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

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. Vrajkumar Nandwana - Empypreal Infotech Private Limited - AI ML Engineer - 3LPA

24. Neel Raiyani - Empyreal 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 Exhange Program at romaina

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

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

- 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

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

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 12^{th}

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 of Information and Communication Technology

FoET, Marwadi University

Batch 2020-24(Semester 8)

Teaching Assessment Scheme & Syllabus

Marwadi University Marwadi Chandarana Group	Marwadi University Department of Information and Communication Technology B.Tech. Teaching and Examination Scheme Semester VII & VIII (WEF AY 2023-24) Batch 2020-24

B. Tech. Year IV, Sem VII

Subject Code	Subject Name	Category			Teaching Scheme (Hours)			Credits	Evaluation Scheme					
									Theory Marks			Tutorial/		Total Marks
		AICTE	CBCS	Skill	Theory	Tutorial	Practical		ESE(E)	IA	CSE	Viva	Term Work	
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				Teaching Scheme (Hours)			Credits	Evaluation Scheme					
									Theory Marks			Tutorial/		Total Marks
		AICTE	CBCS	Skill	Theory	Tutorial	Practical		ESE(E)	IA	CSE	Viva	Term work	
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
4) 01CT0816 - Advance Machine Learning
5) 01CT0821 - Object Oriented Analysis and Design
6) 01CT0819- RTOS
7) 01CT0820 - Introduction to 5G
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

HOD - ICT

29/05/2023.

Teaching and Examination Scheme*

INFORMATION AND COMMUNICATION TECHNOLOGY

Sem - 8

Academic Year : 2324 **Print Date :** 29/05/2023

Subject Code	Subject Name	Sub.Type	Dept.Level	Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial/ Practical Marks		Total Marks
				Theory	Tutorial	Practical		ESE	IA	CSE	Viva	Term Work	
01CT0811	INTRODUCTION TO DEVOPS TOOLS	Elective	Yes (faculty)	3	0	0	3	50	30	20	25	25	150
01CT0814	SPREAD SPECTRUM COMMUNICATIONS	Elective	Yes (faculty)	3	0	0	3	50	30	20	25	25	150
01CT0816	ADVANCE MACHINE LEARNING	Elective	Yes (faculty)	3	0	0	3	50	30	20	25	25	150
01CT0817	ADVANCE DATA ANALYTICS	Elective	Yes (faculty)	3	0	0	3	50	30	20	25	25	150
01CT0818	ANALOG CIRCUIT DESIGN	Elective	Yes (faculty)	3	0	0	3	50	30	20	25	25	150
01CT0819	RTOS	Elective	Yes (faculty)	3	0	0	3	50	30	20	25	25	150
01CT0820	INTRODUCTION TO 5G	Elective	Yes (faculty)	3	0	0	3	50	30	20	25	25	150
01CT0821	OBJECT ORIENTED ANALYSIS AND DESIGN	Elective	Yes (faculty)	3	0	0	3	50	30	20	25	25	150
01CT0822	SOFT COMPUTING	Elective	Yes (faculty)	3	0	0	3	50	30	20	25	25	150
01CT0823	CLOUD TECHNICAL ESSENTIALS	Elective	Yes (faculty)	3	0	0	3	50	30	20	25	25	150
01CT0824	SECURITY ESSENTIALS	Elective	Yes (faculty)	3	0	0	3	50	30	20	25	25	150
01CT0825	MACHINE LEARNING ESSENTIALS	Elective	Yes (faculty)	3	0	0	3	50	30	20	25	25	150
01CT0826	HUMAN COMPUTER INTERACTION	Elective	Yes (faculty)	3	0	0	3	50	30	20	25	25	150
01CT0827	SOFTWARE TESTING	Elective	Yes (faculty)	3	0	0	3	50	30	20	25	25	150
01CT0828	CLOUD ARCHITECTURE	Elective	Yes (faculty)	3	0	0	3	50	30	20	25	25	150
01CT1801	PROJECT	Mandatory		0	0	26	13	0	0	0	100	100	200

We have verified all details of above subjects: Syllabus, Teaching Scheme and Marks etc.

Online Time Table Coordinator **Dept. Coordinator/ HoD**

Marwadi University
Faculty of Technology
Department of Information and Communication Technology

Subject Code: 01CT0811
Subject Name: Introduction to DevOps Tools
(MOOC Credit)
B. Tech. Year – IV (Semester VIII)

Objective:
The Objective of this course is to give students an understanding of devOps technology. Students will be able to understand the working of devOps tool and its working with other operations of organization.

Credits Earned: 03 Credits

Course Outcomes: After completion of this course, student will be able to:
1. Diagnose a team's delivery pipeline and bring forward prioritized recommendations to improve it
2. Explain the skill sets and roles involved in DevOps and how they contribute toward a continuous delivery capability
3. Review and deliver automation tests across the development stack
4. Explain the key jobs of system operations and how today's leading techniques and tools apply to them
5. Explain how high-functioning teams use DevOps and related methods to reach a continuous delivery capability
6. Facilitate prioritized, iterative team progress on improving a delivery pipeline

Pre-requisite of course:
NA

Teaching and Examination Scheme:

Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial / Practical Marks		Total Marks
				E	I		V	T	
Theory	Tutorial	Practical		ESE	IA	CSE	Viva	Term Work	
03	00	00	03	50	30	20	25	25	150

The course is offered with the objective of credit transfer by learning through MOOC course. The selection of the online course should reflect the syllabus content, mentioned below. The MOOC course must be of minimum 36 hours with appropriate assessment scheme.

Content Overview:

Understating of DevOps & DevOps Process, Git introduction and installation, Configure User Information in GIT, GIT Text Editor, Compare Stage Area with Local Repository in GIT, Architectural Overview of Jenkins, Code Pipeline, Configure Jenkins with GIT & Maven, Remote Build Trigger in Jenkins, Jenkins Job DSL with Maven Project, Jenkins as a code pipeline, Docker File Instructions & Construction Commands, Stop-Remove the Containers, Docker CLI Monitoring, Docker Swarm, Kubernetes, Kubernetes Node, Workflow, HELM on Kubernetes, AWS VPC, EC2 Instance Auto scaling, EKS Cluster Using AWS.

Suggested Theory distribution:

The suggested theory distribution as per Bloom's taxonomy is as per follows. This distribution serves asguidelines for teachers and students to achieve effective teaching-learning process.

Distribution of Theory for course delivery and evaluation					
Remember	Understand	Apply	Analyze	Evaluate	Create
10%	20%	40%	30%	-	-

Marwadi University
Faculty of Technology
Department of Information and Communication Technology

Subject Code: 01CT0816

Subject Name: Advance Machine Learning

(MOOC Credit)

B. Tech. Year – IV (Semester VIII)

Objectives: The course has been kept flexible so that Instructor can choose special topics which have evolved or added in this area. It has been specially designed in this way, to cover up all the latest tools, research and industry relevant content and the gaps due to the fast changes happening in the technology.

Credits Earned: 03 Credits

Course Outcomes: After completion of this course, student will be able to:

1. To familiarize and learn about the latest trends and research in the field.
2. To equip themselves with the conceptual and practical experience of few latest methods, tools, technologies or algorithms in Machine Learning.
3. Understand the mathematics necessary for constructing novel machine learning solutions.
4. Be able to design and implement various machine learning algorithms in a range of real-world applications

Pre-requisite of course: Programming, Algorithms, Data Structures, Machine Learning, Artificial Intelligence

Teaching and Examination Scheme:

Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial / Practical Marks		Total Marks
				E	I		V	T	
Theory	Tutorial	Practical		ESE	IA	CSE	Viva	Term Work	
3	0	0	03	50	30	20	00	00	100

The course is offered with the objective of credit transfer by learning through MOOC course. The selection of the online course should reflect the syllabus content, mentioned below. The MOOC course must be of minimum 36 hours with appropriate assessment scheme.

Content Overview:

Major focus of the course will be on Relational Machine Learning, Bayesian Machine Learning, Graph learning, Reinforcement learning, Causal inference, handling bias and variance in the dataset, variational methods, etc. The course includes understanding the implementation of Machine Learning concepts to predict, classify, cluster or generate from the real time data dealing with different fields like Bioinformatics, Transportation, Logistics, Security, Education, Healthcare, Environment, Military, etc.

Suggested Theory distribution:

The suggested theory distribution as per Bloom's taxonomy is as per follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process.

Distribution of Theory for course delivery and evaluation					
Remember	Understand	Apply	Analyze	Evaluate	Create
10%	20%	40%	30%	-	-

Marwadi University
Faculty of Technology
Department of Information and Communication Technology

Subject Code: 01CT0818
Subject Name: Analog Circuit Design
(MOOC Credit)
B. Tech. Year – IV (Semester VIII)

Objective:
The Objective of this course is to give students an understanding of Analog Circuit Design.

Credits Earned: 03 Credits

Course Outcomes: After completion of this course, student will be able to:
1. Design analog circuits with industry standard specifications
2. Analyze error budgeting of various analog circuits
3. Design current source for various applications
4. Understand detail working of different types of ADC
5. Do transformer design and heat sink design

Pre-requisite of course:
Basics of Electronics Engineering

Teaching and Examination Scheme:

Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial / Practical Marks		Total Marks
				E	I		V	T	
Theory	Tutorial	Practical		ESE	IA	CSE	Viva	Term Work	
03	00	00	03	50	30	20	25	25	150

The course is offered with the objective of credit transfer by learning through MOOC course. The selection of the online course should reflect the syllabus content, mentioned below. The MOOC course must be of minimum 36 hours with appropriate assessment scheme.

Content Overview:
This course includes the analog circuit design concepts in detail. It covers basic design using transistors and opamp. It covers opamp based voltage regulator as a primary design and covers more opamp based designs which are applications in industry. The course also includes the calculations of probable errors in design with necessary error budgeting concepts which helps in critical design requirements. The course also includes design of current source and 4 to 20ma current transmitter to make students aware with industrial

need of such designs. Various types of Analog to Digital converters are also discussed in detail.

Suggested Theory distribution:

The suggested theory distribution as per Bloom's taxonomy is as per follows. This distribution serves asguidelines for teachers and students to achieve effective teaching-learning process.

Distribution of Theory for course delivery and evaluation					
Remember	Understand	Apply	Analyze	Evaluate	Create
10%	20%	40%	30%	-	-

Marwadi University
Faculty of Technology
Department of Information and Communication Technology

Subject Code: 01CT0819
Subject Name: Real Time Operating System
(MOOC Credit)
B. Tech. Year – IV (Semester VIII)

Objective:

To acquire knowledge and skills about concepts related to real time OS such as scheduling techniques, threads, inter-thread communications, memory management, different types of scheduling, Common standards and commercial real time operating systems, multiprocessor and distributed system management.

Credits Earned: 03 Credits

Course Outcomes: After completion of this course, student will be able to:

1. Describe the fundamental concepts of RTOS.
2. Understand the resource sharing among real time tasks and protocols.
3. Develop programs for real time operating systems using Free RTOS.
4. Understand multiprocessor and distributed systems management.
5. Analyze various trace tools for real time operating systems.
6. Design Real World embedded system application with RTOS.

Pre-requisite of course:

Basic of Microcontroller programming, Embedded Concepts

Teaching and Examination Scheme:

Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial / Practical Marks		Total Marks
				E	I		V	T	
Theory	Tutorial	Practical		ESE	IA	CSE	Viva	Term Work	
03	00	00	03	50	30	20	25	25	150

The course is offered with the objective of credit transfer by learning through MOOC course. The selection of the online course should reflect the syllabus content, mentioned below. The MOOC course must be of minimum 36 hours with appropriate assessment scheme.

Content Overview:

Introduction, Characteristics of Real –time system Embedded Systems, Types of real time tasks, Basics of Real Time- Task Scheduling, Cyclic executives, Cyclic Scheduler, Frame Size Constraints, Event Driven Scheduling, Rate Monotonic Scheduler, Challenges associated with RMA scheduling, Deadline monotonic scheduling, Resource sharing among real time tasks, Highest locker, Priority Inheritance and Priority Ceiling Protocols, Analysis of Priority Ceiling protocol, Handling Task dependencies, Embedded Firmware Design Approaches, Super-loop-based approach, Embedded Operating System based approach, Programming in EmbeddedC, Integrated development environment (IDE), Overview of IDEs for Embedded System Development, Introduction to multiprocessor and distributed systems, Static allocation of tasks, Dynamic allocation of tasks, Centralized clock synchronization in distributed RT systems, Distributed clock synchronization in RT systems, Unix based real time operating systems, Windows as RTOS, Basics of real time communication, Real-Time communication in LAN, Free RTOS trace analyzer setup, Analysis of valuable dynamic behavior information , troubleshoot, optimize Free RTOS firmware. Visualizing the real-time execution of tasks and ISRs, including Free RTOS calls and UserEvents.

Supplementary Resources:

1. https://www.st.com/en/embedded-software/freertos-kernel.html
2. https://www.freertos.org/portstm32iar.html
3. https://nptel.ac.in/courses/106105229

Suggested Theory distribution:

The suggested theory distribution as per Bloom's taxonomy is as per follows. This distribution serves asguidelines for teachers and students to achieve effective teaching-learning process.

Distribution of Theory for course delivery and evaluation					
Remember	Understand	Apply	Analyze	Evaluate	Create
10%	20%	40%	30%	-	-

Marwadi University
Faculty of Technology
Department of Information and Communication Technology

Subject Code: 01CT0821
Subject Name: OOAD
(MOOC Credit)
B. Tech. Year – IV (Semester VIII)

Objective:
The objective of the course is to make proficient students in software modelling & design using object-oriented concepts.

Credits Earned: 03 Credits

Course Outcomes: After completion of this course, student will be able to:
1. Understand the importance and basic concepts and of object oriented modelling.
2. Specify, analyze and design the use case driven requirements for a particular system
3. Model the event driven state of object and transform them into implementation specific layouts.
4. Identify, Analyze the subsystems, various components and collaborate them interchangeably.

Pre-requisite of course:
Students should have detailed Knowledge of Object Oriented Programming & Data Structure

Teaching and Examination Scheme:

Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial / Practical Marks		Total Marks
				E	I		V	T	
Theory	Tutorial	Practical		ESE	IA	CSE	Viva	Term Work	
03	00	00	03	50	30	20	25	25	150

The course is offered with the objective of credit transfer by learning through MOOC course. The selection of the online course should reflect the syllabus content, mentioned below. The MOOC course must be of minimum 36 hours with appropriate assessment scheme.

Content Overview:
Introduction to Object Oriented Modelling, Object Oriented Modelling, Characteristics Object Oriented Modelling, Class and Objects Links and Association, UML: Introduction, Object Model Notations: Basic Concepts, Structural Diagrams, Behavioural Diagrams, Modelling with Objects, System Design: System Design: An Object Oriented Approach, Breaking into Subsystems, Objects, Handling Boundary Conditions. Object Design for Processing Defining Classes and delegation of

Responsibilities to Methods, Advance Modelling Concepts, Dynamic Modelling, Events, State and State Diagram, Functional Models, Data Flow Diagrams, Features of a DFD, Design flaws in DFD A Functional model.

Suggested Theory distribution:

The suggested theory distribution as per Bloom's taxonomy is as per follows. This distribution serves asguidelines for teachers and students to achieve effective teaching-learning process.

Distribution of Theory for course delivery and evaluation					
Remember	Understand	Apply	Analyze	Evaluate	Create
10%	20%	40%	30%	-	-

Marwadi University
Faculty of Technology
Department of Information and Communication Technology

Subject Code: 01CT0823
Subject Name: Cloud Technical Essentials
(MOOC Credit)
B. Tech. Year – IV (Semester VIII)

Objective:
The Objective of this course is to give students a basic understanding of cloud computing, services, applications and uses. Students will build highly available, scalable, and cost-effective application step-by-step.

Credits Earned: 03 Credits

Course Outcomes: After completion of this course, student will be able to:

1. Apply the informed decision about when and how to use core AWS services.
2. Use the AWS services to compute, storage, and database to different use cases.
3. Understand the cloud security with a review of AWS' shared responsibility mode.
4. Understand the AWS Identity and Access Management (IAM).
5. Use the AWS to optimize the cloud infrastructure.

Pre-requisite of course: NA

Restrictions: This course is only offered to the students who have not taken the elective course of Cloud Computing during their Semester 6 and Cloud developing their semester 7.

Teaching and Examination Scheme:

Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial / Practical Marks		Total Marks
				E	I		V	T	
Theory	Tutorial	Practical		ESE	IA	CSE	Viva	Term Work	
03	00	00	03	50	30	20	25	25	150

The course is offered with the objective of credit transfer by learning through MOOC course. The selection of the online course should reflect the syllabus content, mentioned below. The MOOC course must be of minimum 36 hours with appropriate assessment scheme.

Content Overview:
AWS Overview and Security, definition of cloud computing, cloud value proposition, differentiate between workloads that run on-premises versus in the cloud, how to create an

AWS account, Amazon Web Services, basic components of Amazon Elastic Compute Cloud (Amazon EC2) architecture, how to differentiate between a container and a virtual machine, features and advantages of using serverless technologies, Amazon Virtual Private Cloud (Amazon VPC), Storage & Databases on AWS, how to optimize solutions on AWS, how to differentiate between vertical scaling and horizontal scaling, Amazon EC2 Auto Scaling, Configure High Availability for your Application.

Suggested Theory distribution:

The suggested theory distribution as per Bloom's taxonomy is as per follows. This distribution serves asguidelines for teachers and students to achieve effective teaching-learning process.

Distribution of Theory for course delivery and evaluation					
Remember	Understand	Apply	Analyze	Evaluate	Create
10%	20%	40%	30%	-	-

Marwadi University
Faculty of Technology
Department of Information and Communication Technology

Subject Code: 01CT0826
Subject Name: Human Computer Interaction
(MOOC Credit)
B. Tech. Year – IV (Semester VIII)

Objective:
The Objective of this course is to give students an understanding of an interface and what role a designer plays in creating a user interface. They will learn how to design and articulate meaning using color, type, and imagery is essential to making interfaces function clearly and seamlessly. Students will build solutions for problems in society, understanding needs of the people, finding gaps in needs and existing technological solutions.

Credits Earned: 03 Credits

Course Outcomes: After completion of this course, student will be able to:
1. Understand the key formal elements of clear, consistent, and intuitive UI design.
2. Apply the learned skills to the design of a static screen-based interface.
3. Use the elements of UI/UX.
4. Integrate the elements of UI/UX.
5. Understand black-box and white-box testing, describing the benefits and use of both black-box and white-box testing.

Pre-requisite of course: Basic knowledge of OOP.

Teaching and Examination Scheme:

Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial / Practical Marks		Total Marks
				E	I		V	T	
Theory	Tutorial	Practical		ESE	IA	CSE	Viva	Term Work	
03	00	00	03	50	30	20	25	25	150

The course is offered with the objective of credit transfer by learning through MOOC course. The selection of the online course should reflect the syllabus content, mentioned below. The MOOC course must be of minimum 36 hours with appropriate assessment scheme.

Content Overview:
Introduction to Human Centered Design, Human Centered Design Process, Welcome to the UI/UX Design Specialization, Peer Review, Peer Review Tips, How to apply feedback, Required Tools, About CalArts and the Program in Graphic Design, Instructor Presence and Staff Support, Share stories and learn from user research, find

themes and cluster them, User Interface The Relationship Between UI and UX , Roles in UI/UXA Brief Historical Overview of Interface Design, Interface Conventions: Theory Interface Conventions: Application Template vs Content Aesthetics & Functionality, Mapping, Testing, Envisioning Mapping Content Mapping Interaction Non-Visual Paper Prototyping Non-Visual User Testing Sitemap Look and Feel/Visual Research, Design Before Design, Look and Feel, Language as a design tool, Color and Shape, Imagery, Typography, Icons, Functionality, Speed and Style, Composition and Structure, Buttons, Not Buttons, States and Changes, Conventions and Expectations, Structure and Grids, Platforms and Screen Sizes.

Suggested Theory distribution:

The suggested theory distribution as per Bloom's taxonomy is as per follows. This distribution serves asguidelines for teachers and students to achieve effective teaching-learning process.

Distribution of Theory for course delivery and evaluation					
Remember	Understand	Apply	Analyze	Evaluate	Create
10%	20%	40%	30%	-	-

Marwadi University
Faculty of Technology
Department of Information and Communication Technology

Subject Code: 01CT0827
Subject Name: Software Testing
(MOOC Credit)
B. Tech. Year – IV (Semester VIII)

Objective:
The Objective of this course is to give students an understanding of fundamental principles and processes of software testing. Students will learn about creation of test cases and run them using an automated testing tool. They will also be able to write and recognizing good test cases, including input data, and expected outcomes.

Credits Earned: 03 Credits

Course Outcomes: After completion of this course, student will be able to:
1. Understanding the goal of testing.
2. Use appropriate test terminology in communication, specifically: test fixture, logical test case, concrete test case, test script, test oracle, and fault.
3. Measure test adequacy using statement and branch coverage.
4. Assess the fault-finding effectiveness of a functional test suite using mutation testing.
5. Understand black-box and white-box testing, describing the benefits and use of each within the greater development effort.
6. Craft unit and integration test cases to detect defects within code and automate these tests using JUnit.

Pre-requisite of course:
Basic knowledge of OOP.

Teaching and Examination Scheme:

Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial / Practical Marks		Total Marks
				E	I		V	T	
Theory	Tutorial	Practical		ESE	IA	CSE	Viva	Term Work	
03	00	00	03	50	30	20	25	25	150

The course is offered with the objective of credit transfer by learning through MOOC course. The selection of the online course should reflect the syllabus content, mentioned below. The MOOC course must be of minimum 36 hours with appropriate assessment scheme.

Content Overview:

Introduction, challenges of software testing, Test, Automation: Using a test framework, Automation: Writing JUnit tests, Testing Foundations, Dependability Definitions, Testing Principles, The "V Model" of Software Development, Validation and Verification in the "V Model", Structural Testing, Mutation Testing, Test Plan, Stages of Software Testing Process, Risk-based Test Planning, Software Defect Reports: Analysis and Report, Software Defect Reports: Track, Retest, and Close, Test Doubles: Introduction, Test Doubles: Input, Test Doubles: Output, Assessing Adequacy and Code Coverage Analysis with JaCoCo, Flakey Tests and How to Avoid Them. Web and Mobile Testing with Selenium.

Suggested Theory distribution:

The suggested theory distribution as per Bloom's taxonomy is as per follows. This distribution serves asguidelines for teachers and students to achieve effective teaching-learning process.

Distribution of Theory for course delivery and evaluation					
Remember	Understand	Apply	Analyze	Evaluate	Create
10%	20%	40%	30%	-	-

Marwadi University
Faculty of Technology
Department of Information and Communication Technology

Subject Code: 01CT0828
Subject Name: Cloud Architecture
(MOOC Credit)
B. Tech. Year – IV (Semester VIII)

Objective:
The Objective of this course is to give students an understanding of cloud architecture and its security issues.

Credits Earned: 03 Credits

Course Outcomes: After completion of this course, student will be able to:
1. Make architectural decisions based on AWS architectural principles and best practices.
2. Use AWS services to make infrastructure scalable, reliable, and highly available.
3. Use AWS managed services to enable greater flexibility and resiliency in an infrastructure.
4. Increase performance and reduce cost of a cloud infrastructure built on AWS.
5. Use the AWS Well-Architected Framework to improve architectures that use AWS solutions.

Pre-requisite of course:
Basic Knowledge of Cloud Computing.

Teaching and Examination Scheme:

Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial / Practical Marks		Total Marks
				E	I		V	T	
Theory	Tutorial	Practical		ESE	IA	CSE	Viva	Term Work	
03	00	00	03	50	30	20	25	25	150

The course is offered with the objective of credit transfer by learning through MOOC course. The selection of the online course should reflect the syllabus content, mentioned below. The MOOC course must be of minimum 36 hours with appropriate assessment scheme.

Content Overview:
Welcome to AWS Academy Cloud Architecting, Introducing Cloud Architecting, Define cloud architecture, Define how to design and evaluate architectures using the AWS Well-Architected Framework, Adding a Storage Layer, Recognize the various Amazon S3 storage classes and cost Considerations, Adding a Compute Layer, Adding a Database

Layer, Creating a Networking Environment, Connecting Networks, Securing User and Application Access, Implementing Elasticity, High Availability, and Monitoring, Automating Your Architecture, Caching Content, Building Decoupled Architectures, Building Microservices and Serverless
Architectures, Planning for Disaster.

Suggested Theory distribution:

The suggested theory distribution as per Bloom's taxonomy is as per follows. This distribution serves asguidelines for teachers and students to achieve effective teaching-learning process.

Distribution of Theory for course delivery and evaluation					
Remember	Understand	Apply	Analyze	Evaluate	Create
10%	20%	40%	30%	-	-

Subject Code: 01CT1801

Subject Name: Project

B. Tech. Year – IV (Semester VIII)

Objective:
The subject provides hands-on learning experience to the students with the opportunity to explore a problem or issue of personal or professional interest and to address that problem or issue through focused study and applied research under the direction of a faculty member or industrial guide. This course also provides platform to implement learnt concepts in various subjects in case of project design and to provide in-depth exposure in the field of software, data analytics, embedded, VLSI, networking, and security in case of industrial training. It is also useful to enhance students' ability to think critically and creatively, to solve practical problems, to make reasoned and ethical decisions, and to communicate effectively.

Credits Earned: 13 Credits

Course Outcomes: After completion of this course, student will be able to:
1. Investigate the chosen topic in depth
2. Apply the concepts and theories learnt in previous subjects
3. Apply the various methodologies to design project for specific application
4. Explore the new ideas & the possible areas to work ahead
5. Sharpen the skills in specific direction

Pre-requisite of course:
Basic knowledge of all academic subjects and readiness to explore new things

Teaching and Examination Scheme:

Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial / Practical Marks		Total Marks
				E	I		V	T	
Theory	Tutorial	Practical		ESE	IA	CSE	Viva	Term Work	
00	00	26	13	00	00	00	100	100	200

Contents:

Unit	Topics
1	The Project work should include appropriate elements of engineering standards, design, analysis, modeling, simulation, experimentation, prototyping, software development, research etc. as per the requirement of the project definition
2	Exploration of various domains of the discipline and finalization of domain for project or Industrial Training

3	Identification of proposed project definition by student or students' group in coordination with faculty guide or industrial mentor to address issue related to economic, environmental, social, political, ethical, health & safety, manufacturability, sustainability, management, science etc.
4	Student's presentation on selected topic with outcomes of the project/Industrial Training and approval by project approval panel
5	Intermediate semester presentations include block diagram, flow chart, micro level block diagram, schematic, required hardware or software, features and application of project at regular interval
Total Hours: 26 / week	

Assessment of project work:

In semester evaluation Evaluation by project evaluation committee from institute (50% marks) and project guide (50% marks)	**Assessment tool**	**Review – I 1st month of semester**	**Review – II Mid of semester**
	TW Marks Distribution	50 Marks	50 Marks
End semester evaluation Evaluation by project evaluation committee from institute (50% marks) and project guide (50% marks)	**Assessment tool**	**Viva Exam**	
	Viva Marks Distribution	100 Marks	

Suggested Theory distribution:

The suggested theory distribution as per Bloom's taxonomy is as per follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process.

Distribution of Theory for course delivery and evaluation					
Remember	Understand	Apply	Analyze	Evaluate	Create
5%	5%	15%	15%	20%	40%

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

- 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