Student centric methods

Student centric method of teaching is the most approved pedagogy followed by all the faculties of the institution. The institution takes several measures to help students to make their learning easy and interesting, also improve their general academic knowledge and skills. The traditional method of teaching is replaced by student participation in the class room activities. The classes are usually interactive with the students coming up with their own innovative ideas and viewpoints with the guidance of the teacher.

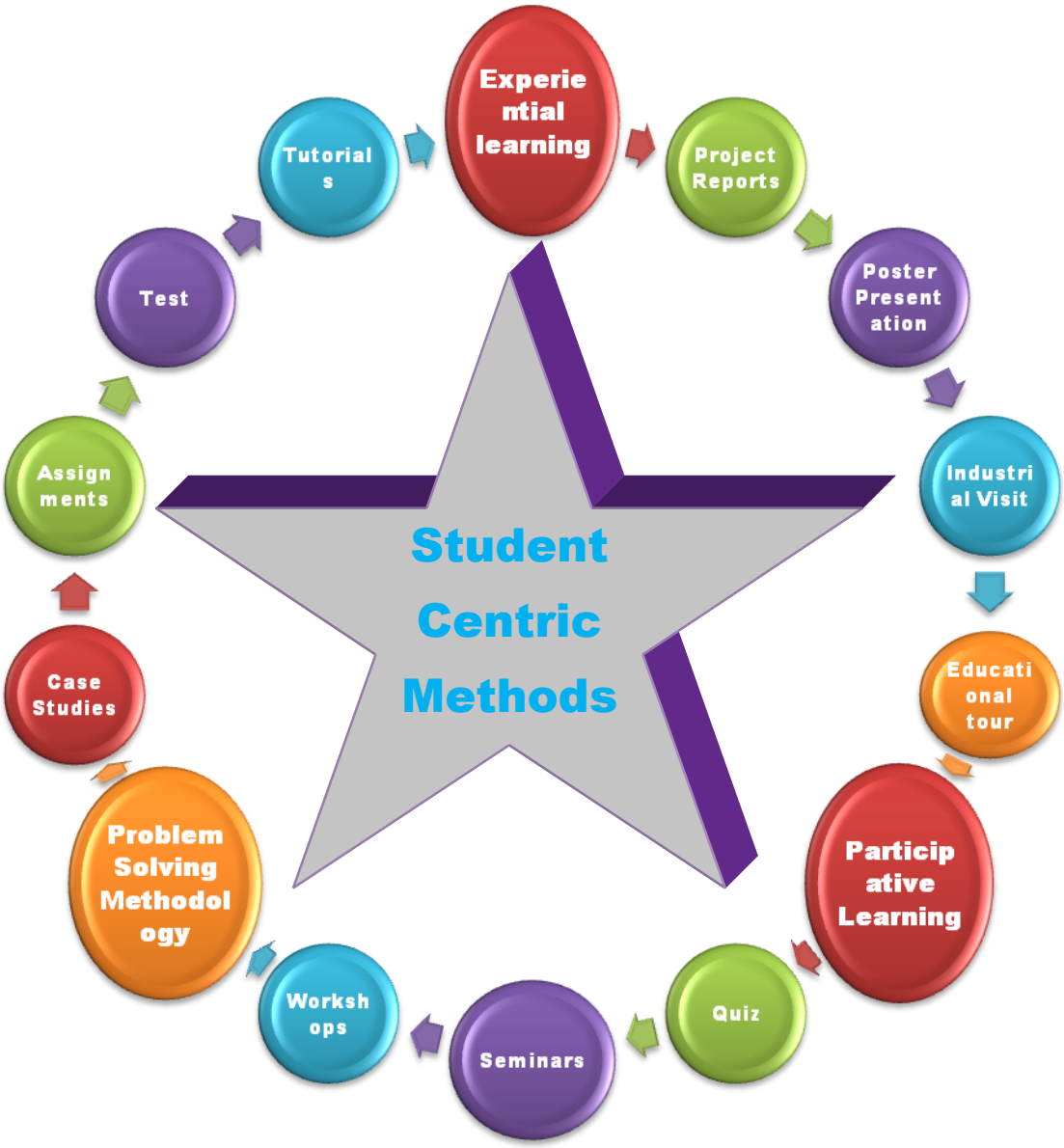
Experiential learning: Students learn through field work, by which they transform their theoretical knowledge to practical one. Through Mini and Major Project Development, students learn to transform the user requirements by developing software. It helps to bridge the gap between theoretical concepts and its practical applications.

Participative learning: This method is adopted through Industrial visits Educational Tour Seminars, webinars and Workshops.

Social Activity : Students take part in several extra and co-curricular activities like Cleanliness drive, tree-planting and fitness drive etc.

Problem solving methodologies: Provision of Question bank prepared by teachers Class Test, Tutorial, Assignments Practical Assignment, Project ,case studies, critical thinking exercises etc.

2.3.1 Student centric methods, such as experiential learning, participative learning and problem solving methodologies are used for enhancing learning experiences



2.3.1 Student centric methods, such as experiential learning, participative learning and problem solving methodologies are used for enhancing learning experiences

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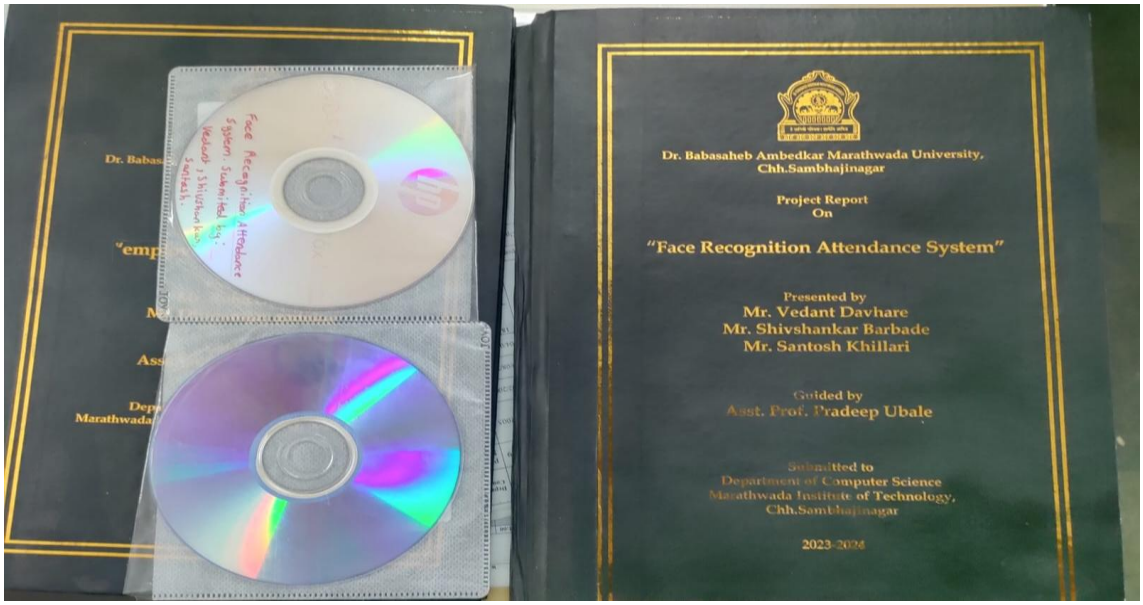
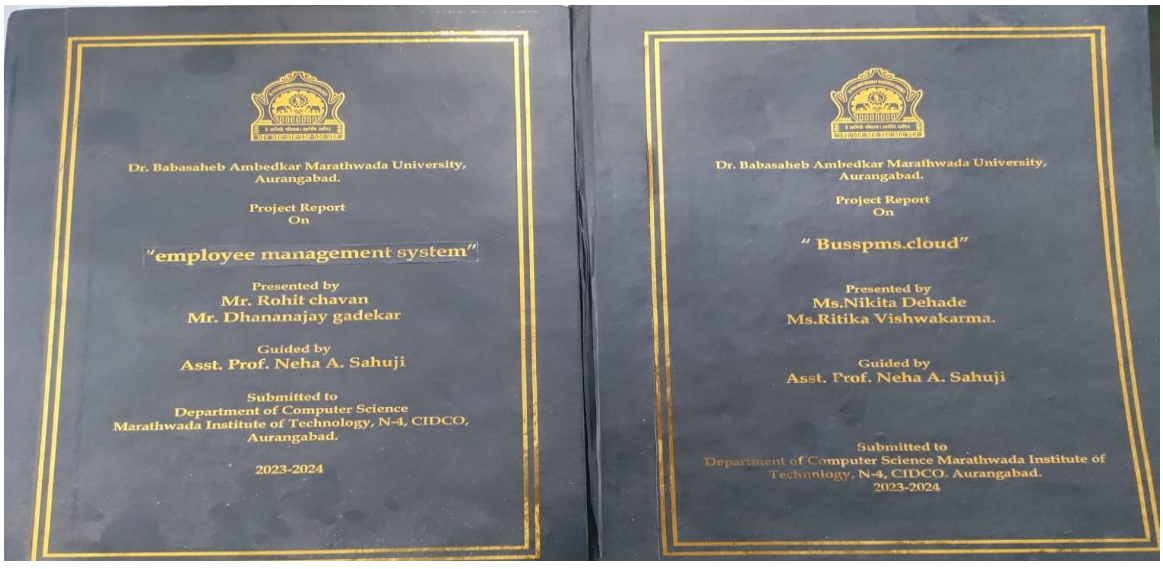
Experiential Learning

1.Project Based Learning(PBL): The faculty members in the respective departments have extensive interaction with the students during their Group project, Major project, Lab experiments , Lab projects. It may be noted that all these projects are part of the main curriculum .

Projects Made by Students





2.3.1 Student centric methods, such as experiential learning, participative learning and problem solving methodologies are used for enhancing learning experiences

Projects made by B.Sc. Automobile Students

Appreciation by Hon. Prof. Munish Sharma sir to students of B.Sc.(AT/WT) Third Year for their project of Electrical vehicle (Conversion of Hero Honda CD-100SS to Electrical vehicle).

2.3.1 Student centric methods, such as experiential learning, participative learning and problem solving methodologies are used for enhancing learning experiences

Poster Presentation Competition at MIT CIDCO Aurangabad on 12 Feb 2024.

2.3.1 Student centric methods, such as experiential learning, participative learning and problem solving methodologies are used for enhancing learning experiences

2.3.1 Student centric methods, such as experiential learning, participative learning and problem solving methodologies are used for enhancing learning experiences

2.Internships: Students of M.Sc. CS/IT II year undergo rigorous internships in industries during their Semester end. The work experience in the Industrial Internship period greatly enhances their skill and knowledge. Institute help them finding suitable internship positions and monitor their punctuality, learning, discipline and performance in their semester end.

इंडियन ऑयल कॉर्पोरेशन लिमिटेड

Indian Oil Corporation Limited

Western Region,
Indian Oil Bhavan - BKC, Plot C-33, G-Block,
Bandra Kurla Complex, Bandra (East),
Mumbai - 400 051.
Tel: 022-26722899

IndianOil
A Maharatna Company

विपणन प्रभाग
Marketing Division

WR/HR/L&D/ 9816788 — 21st May 2024

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Mr. PRINCE SUNIL KUMAR OJHA** was engaged as **TRADE APPRENTICE (DATA ENTRY OPERATOR –SKILL CERTIFICATE HOLDER)** for a period of one year from 18/09/2021 to 17/09/2022 under the Apprentice Act, 1961 at **Indian Oil Corporation Ltd., AURANGABAD AFS.**

During the apprenticeship period, he was given exposure in TRADE APPRENTICE (DATA ENTRY OPERATOR-SKILL CERTIFICATE HOLDER) practices at AURANGABAD AFS.

He has been punctual and sincere during his period of apprenticeship. He has completed his apprenticeship training at AURANGABAD AFS on 17/09/2022.

We wish him all success in his future endeavors.

For Indian Oil Corporation Limited,

Beena Menon
DGM (L&D), WR

बीना के. मेनन / Beena K. Menon
Dy. General Manager (L & D)
Marketing Division, Western Region
Indian Oil Bhavan
Bandra Kurla Complex, Bandra (East), Mumbai - 400 051.

Regd. Office : 'Indian Oil Bhavan', G-9, Ali Yavar Jung Marg, Bandra (E), Mumbai - 400 051.

ASR SOFTWARE SOLUTIONS

Date – 25th April 2024

Internship Certificate

This is to inform you that **Mr. Tushar Ganesh Pathe** studying in M.Sc. (I.T.) of Dept. of Computer Science and Information Technology, Marathwada Institute of Technology, Cidco, Chhatrapati Sambhajinagar has completed his on job training project internship on " **Used Car Showroom** " with duration of one month from **15th March 2024 to 15th April 2024,** at our company ASR Software Solutions, Chhatrapati Sambhajinagar as Trainee Developer with our Project Development team.

He worked well under team guidance on this project with a departmental technical mentor and has demonstrated diligent effort and actively participated in bringing the project to current state. He is disciplined and team player throughout the project.

To the best of our information knowledge, he bears good moral character. We wish him good luck for all his future endeavors.

ASR SOFTWARE SOLUTIONS

Thanking you
ASR Software Solutions
K33 N7 CIDCO Industrial Area, Chh.Sambhajinagar, Maharashtra.
aj.rajhans@gmail.com,9890709394

2.3.1 Student centric methods, such as experiential learning, participative learning and problem solving methodologies are used for enhancing learning experiences

ASR SOFTWARE SOLUTIONS

Date – 25th April 2024

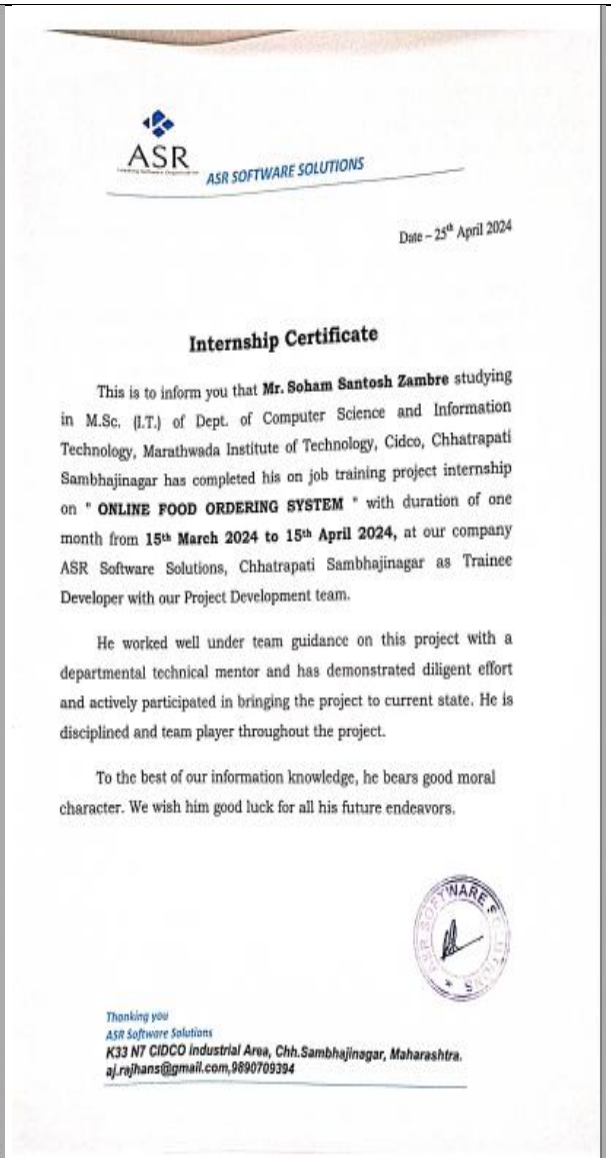
Internship Certificate

This is to inform you that **Mr. Nilesh Nagnath Surwase** studying in M.Sc. (I.T.)-II-SEM of Dept. of Computer Science and Information Technology, Marathwada Institute of Technology, Cidco, Chhatrapati Sambhajinagar has completed his on job training project internship on " **Hospital Management System** " with duration of one month from **15th March 2024 to 15th April 2024,** at our company ASR Software Solutions, Chhatrapati Sambhajinagar as Trainee Developer with our Project Development team.

He worked well under team guidance on this project with a departmental technical mentor and has demonstrated diligent effort and actively participated in bringing the project to current state. He is disciplined and team player throughout the project.

To the best of our information knowledge, he bears good moral character. We wish him good luck for all his future endeavors.

Thanking you
ASR Software Solutions
K33 N7 CIDCO Industrial Area, Chh.Sambhajinagar, Maharashtra.
aj.rajhans@gmail.com,9890709394



ASR SOFTWARE SOLUTIONS

Date – 25th April 2024

Internship Certificate

This is to inform you that **Mr. Soham Santosh Zambre** studying in M.Sc. (I.T.) of Dept. of Computer Science and Information Technology, Marathwada Institute of Technology, Cidco, Chhatrapati Sambhajinagar has completed his on job training project internship on " **ONLINE FOOD ORDERING SYSTEM** " with duration of one month from **15th March 2024 to 15th April 2024,** at our company ASR Software Solutions, Chhatrapati Sambhajinagar as Trainee Developer with our Project Development team.

He worked well under team guidance on this project with a departmental technical mentor and has demonstrated diligent effort and actively participated in bringing the project to current state. He is disciplined and team player throughout the project.

To the best of our information knowledge, he bears good moral character. We wish him good luck for all his future endeavors.

Thanking you
ASR Software Solutions
K33 N7 CIDCO Industrial Area, Chh.Sambhajinagar, Maharashtra.
aj.rajhans@gmail.com,9890709394

2.3.1 Student centric methods, such as experiential learning, participative learning and problem solving methodologies are used for enhancing learning experiences

3. Industrial Visits / Field Visit: Students are regularly taken to Industrial visits relevant to their courses to have realistic Industrial exposure and practical knowledge to reputed industries . Also, students understand the requirements and demands of Industries

Educational visit to Department of Computer Science, Dr. Babasaheb Ambedkar Marathwada University, Chhatrapati Sambhajinagar on 19 October 2023.

2.3.1 Student centric methods, such as experiential learning, participative learning and problem solving methodologies are used for enhancing learning experiences

Educational Tour

2.3.1 Student centric methods, such as experiential learning, participative learning and problem solving methodologies are used for enhancing learning experiences

MIT CIDCO Aurangabad AT/WT/RAC department Organized Industrial Visit CNC Programing, plastic molding, quality testing and 3D printing at CIPET, Chikhalthana MIDC on 6 October 2023.

2.3.1 Student centric methods, such as experiential learning, participative learning and problem solving methodologies are used for enhancing learning experiences

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Educational visit to DATA CENTER, Government College of Engineering, Aurangabad

2.3.1 Student centric methods, such as experiential learning, participative learning and problem solving methodologies are used for enhancing learning experiences

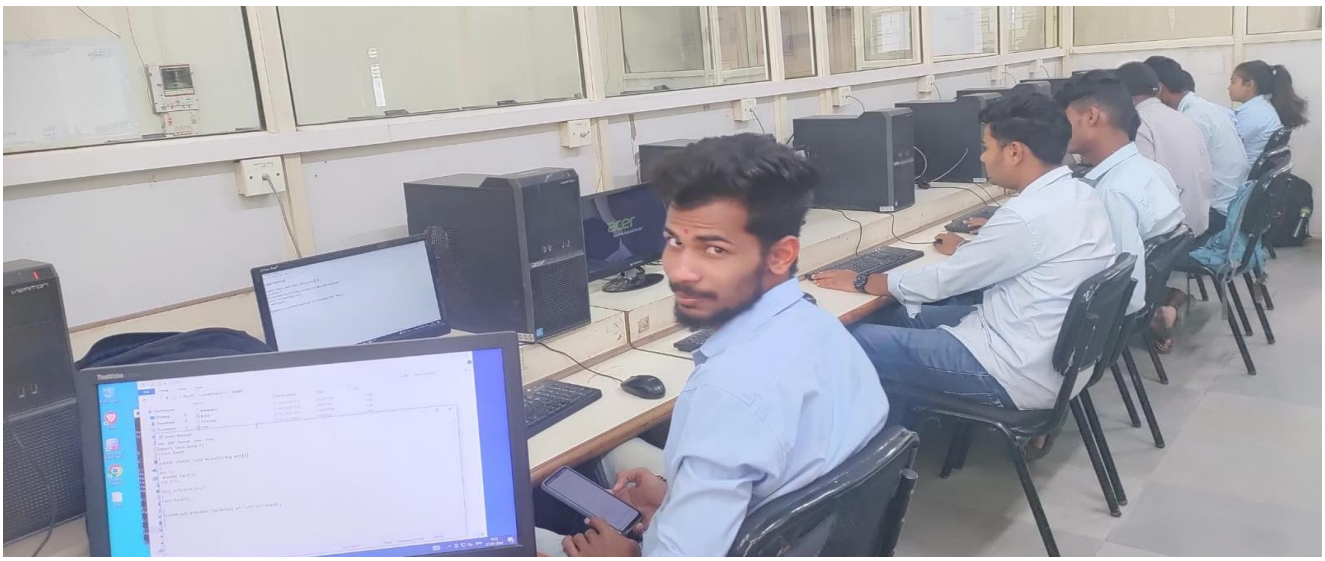
on 28 August 2023 Industrial Visit of Department of Automobile Technology, MIT CIDCO Aurangabad students at Umasons Steelfab Pvt. Ltd.

2.3.1 Student centric methods, such as experiential learning, participative learning and problem solving methodologies are used for enhancing learning experiences

An Industrial/Educational visit to Volkswagen Service Center, Aurangabad was organized on 17 August 2023

2.3.1 Student centric methods, such as experiential learning, participative learning and problem solving methodologies are used for enhancing learning experiences

4. Computer-Assisted learning: The college has well equipped Computer Lab , Digital library facility for the students to use Internet and consult online Lectures for searching technical information required for their projects, seminars and other academic requirements which forms part of their degree requirement. The video lessons available from MOOC SWAYAM , NPTEL to enhance their learning.



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Prize distribution to all Graduate students who have successfully completed MOOC courses

2.3.1 Student centric methods, such as experiential learning, participative learning and problem solving methodologies are used for enhancing learning experiences

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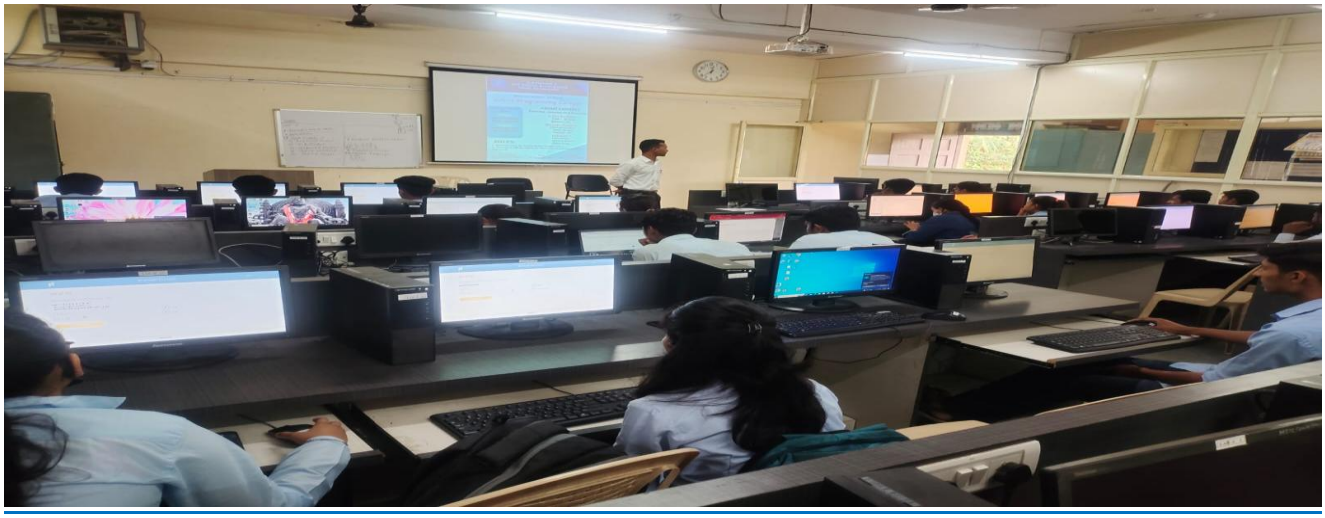
Participative Learning

The Department of Bachelor of Computer Applications (BCA), MIT CIDCO College organized a C/C++ programming Quiz contest on September 22 September 2023.



2.3.1 Student centric methods, such as experiential learning, participative learning and problem solving methodologies are used for enhancing learning experiences

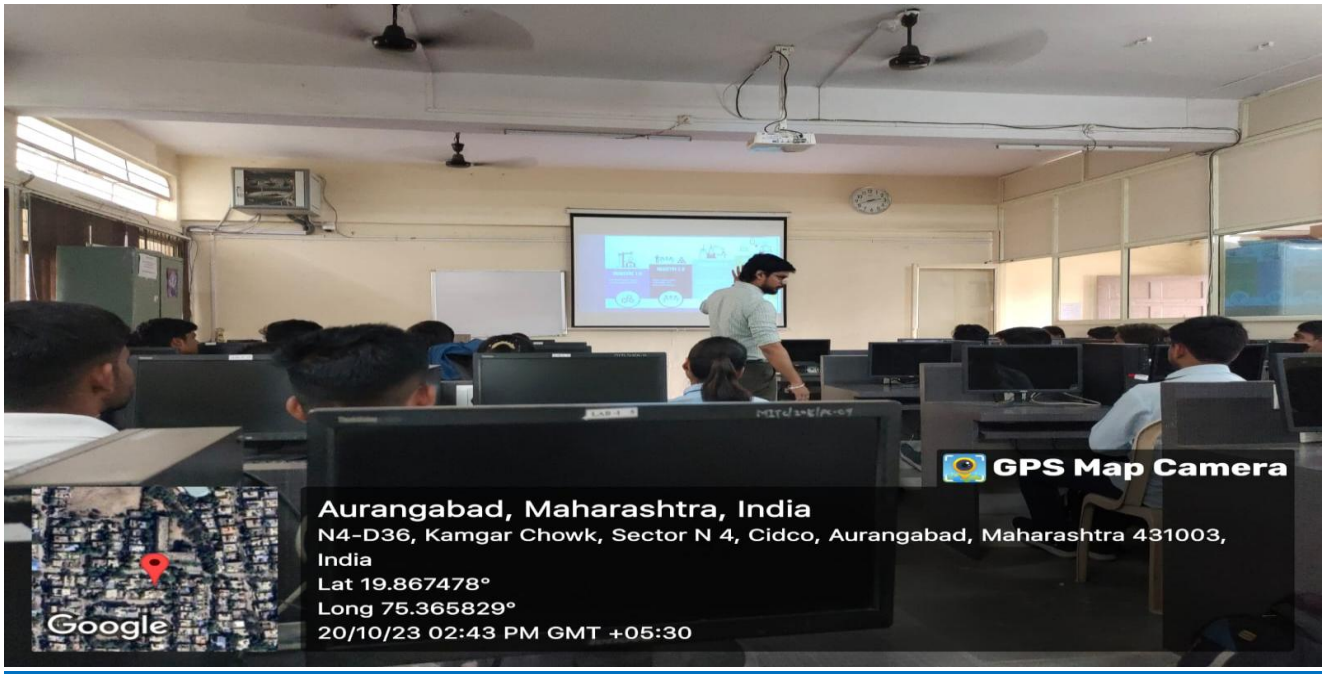
Seminar on Modern Approaches to Automobile Vehicle Servicing on 7 Feb 2024 by Mr. Lakhan Kaperavenollu (Service Advisor, Mutha Motors, Chh. Sambhajinagar). Organised by B.Sc. AT-WT-RAC Department.

2.3.1 Student centric methods, such as experiential learning, participative learning and problem solving methodologies are used for enhancing learning experiences

Seminar on "Overall IT landscape : Different Roles and opportunities" by Mr. Suryakant Dhakane, Technical Director Product Security, Dhruva Data Solutions, Pune and Mr. Guarav Patil to MIT CIDCO Aurangabad students on 6 Jan 2024.

2.3.1 Student centric methods, such as experiential learning, participative learning and problem solving methodologies are used for enhancing learning experiences

Seminar on IOT on 20 October 2023.



2.3.1 Student centric methods, such as experiential learning, participative learning and problem solving methodologies are used for enhancing learning experiences

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Students Participation in the University "Yuva Mashostav"

युवा महोत्सवात विविध रंगमंचांवर तरुणाई थिरकली

महोत्सवात आज सादर होणार ठसकेबाज लावणी

प्रतिनिधी | छत्रपती संभाजीनगर

केंद्रीय युवा महोत्सवात पहिल्या दोन दिवसांत सहा रंगमंचांवर २८ कलाप्रकार सादर करण्यात आले. कुलगुरू डॉ. प्रमोद येवले यांनी गुरुवारी विविध रंगमंचांना भेट देऊन युवा कलावंतांना प्रोत्साहन दिले. रंगमंच क्रमांक : १ वर आज (शुक्रवारी) दुपारी २ वाजता महाराष्ट्राच्या परंपरेची ठसकेबाज लावणी सादर होणार आहे. तसेच लोकगीतांचे सादरीकरण होणार आहे, अशी माहिती विद्यापीठ प्रशासनाने दिली आहे. गुरूवारी विविध रंगमंचावर सादर झालेल्या कार्यक्रमात विद्यार्थ्यांनी धमाल केली. तसेच, काही सामूहिक गीतांवर नृत्यही केले.

ललित कलागटातील सर्व स्पर्धा समाप्त, रांगोळीत सव्वाशे कलावंतांचा सहभाग

: केंद्रीय युवा महोत्सवातील ललित कला गटातील सातही स्पर्धा गुरुवारी संपल्या. ललित कला विभागात या स्पर्धांचे आयोजन करण्यात आले. विविध कलाप्रकार व सहभागी संघांची संख्या पुढीलप्रमाणे चित्रकला - ८८ संघ, व्यंगचित्रकला - ३५, कोलाज - ३०, स्पॉट ..., मृदमूर्तिकला - ३५, तर पोस्टर ...द्यालयांनी सहभाग घेतला. तर ...ी संकल्पना असलेल्या रांगोळी ...५ कलावंतांनी सहभाग घेतला. ... डॉ. शिरीष अंबेकर, डॉ. गजानन पोहेकर व सहकाऱ्यांनी स्पर्धेचे संयोजन केले.

कलाकारांनो, मला तुमचा अभिमान वाटतोय : माटेगावकर

महाराष्ट्राची लोककलेची परंपरा तुम्ही पुढे सुरू ठेवली आहे, याचा मला खूप अभिमान वाटतो, अशा शब्दात अभिनेत्री केतकी माटेगावकर हिने कलाकारांचे कौतुक केले. युवा महोत्सवानिमित्त अभिनेत्री माटेगावकर आणि अभिनेता दीपराज विद्यापीठात आले होते. त्या वेळी माटेगावकर यांनी कलाकारांना मार्गदर्शन केले. अभिनेत्री माटेगावकर म्हणाली, महाराष्ट्राची लोककलेची परंपरा मोठी आहे. इतर कलाप्रकारही आपण सादर करत आहात. ही आनंदाची बाब आहे. आपण आपली लोककलेची परंपरा पुढे सुरू ठेवली पाहिजे.

तबल्याला हार्मोनियमची साथ

युवा महोत्सवात नादरंग या स्टेज क्रमांक-४ वर शास्त्रीय तालवाद्य या कला प्रकारात ३६ संघांनी सहभाग नोंदवला होता. यात तबल्याला हार्मोनियम वाद्याची साथ देत विद्यार्थ्यांनी आपली कला सादर करत उपस्थितांची दाद मिळवली. या वेळी हनुमान फडतरे, सूरेश फडतरे व व्यंकटेश देशमुख यांनी परीक्षक म्हणून काम पाहिले.

भारुडातून राजकारणावर फटकारे

छत्रपती संभाजीनगर | राज्यातील फोडाफोडीच्या राजकारणावर भारुडातून फटकारे मारले. तसेच, मुला-मुलींनी आई-वडिलांना सांभाळण्याचाही संदेश दिला.लोककरंग मंचावर भजन, भारूड वासुदेव, गोंधळ सादर केले. यात विवेकानंद कॉलेजच्या संकेत श्रीखंडेसह सहकाऱ्यांनी 'निर्गुण निराकार दादा माहूर माझे गाव' हे भारूड सादर केले.

'...पोशिंदा ताठ कंबर कसून'मधून मांडली शेतकऱ्यांची व्यथा

छत्रपती संभाजीनगर | शेतकऱ्यांच्या जिद्दीला सलाम ठोकत मिलिंद कला कॉलेजच्या सुमेध जाधवने शेतकऱ्यांची व्यथा सांगणारी कविता सादर केली. शब्दरंगावर काव्यवाचन स्पर्धा झाली. यात १९५ स्पर्धकांनी सहभाग घेतला होता. या वेळी सुमेधने 'निसर्गाशी झटून,वाऱ्या वादळाशी खेटून, तरी उभा आहे, पोशिंदा ताठ कंबर कसून' ही कविता सादर केली. या कवितेला प्रेक्षकांकडून उत्स्फूर्त प्रतिसाद मिळाला. तसेच, काव्यवाचन स्पर्धेत क्रांतिवीर काकासाहेब देशमुख कला, वाणिज्य व विज्ञान महाविद्यालय, करंजखेडा येथील विद्यार्थिनी रुचिता सुभाष पवार हिने 'कभी कभार ऐसी भी बात होती है' ही कविता सादर केली. या वेळी संघप्रमुख वंदना भिसे यांची उपस्थिती होती.

रुचिता पवार

एका विद्यार्थिनीने लोकनृत्य प्रकारात आपली कला सादर केली.

2.3.1 Student centric methods, such as experiential learning, participative learning and problem solving methodologies are used for enhancing learning experiences

Students participation in MITC Hackathon 2023 in the presence of Mr. Swapnil Andhare, CEO, RISTEL technologies, Aurangabad on, Tuesday, 26 September 2023 .

2.3.1 Student centric methods, such as experiential learning, participative learning and problem solving methodologies are used for enhancing learning experiences

Problem Solving Methodology

Students participation in the University Level Avishkar Competition

Congratulations to Mr. Kavya Baradiya (B.Sc.IT First year) of MIT CIDCO Aurangabad for his achieving Second Rank in Agriculture Research in Avishkar-2023-24 at Dr. Babasaheb Dr Babasaheb Ambedkar Marathwada Uni, Aurangabad.

2.3.1 Student centric methods, such as experiential learning, participative learning and problem solving methodologies are used for enhancing learning experiences

Institute encourage the students to gain and increase problem-solving skills. Motivate students to participate in various activities such as-

- Regular Assignments based on problems
- Project development
- Regular Quizzes
- Case studies Discussion
- Participation in Inter college events

Critical thinking activities

2.3.1 Student centric methods, such as experiential learning, participative learning and problem solving methodologies are used for enhancing learning experiences

Course Code: CS-341T(B)	**Course Title:- Critical Thinking**
Total Credit: 2	Marks: 50 (UA: 40 + IA: 10)
Periods: 3 per week (50 Minutes each)	

Prerequisites:

There are no prerequisites for this course

Learning Objectives

1. To understand the concept of critical thinking and its significance in personal and professional life
2. To develop critical thinking skills like analysis, interpretation, evaluation, inference, and explanation
3. To apply critical thinking skills in decision-making and problem-solving
4. To exercise and improve the brain's ability to think critically

Learning Outcomes

After Completion of the Course students will be able to

1. Develop critical thinking skills and apply them in various aspects of personal and professional life
2. Make informed decisions by analyzing information and evaluating options
3. Improve problem-solving skills by breaking down complex problems into smaller components
4. Enhance cognitive abilities to think critically and make logical decisions.

Unit -I: Introduction to Critical Thinking (10 Periods)

Understanding the concept of critical thinking, Historical details of critical thinking, Thinkers who fashioned critical thinking of their time

Unit -II: Developing Critical Thinking Skills (10 Periods)

2.3.1 Student centric methods, such as experiential learning, participative learning and problem solving methodologies are used for enhancing learning experiences

The process of critical thinking, Inductive and deductive reasoning, Difference between reading and thinking, Reason to Adopt Critical Thinking, How critical thinking solves problems
Unit -III: Improving Decision Making (10 Periods) Getting logical thinking, Strategies to improve decision-making skills, Making better decisions
Unit -IV: Applying Critical Thinking (10 Periods) Strategies to help improve critical thinking, Group decision-making skills, Applying questions in critical thinking, Exercising the brain
Unit-V: Test and Tutorials (05 Periods) In addition to CIA, Tutorial, Seminars, Assignments & case studies are to be given for building proficiency in the course. (Respective course in-charge should maintain the records for the same).

Textbook

1. "Critical Thinking: Proven Strategies To Improve Decision Making Skills, Increase Intuition And Think Smarter" by Simon Bradley.

Course Assessment (Full 50 Marks Internal Assessment)

To assess the skills acquired in a critical thinking course, you can use a combination of formative and summative assessment methods, including written assignments, discussions, group activities, quizzes, tests, and self-assessment. Here are some suggestions:

1. **Written Assignments**: Assign tasks that require students to analyze, evaluate, and synthesize information, such as essays, case studies, and reflections. These assignments can be graded based on predefined rubrics that outline expectations for clarity, depth, and logical reasoning.
2. **Discussions:** Organize in-class or online discussions in which students are required to critically analyze and evaluate different viewpoints, arguments, or evidence. Encourage students to ask probing questions and provide reasoned responses. Assess students' participation and the quality of their contributions.
3. **Group Activities**: Assign group projects or activities that require students to collaborate, analyze problems, and develop solutions using critical thinking skills. Evaluate the projects based on the quality of the work produced, as well as each student's participation and contribution to the group.
4. **Quizzes and Tests**: Create quizzes and tests that evaluate students' understanding of critical thinking concepts and their ability to apply these skills. Assessments can include multiple-choice questions, true/false questions, and short-answer questions. Quizzes can be administered throughout the course to gauge understanding, while tests can be used at

2.3.1 Student centric methods, such as experiential learning, participative learning and problem solving methodologies are used for enhancing learning experiences

Participation in Inter college events

Poster Presentation Competition

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An elocution competition was organized at MIT CIDCO on the auspicious occasion of Rajmata Jijau and Swami Vivekananda Jayanti .

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Students participation in Social Activity

Tree Plantation

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Cleanliness Drive

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PRACTICLES

Course: B.Sc.(C.S.) **Semester : IV**

Topic: Practical Based on Web Fundamental **Paper No.: CS407P(B)**

Exercise 1. Create a simple website by using Visual Studio Express
Exercise 2. Create additional pages
Exercise 3. Embedding Content
Exercise 4. Create a webpage using <table> and elements
Exercise 5. Create a webpages using conditional and looping statements.
Exercise 6. Create a calculator webpage
Exercise 7. Create a Webpage to introduce National Bird/Animal/Emblem/Flower
Exercise 8. Learn more about positioning by adding more elements to the webpage to define a header and footer for the page. Use CSS style rules to set the position.
Exercise 9. Learn more about CSS selectors by adding more elements to the page and try setting the format by selecting the elements without using an id.
Exercise 10. Learn more about colors by changing the color scheme, using RGB values.

Course: B.Sc.(C.S.) **Semester : IV**

Topic: Mini Project Using VB.Net **Paper No.: CS408P(B)**

Note:

1) It is expected that concerned Faculty is to introduce and make the students aware about the VB.Net in First Three-Four Practical before commencing of Mini-Project.
2) A mini project having minimum 5 forms, use VB.Net as a front end and any DBMS as backend. Team size maximum 2 students.

Minimum contents of Project Report

1. Introduction
2. Problem definition.
3. System Requirement Specification
   3.1. User Interview
   3.2. Current System flow diagram
   3.3. Proposed System.
4. E-R Diagram
5. DFD
6. Sample Screens

2.3.1 Student centric methods, such as experiential learning, participative learning and problem solving methodologies are used for enhancing learning experiences

Course Code: CS-313P	**Course Title: Lab Course (based on CS-311T)**
Total Credit: 1.5	Marks: 50 (UA: 40 + IA: 10)
Periods: 3 per week (50 Minutes each)	

Sample List of experiments to be carried out based on the course **CS-311T**

(The teacher can add three practical examples based on each unit as per their choice and feasibility)

1. Write a C++ program to implement basic data types and operators.
2. Write a C++ program to implement control structures like loops and conditional statements.
3. Write a C++ program to implement a calculator using basic arithmetic operators and control structures.
4. Write a C++ program to implement functions and function overloading.
5. Write a C++ program to demonstrate implementation of structures in C++.
6. Write a C++ program to implement a function that converts a string to uppercase using string functions.
7. Write a C++ program to implement a function that converts a string to uppercase using pointers and arrays.
8. Write a C++ program to implement a class that represents a number with functions for addition, subtraction, multiplication, and division. (Operator overloading)
9. Write a C++ program to implement a class that represents a book with functions for adding, deleting books in a library system. (Introduction to classes and objects)
10. Write a C++ program to implement a class that represents a bank account with functions for deposit, withdraw, and balance check. (Basics of class and object creation)
11. Write a C++ program to implement a class that represents a date with functions for setting and getting the date and calculating the difference between two dates. (Function overloading)
12. Write a C++ program to implement a class hierarchy that includes a base class called "Vehicle" and two derived classes called "Car" and "Motorcycle" with functions for displaying their respective features. (Inheritance and polymorphism)
13. Write a C++ program to implement a class hierarchy that includes a base class called "Shape" and two derived classes called "Circle" and "Rectangle" with functions for calculating their respective areas and perimeters. (Inheritance and polymorphism)
14. Write a C++ program to implement a class that represents a date with functions for setting and getting the date and calculating the difference between two dates. (Function overloading)
15. Write a C++ program to implement the concept of friend function.

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Course Code: CS-314P	Course Title: Lab Course (based on CS-312T)
Total Credit: 1.5	Marks: 50 (UA: 40 + IA: 10)
Periods: 3 per week (50 Minutes each)	

Sample List of experiments to be carried out based on the course **CS-312T**

(The teacher can make use of MySQL or Oracle for laboratory practice and add three practical examples based on each unit as per their choice and feasibility)

1. Create a database and tables using SQL commands
2. Insert data into tables using SQL queries
3. Update existing data in tables using SQL queries
4. Delete data from tables using SQL queries
5. Use SELECT statement to retrieve data from tables
6. Use WHERE clause to filter data in SELECT statements
7. Use GROUP BY and HAVING clauses to aggregate data in SELECT statements
8. Join multiple tables using INNER JOIN and OUTER JOIN
9. Use subqueries to retrieve data from multiple tables
10. Create views to simplify complex SQL queries
11. Create indexes to improve query performance
12. Use data normalization techniques to design and create efficient database schemas
13. Implement foreign keys and referential integrity constraints in database schemas

2.3.1 Student centric methods, such as experiential learning, participative learning and problem solving methodologies are used for enhancing learning experiences

Course Code: CS-324P	Course Title: Lab Course (based on CS-322T)
Total Credit: 1.5	Marks: 50 (UA: 40 + IA: 10)
Periods: 3 per week (50 Minutes each)	

Sample List of experiments to be carried out based on the course **CS-322T**

(The teacher can make use of any language to implement these programs but are suggested to use either C or C++. Also teacher can add few more practical based on each unit)

Practical No	Details
	Implement Singly Linked List
1	Write a program to create a singly linked, add few nodes, and display the same.
2	Write a program to create a singly linked, add new node at the beginning of the linked list, and display list before and after adding new node.
3	Write a program to create a singly linked, add new node at the end of the linked list, and display list before and after adding new node.
4	Write a program to create a singly linked, delete node at the beginning of the linked list, and display list before and after deletion.
5	Write a program to create a singly linked, delete the last node of the linked list, and display list before and after deletion.

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6	Write a program to create a singly linked, add few nodes, modify node at a specific location, and display the list before and after modification.
	Implement Doubly Linked List
7	Write a program to create a doubly linked, add few nodes, and display the same.
8	Write a program to create a doubly linked, add new node at the beginning of the linked list, and display list before and after adding new node.
9	Write a program to create a doubly linked, add new node at the end of the linked list, and display list before and after adding new node.
10	Write a program to create a doubly linked, delete node at the beginning of the linked list, and display list before and after deletion.
11	Write a program to create a doubly linked, delete the last node of the linked list, and display list before and after deletion.
12	Write a program to create a doubly linked, add few nodes, modify node at a specific location, and display the list before and after modification.
	Implement Trees
13	Write a program to create a binary tree of degree 3, display each node.
14	Write a program to create a binary tree of degree 3, and search an element in the tree.
	Implement Graphs:
15	Write a program to implement the concept of breath first search.
16	Write a program to implement the concept of depth first search.
	Implement Advance Trees:
17	Write a program to create a heap tree
18	Write a program to demonstrate the Prim's algorithm

Principal

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