outcomes (PSOs)

Two specific outcomes:

- PSO1: Identifying, analyzing, and solving real-time industry problems in software development, embedded systems, VLSI design, IoT, and communication technologies
- PSO2: Contributing as analyst and developer in cloud computing, DevOps, security, machine learning, artificial intelligence, and big data

- Chandrasinh Parmar sir
Electronics and Communication
Contact no : 9824416484
- Arjav Bavarva Sir
Networking and Cloud
Contact no : 7016685360
- Sunil Lavadiya
IOT
9428228839
- Tapan Nahar
System and Signals
9983250843
- Nishith Kotak
Data Science
7405468045
- Vijay Dubey
IOT
9723265278
- Suhag Baldaniya
Software Development
9537330702
- Rakesh Oza
VLSI
9978068186
- Chirag Visani
Software Development
- SharmArzoo Alam
Software Development
8866152292
- Vishal Akbari
Cyber Security
7698903070

- Mitesh Solanki
IOT
9586571164
- Sunera Kargatha
- Harikesh Chauhan
Software Development
6390327075
- Dharmendra D Zala
Cloud and Networking
9574219380
- Naimish Rathod

Facilities (Labs and components):

Laboratory Infrastructure

General Lab Features

- **Well equipped laboratories with 24X7 access**
- **Industry Supported/sponsored Labs**

Lab Components (Based on Curriculum Subjects)

Microcontroller and Interfacing lab

VLSI Physical Design lab

Software Engineering lab

Computer Networks lab

Data Science Lab

Department archivements :

Research & Innovation Achievements

- **12 projects selected in NEW GEN IEDC, DST India** with funding of ₹2 lakhs each
- **2 projects selected in SSIP** (Student Startup and Innovation Policy), Marwadi University
- **70+ IPRs (Intellectual Property Rights) registered**

State Level Achievements

- Various state-level competition participations and recognitions

Student Ambassador Programs

- ICT students serving as ambassadors in various initiatives

International Exposure

- **Student internationalization programs**
- International internship opportunities
- Global university partnerships

Higher Education Placements

- Students successfully advancing to prestigious institutions for higher studies

Industry Recognition

- Strong placement records across multiple domains

- ICT students are actively taking leadership roles in various clubs and communities
- **Co-curricular and extra-curricular activities on Saturday** - Regular weekend activities organized through clubs

- Copititve programing club
Unity : Kaushal Parmar
Git – Github : Abhay Nathwani
Custoum Header files and libraries in C : Aryan Langhnoja
Working with CLI Terminal – Kausal Parmar
- Data Science Club
Chat bot
Data Visulaization
- Circitology Club
Drone Making
- Cloud Computing and DevOps Club
Introduction to EC2 – Prince Kakkad
Host PHP web site on EC2 – Janvi Egera
Git-Github – Devarsh Bhatt

Also Conducting Hackathones By various clubs and Giving title as a price and title of coder of the month like

Celebrating Cultural Events

Frolic Event

Sports activities with faculty-student interaction:

Sports Activities:

- Cricket
- Basketball
- Race
- Tug of War
- Chess
- Carrom
- E-sports Gaming

Confidence Event

Cultural Activities:

- Dance
- Food Competition
- Rangoli Competition
- Debate Competition
- Poetry

Engineers Day Celebration

Annual celebration event for engineering students

B.Tech ICT 2021-25

Darshan Padia – Fintech Global Center – 10 LPA

Dev Mehta – rtCamp -12LPA

Mustafa Bharmal rtCamp – 12LPA

B.Tech ICT 2022-26

1. Rishit Rathod - TSS - 4.2 LPA

2. Abhay Nathwani - Fintech Global - software developer - 10 to 15 LPA

3. Aryan Langhnoja - Ace Data Analytics - software developer - 5.1 to 5.7 LPA

4. Umang Hirani- Ace Data Analytics - software developer - 5.1 to 5.7 LPA

5. Ishika Sheth - Triyanshi - BDE - 3 LPA

6. Krish Mamtora - Roima Intelligence Inc - Technical Intern - 5 to 7LPA

7. Harsh Sanghvi - Websmith solution - AI ML engineer -4 to 7 LPA

8. Tvisha Gami- Websmith Solution - AI ML Engineer with 4 to 7 LPA

9.Vidya Bharti Sinha - Mobiuso- Software Engineer - 4 to 5LPA

10. Jay mangukiya - satva solutions - trainee SD - 3.5 to 6 LPA

11. Aryan mahida - satva solutions - trainee SD - 3.5 to 6 LPA

- Simform Solution - SDE Trainee - 6LPA

12. Dhruvi Patel - Synobiz Systems Pvt Ltd - SAP B1 Technical Consultant - 3.0 to 4.0 LPA

- Injala - .net developer - 4.5 LPA

13. Vatsal Parmar -Synobiz Systems Pvt Ltd - SAP B1 Technical Consultant - 3.0 to 4.0 LPA

Ally soft -3.5 LPA to 4.5 LPA

14. Bhavik Kaladiya - Azilen - Devops - 4 - 5.5 LPA

15. Hit racchadiya - cybercom - SDE - 3.6 LPA

16. Rohan Roy - Improvised - devops - 4LPA

17. Ritesh Sanchala - tech extensor - .net / Angular Developer - 3-5LPA

18. Vivek Chavda - VasyERP - java developer -4.2LPA

19. Nidhi Dattani - AllySoft - Mern Stakc developer - 3.5 to 4.5

20. Jenil Vaghasiya - Ally Soft - Mern Stack developer - 3 LPA

21. Vatsal Parmar - Ally Soft - Mern Stack Developer - 3.5 to 4.5 LPA

22. Prashant Savaliya - Ally Soft - mern stack developer - 4 to 4.5 LPA

23. Vraj Kumar Nandwana - Emppreal Infotech Private Limited - AI ML Engineer - 3LPA

24. Neel Raiyani - Emppreal Infotech Pvt Ltd - .node Js developer - 3 LPA

Student Achievements

National Level

- **Gaziabad Hackathon Competition** (Sustainability Solutions for Humanity) - Oct 2024
- **Skill India Competition 2024** winners:
 - Jatan Sanghvi
 - Hasti Hajipara
 - Dhruvkumar Vyas

Hackathon – Coding Ninja Hackathon

Winners:

- Abhay Nathwani
- Ritesh Sanchela
- Aryan Langhnoja

Achievement: Winner at 1st position across India

Other Achievements

ICT Students as Ambassadors

Fenil Vadher selected as a Google Student Ambassador

Dhyana Kothari selected as a Google Student Ambassador

Ashutosh Kumar selected as a Student Ambassador of Udemy

Rudra Miyani selected as a Student Ambassador of Internshala

Research Papers

Patents and Copyrights

- **70+ IPRs (Intellectual Property Rights) registered**
- **Promoting filing of IPRs** in subjects like CPSI, HCD, etc.

International Internships

- **Malhar Shah - 2024** (specific international program participant mentioned)
- **Dhruvi Kothari -2024**

Student Exchange Programs

Dhruvi Bhalodiya

Priyanshi Madani

Selected at student Exchange Program at romaina

Alumni Network

- Alumni involvement in **research and innovation activities**
- Alumni contributing to **student development and mentorship**

Industry Support

Industry-Sponsored Infrastructure

- **Industry Supported/sponsored Labs**
- Zuru Tech Sponsored Lab
- Tie-up with e-Infochips



Marwadi
University

Marwadi University

Department of Information and Communication Technology

B.Tech. Teaching and Examination Scheme Semester I & II (WEF AY 2020-21) Batch 2020-24

B. Tech. Year I, Sem I

Subject Code	Subject Name	Category	Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial/ Practical Marks		Total Marks
			Theory	Tutorial	Practical		ESE(E)	IA	CSE	Viva (V)	Term Work (TW)	
01MA1101	Differential and Integral Calculus	BSC	4	2	0	5	50	30	20	25	25	150
01EE0104	Electrical Circuits	ESC	4	0	2	5	50	30	20	25	25	150
01EC0101	Basics of Electronics Engineering	ESC	3	0	2	4	50	30	20	25	25	150
01SL0102 / 01SL0103	Reading & Writing for Technology / Speaking & Presentation Skills	HSMC	2	0	0	2	0	30	20	25	25	100
01CT0101	Introduction to Computer Programming	ESC	3	0	2	4	50	30	20	25	25	150
01CT0103	Foundation skills in sensor interfacing	PROJ	0	0	2	1	0	0	0	25	25	50
01CT0104	ICT Workshop	PROJ	0	0	2	1	0	0	0	25	25	50
01PE0101	Physical Education/Sports/Yoga	MC-NCC	0	0	2	0	0	0	0	0	0	0
	Total	30	16	2	12	22	200	150	100	175	175	800

B. Tech. Year I, Sem II

Subject Code	Subject Name	Category	Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial/ Practical Marks		Total Marks
			Theory	Tutorial	Practical		ESE(E)	IA	CSE	Viva (V)	Term work (TW)	
01MA1151	Matrix Algebra and Vector Calculus	BSC	4	2	0	5	50	30	20	25	25	150
01EC0102	Digital Electronics	ESC	3	0	2	4	50	30	20	25	25	150
01ME0105	Engineering Drawing and Computer Aided Design	ESC	2	0	4	4	50	30	20	25	25	150
01CT0105	Object Oriented Programming	PCC	3	0	2	4	50	30	20	25	25	150
01EN0101	Basics of Environmental Studies	ESC	2	0	0	2	50	30	20	0	0	100
01CT0106	Introduction to R and R Studio	PCC	0	0	2	1	0	0	0	25	25	50
01CR0103	Value Education	HSMC	2	0	0	2	0	0	0	50	50	100
	Total	28	16	2	10	22	250	150	100	175	175	850

B. Tech. Year II, Sem III

Subject Code	Subject Name	Category		Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial/ Practical Marks		Total Marks
				Theory	Tutorial	Practical		ESE(E)	IA	CSE	Viva (V)	Term Work (TW)	
01MA0231	Discrete Mathematics and Graph Theory	BSC	BS-UC	4	2	0	5	50	30	20	25	25	150
01CT0301	Computer Organisation and Architecture	PCC	PC	3	0	2	4	50	30	20	25	25	150
01CT0302	Signals and Systems	PCC	PC	3	0	2	4	50	30	20	25	25	150
01CR0302	Professional Ethics	HSMC	GN-UC	1	0	0	1	0	0	0	50	50	100
01CT0303	Introduction to Communication Engineering	PCC	PC	3	0	2	4	50	30	20	25	25	150
01CT0308	Data Structure using C++	PCC	PC	3	0	2	4	50	30	20	25	25	150
01CT0309	Programming with Python	PROJ	EE	0	0	2	1	0	0	0	25	25	50
Total		29	29	17	2	10	23	250	150	100	200	200	900

B. Tech. Year II, Sem IV

Subject Code	Subject Name	Category		Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial/ Practical Marks		Total Marks
				Theory	Tutorial	Practical		ESE(E)	IA	CSE	Viva (V)	Term work (TW)	
01CT0401	Probability and Statistics	PCC	IE	3	2	0	4	50	30	20	25	25	150
01CT0403	Microcontroller and Interfacing	PCC	PC	3	0	2	4	50	30	20	25	25	150
01CT0404	Analog and Digital Communication	PCC	PC	3	0	2	4	50	30	20	25	25	150
01CT0407	Database Management System	PCC	PC	3	0	2	4	50	30	20	25	25	150
01CT0408	Internet and Web Technology	PCC	PC	3	0	2	4	50	30	20	25	25	150
01CT0409	Operating System	PCC	PC	3	0	2	4	50	30	20	25	25	150
Total		30	30	18	2	10	24	300	180	120	150	150	900

B. Tech. Year III, Sem V

Subject Code	Subject Name	Category	Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial/ Practical Marks		Total Marks
			Theory	Tutorial	Practical		ESE(E)	IA	CSE	Viva (V)	Term Work (TW)	
01CT0503	Computer Networks	PCC	3	0	2	4	50	30	20	25	25	150
01CT0512	Design and Analysis of Algorithm	PCC	3	0	2	4	50	30	20	25	25	150
01CT0513	Digital Signal and Image Processing	PCC	3	0	2	4	50	30	20	25	25	150
01CT0521	Creativity, Problem Solving and Innovation	PROJ	0	0	2	1	0	30	0	20	0	50
01GS0501	Cognitive Aptitude -1	HSMC-NCC	2	0	0	0	0	0	0	0	0	0
01CT05XX	Department Elective - 1	PEC	4	0	2	5	50	30	20	25	25	150
01CT05XX	Department Elective - 2	PEC	4	0	2	5	50	30	20	25	25	150
	Total	31	19	0	12	23	250	180	100	145	125	800

Department Electives 1, 2

- 1) 01CT0507 - Advanced Microprocessor
- 2) 01CT0508 - Optical Communication
- 3) 01CT1509 - Linux Administration
- 4) 01CT1510 - Applied Linear algebra
- 5) 01CT0518 - .Net Technologies

- 6) 01CT0514 - VLSI Design
- 7) 01CT0516 - Engineering Electrodynamics
- 8) 01CT0515 - Information and Web Security
- 9) 01CT0519 - Machine Learning
- 10) 01CT0517 - Cross Platform Mobile Application Development

B. Tech. Year III, Sem VI

Subject Code	Subject Name	Category	Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial/ Practical Marks		Total Marks
			Theory	Tutorial	Practical		ESE(E)	IA	CSE	Viva (V)	Term work (TW)	
01CT0614	Optimization Techniques	PCC	3	0	0	3	50	30	20	0	0	100
01CT0615	Software Engineering	PCC	3	0	0	3	50	30	20	0	0	100
01CT0616	Artificial intelligence	PCC	3	0	2	4	50	30	20	25	25	150
01CT0617	Human Centered Design	PROJ	0	0	2	1	0	0	0	50	50	100
01CR0601	Business Benchmark	HSMC	1	0	0	1	0	0	0	50	50	100
01GS0601	Cognitive Aptitude -2	HSMC	2	0	0	0	0	0	0	0	0	0
01CT06XX	Department Elective - 3	PEC	4	0	2	5	50	30	20	25	25	150
01CT06XX	Department Elective - 4	PEC	4	0	2	5	50	30	20	25	25	150
	Total	28	20	0	8	22	250	150	100	175	175	850

Department Elective - 3, 4

- 1) 01CT0618 - Sensors and IoT
- 2) 01CT0605 - RF and Microwave Communication
- 3) 01CT0611 - Cloud Computing
- 4) 01CT0621 - Computer Vision
- 5) 01CT0623 - Advanced Java
- 6) 01CT0625 - Advanced Web Technologies

- 7) 01CT0619 - Digital Design using Verilog
- 8) 01CT0610 - Satellite Communication
- 9) 01CT0627 - Cyber Security
- 10) 01CT0622 - Big Data Analytics
- 11) 01CT0624 - Theory of Computation
- 12) 01CT0626 - Game Programming and VR

B. Tech. Year IV, Sem VII

Subject Code	Subject Name	Category			Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial/ Practical Marks		Total Marks
		AICTE	CBCS	Skill	Theory	Tutorial	Practical		ESE(E)	IA	CSE	Viva (V)	Term Work (TW)	
01CT0715	Capstone Project	PROJ-ICT	EE	Skill	0	0	6	3	0	0	0	50	50	100
01CT1702	Information Theory and Coding	PCC - ICT	PC		3	2	0	5	50	30	20	25	25	150
01CT0716	Mobile and Pervasive computing	PCC - ICT	PC		4	0	2	5	50	30	20	25	25	150
01CT0704	Management Information System	HSMC	GN-UC		3	0	0	3	50	30	20	0	0	100
01CT07XX	Department Elective – 5	PEC - ICT	PEC	Skill	3	0	2	4	50	30	20	25	25	150
01CT07XX	Department Elective – 6	PEC - ICT	PEC	Skill	3	0	2	4	50	30	20	25	25	150
	Total	30			16	2	12	24	250	150	100	150	150	800

Department Elective - 5,6

- 1) 01CT0717 - VLSI Physical Design
- 2) 01CT0719 - Adhoc Wireless Networks
- 3) 01CT0720 - Cloud Developing
- 4) 01CT0722 - Deep Learning
- 5) 01CT0724 - Compiler Design

- 6) 01CT0718 - FPGA Based System Design
- 7) 01CT0726 - Software Defined Networks
- 8) 01CT0721 - Blockchain
- 9) 01CT0723 - Information Retrieval and Natural Language Processing
- 10) 01CT0725 - Advanced Database

B. Tech. Year IV, Sem VIII

Subject Code	Subject Name	Category			Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial/ Practical Marks		Total Marks
		AICTE	CBCS	Skill	Theory	Tutorial	Practical		ESE(E)	IA	CSE	Viva (V)	Term work (TW)	
01CT1801	Project	PROJ-ICT	EE	Skill	0	0	26	13	0	0	0	100	100	200
01CT08XX	Department Elective – 7	PEC - ICT	PEC	Skill	3	0	0	3	50	30	20	25	25	150
01CT08XX	Department Elective – 8	PEC - ICT	PEC	Skill	3	0	0	3	50	30	20	25	25	150
	Total	32			6	0	26	19	100	60	40	150	150	500

Department Elective - 7,8 (MOOC)

- 1) 01CT0818 - Analog Circuit Design
- 2) 01CT0814 - Spread spectrum communications
- 3) 01CT0828 - Cloud Architecture
- 01CT0816 - Advance Machine Learning
- 5) 01CT0821 - Object Oriented Analysis and Design

- 6) 01CT0819- RTOS
- 7) 01CT0820 - Introduction to 5G
- 4) 8) 01CT0811 - Introduction to DevOps Tools
- 9) 01CT0817 - Advance Data Analytics
- 10) 01CT0822 - Soft Computing

- 11) 01CT0823- Cloud Technical Essentials
- 12) 01CT0824 - Security Essentials
- 13) 01CT0825 - Machine Learning Essentials
- 14) 01CT0826 - Human Computer Interaction
- 15) 01CT0827 - Software Testing