Centurion UNIVERSITY
Shaping Lives...
Empowering Communities...

STUDENT CENTRIC METHODS USED FOR ENHANCING LEARNING EXPERIENCES

Metric No. 2.3.1 (Q_lM)

Centurion University of Technology and Management
Odisha

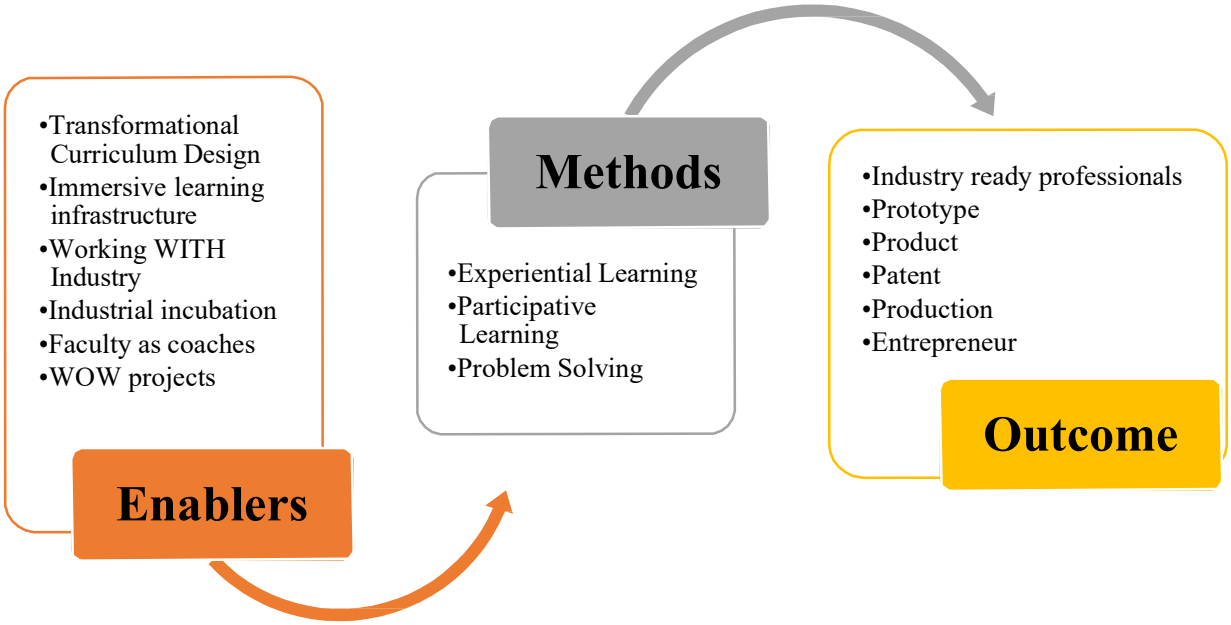
www.cutm.ac.in

Summary

Centurion University has moved the routine process of student centric learning into the next level of transformational learning This focusses on the vision of making a product, extending the learning process beyond class room and labs, by concentrating on real time student projects making a patent and production of the prototype as the core pedagogical approach. In tune with NEP 2020, it is made possible by encouraging the students to learn the World by practising with our Professors having rich Industry experience. In order to supplement, the University has adequate infra like 3-D assets, Metaverse, AR/VR for immersive learning, and over 50 Industry sponsored labs apart from the small and medium industries of its social outreach Gram Tarang group of profit making production units. For Action-learning-cum-Production, over 50 industrial verticals or DOMAINS have been integrated into the curriculum. INTERNSHIPs, which are integral to such an experience, is also provided in-house by Centurion. In this process the university has improvised the practice of lab-experiment-record with action learning pedagogy.

Centurion University adopts multidisciplinary, experiential and participative learning techniques to equip the students with analytical, application-oriented, problem-solving skills. The dynamic pedagogy adopted in the university supplements the effort towards holistic development and character building of each of our students. This document captures glimpses that bring out the essence of student centric methods used for enhancing student learning experience.

With the implantation of NEP-2020, students are encouraged to explore, experience, make things happen and lead their own journey of learning. The expected outcome is making students empowered and ready to transform the world by becoming entrepreneurs.



The above model depicts the approach of the university towards adopting student centric methods for enhancing learning experiences leading to holistic development and transformation. The following table summarizes various activities undertaken to foster experiential, participative learning and problem solving skills among students.

TRANSFORMATIONAL STUDENT CENTRIC METHODS ADOPTED	FOR ENHANCING STUDENT LEARNING EXPERIENCE THROUGH		
	Experiential Learning	**Participative Learning**	**Problem Solving**
1. Projects and Field Practicum			
1.1 Projects as built-in components of the courses	√	√	√
1.2 Standalone minor and major projects leading to prototypes and patents	√	√	√
1.3 Live projects in domain courses	√	√	√
2. Industry-Academia Partnerships			
2.1 Industry Integrated Labs	√	-	√
2.2 Industry responsive programs (Domains)	√	√	√
2.3 Licensed softwares and Industry level technology platforms	√	-	√
2.4 Internships and Apprenticeship	√	√	√
2.5 Industry Visits and Exposure Visits	√	√	-
2.6 Knowledge on wheels	√	-	-
3. Skill Courses	√	√	√
4. Events			
4.1 Guest Lectures, Seminars, Workshops and Symposia on new age topics	√	√	-
4.2 Student Seminars, Presentations, Wall Magazine and Newsletter	√	√	-
4.3 Practitioners handling themes	-	√	-
4.4 Exhibitions, hackathons and entrepreneurial expo.	√	√	√
5. Contemporary Learning-Teaching Ecosystem			
5.1 Group learning and flip class pedagogy	-	√	-
5.2 ICT enabled teaching and learning	√	-	-
5.3 Case Studies	-	√	√
5.4 Dissertations and Book Reviews	√	-	√
6. University-Community Linkages	√	√	√
7. Focus on value based education / character development / responsible citizens	√	√	-

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Introduction

Centurion University since inception is committed to ensure holistic development of students through student-centric learning processes. The university espouses hands-on learning skill among students by providing them much required facilities for collaborative action and problem-solving skills through active involvement in real-life projects. To summarise:

- Transformational Curriculum Design: Centurion University has transformed the traditional functional focus in learning and brought in product focus. The prevailing practice of distribution of credits of Theory-Lab is replaced in all the courses with Theory-Practice-Project-Internship-Product. This makes sure that the curriculum encouraged students to look beyond class room into the outside world for learning.
- Immersive learning infrastructure: CUTM's constant interaction with the Industry has made the students learn plugging in with the Industry.
- Working FOR Industry is replaced by working WITH Industry. The 50+ industrial domains and 100+ skill courses offered has made sure that the students are sufficiently exposed and exploring with real life tools. Centurion has also set up 3D immersive labs, so that students are exposed to experiential learning. This helps the students to transform most of the theory curricula into flip class methodologies aided by immersive assets.
- Industrial incubation: Our labs, through its incubated Gram Tarang Units, do over 150 crores of revenue through products and services. This gives students and faculty abundant exposure and playing ground to explore their transformational capacities.
- Through internship and apprenticeship students get an opportunity to align their classroom knowledge with that of the industry. The University also provides in-house apprenticeship through GramTarang, UMBC, GT Foods etc. Research Centres (RCs) of the University also provide apprenticeship in interdisciplinary R&D activities leading to product, process and patent development.
- Faculty as coaches: Focus is on preparing the faculty for supporting such learning. The research centers (RCs) and Industry plug-ins, abundant use of adjunct faculty and technicians in teaching. A constant focus on teacher training to make the faculty competent coaches in inter-disciplinary areas.
- WOW projects: The University conducts in-house internship leading to WOW projects/products competitions and rewards the faculty and students. This is aligned

with the process of Hackathon challenging all to think out of box and to excel in social media.

All these are blended suitably in our curriculum. The following practices provide the broad spectrum of initiatives undertaken in the university to make the learning student-centric with focus on outcome based learning.

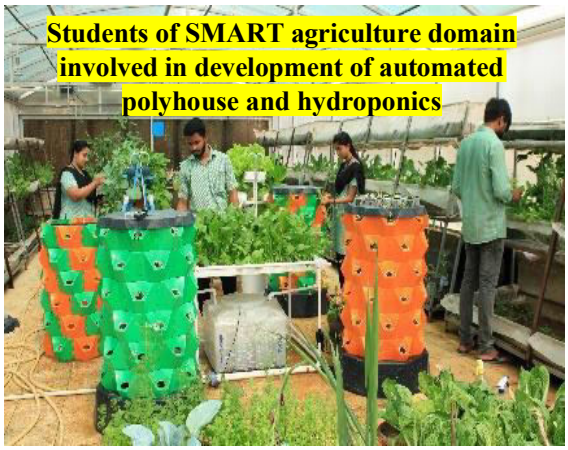
1. Projects and Field Practicum


Students of B.Sc. Agriculture involved in transplantation activity

Projects ensure active learning on the part of student by approaching a problem in a systematic manner and provide solutions by engaging in critical thinking. All projects include realistic planning in a time bound manner and researching about the issue and possible solutions from a holistic angle. It ensures creative thinking and application of the knowledge and skills learnt beforehand. Group project endorses participative learning among the students, experts and the mentors through collaboration.

Students and faculty of School of Engineering and Technology involved in development and test of drones

1.1 Projects as built-in components of the courses



Students of SMART agriculture domain involved in development of automated polyhouse and hydroponics

There are no conventional courses or pedagogy. We follow a combination of Theory + Practice + Project (T+P+P) model for each course offered to the students irrespective of programs. The course type with credit distribution is mentioned in the syllabus of each program. Most of the courses have project components in built to the course. The session plan (Annexure-1) specifies the projects to be carried out by the students. The curriculum transaction happens accordingly.

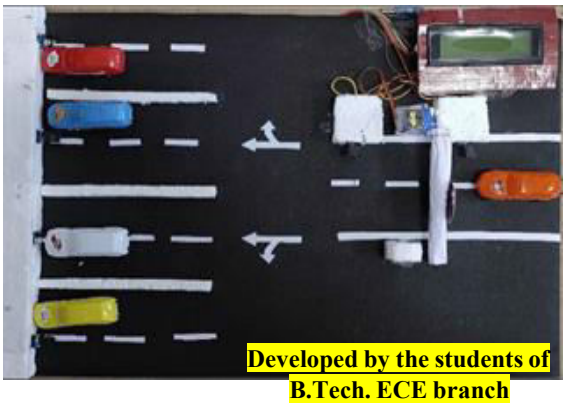
1.2 Standalone minor and major projects leading to prototypes and patents

There are standalone project courses in various programs of the University beyond in-built components of a course. For example: CUTM1023- Smart Engineer Project of 3 credits in B. Tech, CUTM1941- Project of 20 credits for MBA with specialization in Pharmaceutical Management, CUTM1633- Project of 24 credits for M.Sc. Cybersecurity, CUTM1658- Project of 12 credits for M.Sc. Forensic Science, CUTM1756- project of 12 credits for M.Sc. Paramedics, CUTM1906- Minor Project-I for B. Tech, etc.

These standalone projects help the students look beyond the curriculum for practical application of the concepts, gain real-life experience trough creative problem solving by producing patents and products. Few projects of students are captured here.

i. Smart Car Parking System

A smart car parking system gives a visual output indicating an available parking space rather than driving aimlessly. When a vehicle enters the space, sensors detect its presence and calculate available parking slots. This information is then sent to the driver's phone via an app. The smart parking system also has real-time data on occupancy rates, which can be found on the app.

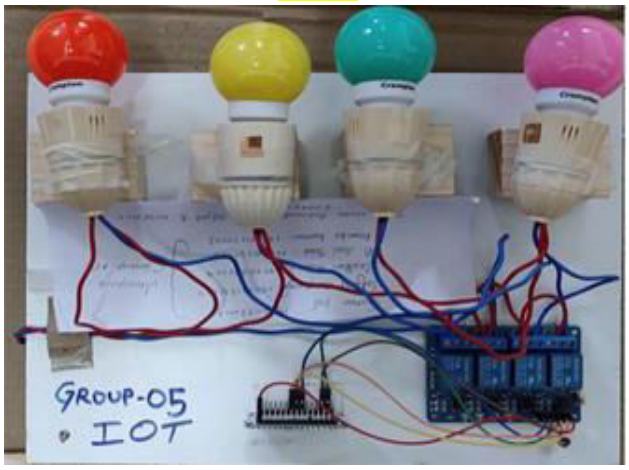


Developed by the students of B.Tech. ECE branch

ii. IoT Based Home Automation System

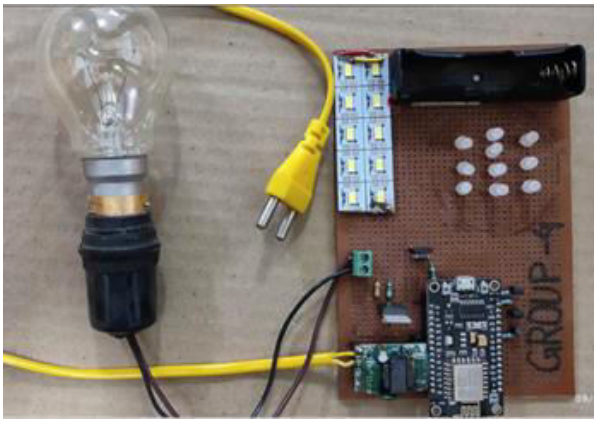
IoT-based smart home automation systems are designed to monitor and control the attributes you want to manage. IoT home automation is the ability to control domestic appliances by electronically controlled, internet-connected systems. It may include setting complex heating and lighting systems in advance and setting alarms and home security controls, all connected by a central hub and remote-controlled by a mobile app.

Developed by the students of B.Tech. Computer Science



iii. Smart RGB LED Bulb with Emergency Lighting System

The hub is attached to a port in your router, but sometimes, smart bulbs don't have smart hubs at all. There is wireless technology built into the bulb itself to send messages between your device, the hub (if any), and the bulb, resulting in the bulb turning on or off, changing colors, dimming, or brightening. Here we are using NodeMCU to control the RGB light through Blink Android Application and also the system is attached through a Li-Ion Battery to provide emergency Lighting.

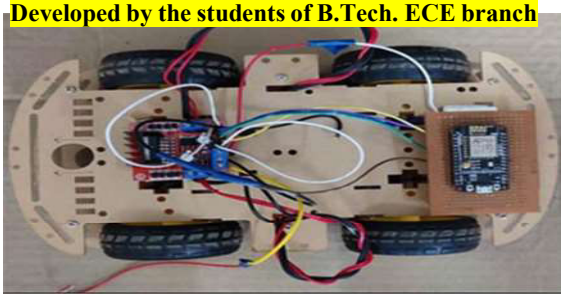


Developed by the students of B.Tech. EEE branch

iv. Android App controlled Mobile Robot CAR

Android controlled robot project makes use of an Android mobile phone for robotic control with the help of wireless/Bluetooth technology. This is a simple robotics project using a NodeMCU.

Developed by the students of B.Tech. ECE branch



v. Smart Helmet

Developed by the students of SMART engineering domain

A smart helmet is a device that makes a traditional helmet look dumb. Smart helmets have added features that can help riders drive safer, more efficiently and enhance their driving experience. Smart helmets can include some or all of these features: Bluetooth connectivity.

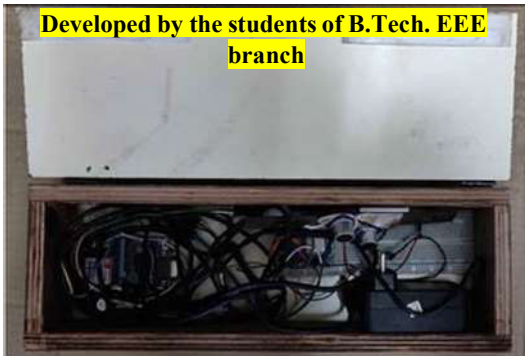
1.3 Live projects

Live projects and field experiments are an integral part of various programmes. Students have the liberty to undertaken such projects individually or in groups. These live projects provide critical insights into the functioning of the industries. It also helps them to boost their confidence, teaches them team work and enhances their leadership, communication besides analytical and problem solving skills.

i. IoT based Smart Transformer

Smart transformers are controlled dynamically allowing facilities to monitor and manage the transformers directly during the period of power fluctuations – and helping them ensure that their power supply remains voltage optimised even when new demands are being placed upon it. One can able to continuously monitoring the operation of transformer as well as tack care of it. Here we are using Node MCU as a controller to programme the IoT devices and also provided the Authorized login to make it secure from unwanted data manipulations.

Developed by the students of B.Tech. EEE branch

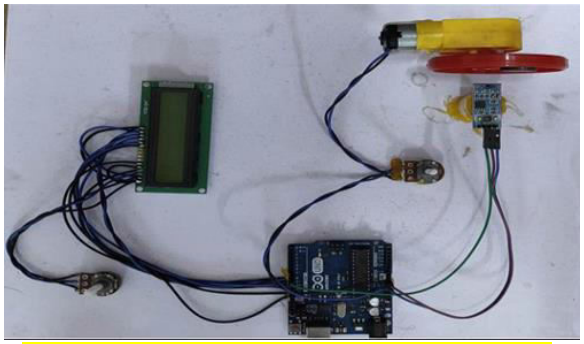


ii. Hybrid Electric Bi-Cycle

Developed by the students of Automobile Engineering domain

A hybrid electric bike is exactly what it sounds like – a combination of a e-road bike and a e-mountain bike. Hybrid bikes feature all the best bits to create a great all-rounder that's perfectly suited to sorts of terrain. Electric hybrid bikes really shine in the urban environment. E-Cycle is a motorized bicycle that comprises an integrated electric motor to assist propulsion.

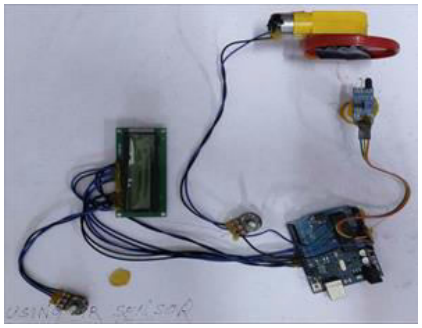
iii. Hall Sensor Based Seed Measurement of Vehicle



Developed by the students of B.Tech. ECE branch

The designed system can measure the actual speed of a bicycle using the rotational speed of a bicycle wheel. The system implemented by using the Hall Effect sensor that will detect the magnet. The microcontroller then processes the data and convert the rotation per second into linear velocity. Its application is most popular among the Digital speedo meter system.

iv. IR Sensor Based Speed Measurement of Vehicle



Developed by the students of SMART engineering domain

Vehicle speed detection is used to estimate the velocity of the moving vehicle using image and video processing techniques. Without any camera calibrations video is captured and analyzed for speed in real time. By employing frame subtraction and masking techniques, moving vehicles are segmented out. To solve for speed or rate use the formula for speed, s = d/t which means speed equals distance divided by time.

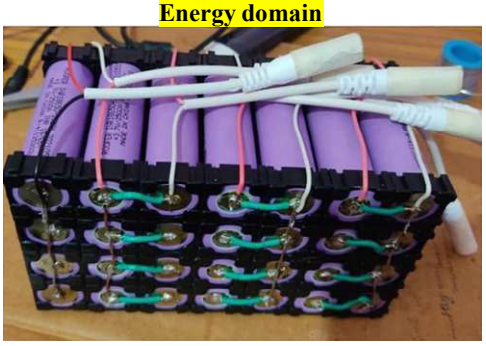
v. Battery Management System

A BMS monitors the temperatures across the pack, and open and closes various valves to maintain the temperature of the overall battery within a narrow temperature range to ensure optimal battery performance. Not only is a BMS important in indicating the health of a battery, but it also functions to protect the battery while in operation. Each battery cell and chemistry have voltage, temperature, and current range within which it can safely operate.

Developed by the students of Renewable Energy domain

vi. Battery Pack-48Volt-10Ah

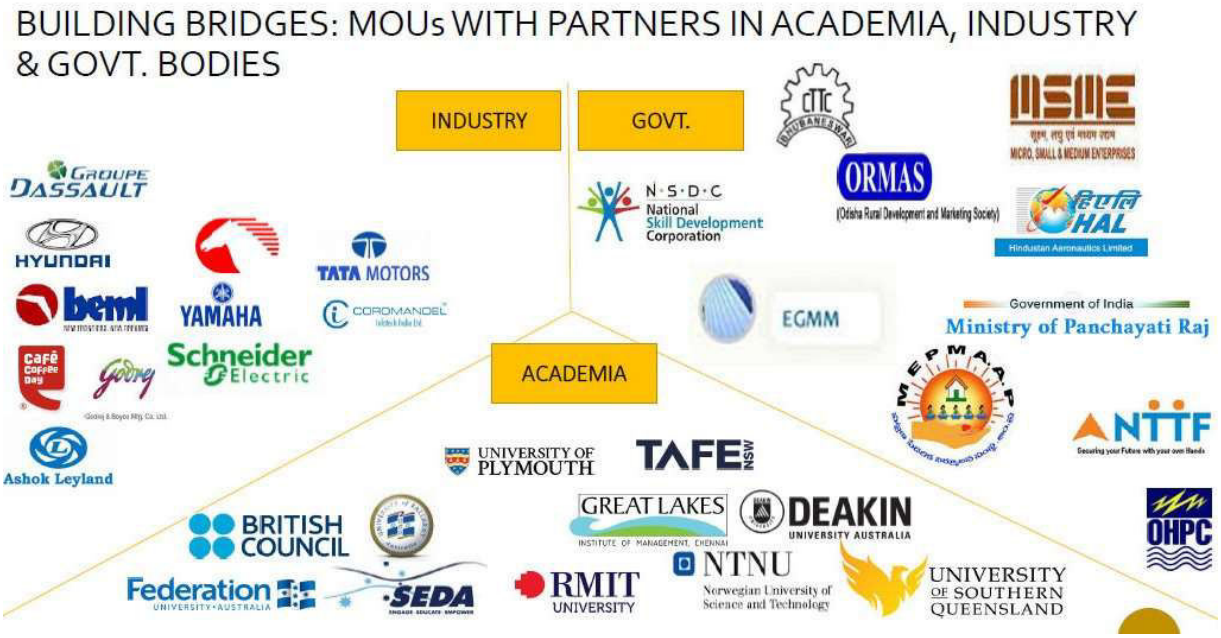
A lithium-ion battery or Li-ion battery is a type of rechargeable battery composed of cells in which lithium ions move from the negative electrode through an electrolyte to the positive electrode during discharge and back when charging. Energy is stored and released as lithium ions travel between these electrodes through the electrolyte. The charger passes current to the battery. Lithium ions move from the cathode to the anode through the electrolyte. The battery is charged by a potential difference between the two electrodes.



2. Industry-Academia Partnerships

2.1 Industry Integrated Labs

The university has several state-of-the-art action learning laboratories in active collaboration with various industry partners.




1 Automotive
2 Manufacturing & Energy
3 Agriculture
4 Hospitality
5 Healthcare
ASHOK LEYLAND
YAMAHA
EICHER
HYUNDAI
Godrej
P.A.C.E.
JUKI
JUKI INDIA PVT LTD
HAL
Schneider Electric
DASSAULT SYSTEMES
Kalgudi
Café Coffee Day
BURGER KING
ManipalHospitals
LIFE'S ON
GE Healthcare
© Confidential
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Working with the differently abled
Mindtree
Welcome to possible
Mindtree
Differently-abled Learning Lab
INDIAN SIGN LANGUAGE ADVERT
MY ABILITY IS STRONGER THAN MY DISABILITY






Industry integration with Yamaha



Renewable Energy Labs in partnership with Schneider Electric

World-class Healthcare labs

GE Healthcare

Joint skill development courses with Ashok Leyland

Textiles: Spinning & Power Looms

Café Coffee Day Program

2.2 Industry responsive programs (Domains)

Domain specific courses are offered in partnership with various industries and academic institutions. The university has collaborated with various universities and scientific institutions for the purpose. Guidance, delivery and evaluation of the domain courses are usually done by practitioners (Professor of practice). For example, the Go-To-Market domain has partnership with Dassault Systemes; the automobile engineering domain has partnership with Yamaha, Hyundai, Ashok Leyland; the renewable energy applications domain has partnership with Snyder and Selco; business analytics and data analytics domains have partnership with Hitachi Vantra.

2.3 Licensed softwares and Industry level technology platforms

In order to enhance the experiential learning, we provide our students with proprietary and open sourced softwares and platforms. At present we have state of the art laboratories for advanced research on Artificial Intelligence, Drone technology for surveillance & application in agriculture, Digital simulation of manufacturing facilities, Electric vehicle technology, Chat bots, XR & gaming offerings, Humanoid technology to perform tasks, Product innovations like a single seater gyroplane, Low cost 3D printer etc.

Flagship Program: Go to market in 100 days with Dassault

Digital Product Development in partnership with Dassault

Product Validation

Meshing of Monocoque chassis

Static load analysis of Heavy vehicle

Learning

- Overview of Finite Element Analysis
- Stage of Analysis
  - ✓ Pre-Processing - 2D & 3D Meshing, Material Assignment, Load cases
  - ✓ Solving – Solving on Abaqus, Simulia
  - ✓ Post-Processing – Result evaluation, Stress & Strain graph
- Types of Analysis
  - ✓ Static load Analysis
  - ✓ Service Level Analysis
  - ✓ Dynamic Load Analysis- Apply constraint during simulation, Apply material properties, Observe behavior of the suspension of E-Bike.
- Overview on Computational Fluid Dynamics (CFD) Analysis- Numerical analysis, Data structure to analyze fluid flow behavior, Study of Mesh of CFD.

Technology/Software

- 3DEXPERIENCE Platform of Dassault Systemes
- SIMULIA – Structural model, Structural Scenario, Mechanical scenario, structural validation, Durability validation, Fluid model, physics results.
- ABAQUS CAE

Product Design

Scope

- Digital Product Design
- Market study of Problem Statement
- Tear Down and Bench Marking
- Concept Design
- Basic Hand calculation
- Product Costing & Target Cost
- Product Design – System & Subsystem
- Product Integration
- System Engineering - Mech – EE – ECE
- Design Review – Virtual Reality
- Simultaneous Engineering
- Design Optimisation
- Prototyping

Technology/Software

- 3D EXPERIENCE Platform of DS
- CATIA (Sketcher, Part design, Drafting, Assembly, Remastering, Welding design)
- CATIA Sheet metal Design
- CATIA Live Rendering
- CATIA ICEM Surface Design
- CATIA BIW Design
- DYMOLA

2.4 Internships and Apprenticeship

Students opt for internship in organizations. Internship is assigned with credits in different schools. It provides an opportunity to translate classroom knowledge into practice in organizations. We also provide apprenticeship to students in the domain area to hone their skills.

Students of B. Tech. during their apprenticeship

Students of School of Paramedics and Allied Health Science during their apprenticeship

2.5 Industry and Exposure Visits

Departments arrange industry visits and exposure visits on regular basis barring the COVID years for students to provide exposure and to get insight into the internal working environment of the companies. It sensitizes students to the practical challenges that organizations face in the business world. Moreover, it helps the student in internalizing the different facets of the functions and technologies being used in the organizations.

Students of School of Paramedics and Allied Health Science during their exposure visits

3. Skill Courses

The university is a pioneer in integrating skill courses in higher education in India. It offers more than 100 skill courses to all students of the University to gain hands on experience. These skill courses are meant for experiential learning and problem solving. Annexure-2 contains the list of Skill Courses offered by the university. The university has also developed several specializes skill courses as per the requirements of the sector skill council.

BUILDING BRIDGES: ASSOCIATION WITH SECTOR SKILL COUNCILS


1. CUTTING


2. STITCHING


3. ASSEMBLY


4. INSPECTION


5. SANITIZING & HEAT TREATMENT


6. PACKAGING & DISPATCH


1. DESIGN & PURCHASE


2. FABRICATION


3. CORE ASSEMBLY


4. LT COIL WINDING & HT COIL WINDING


5. CORE & COIL ASSEMBLY

4. Events

4.1 Guest Lectures, Seminars, Workshops and Symposia on new age topics

As part of academic development, all Schools organise guest lectures, seminars, workshops and symposia on new age topics. The topics are chosen on the basis of relevance and cutting-edge practices.

Glimpses of a few seminars at CUTM

4.2 Student Seminars, Presentations, Wall Magazine and Newsletter

Students of different schools have initiated clubs under the mentorship of faculty members. The clubs are promoted to conduct seminars, presentations, put articles in wall magazine and develop newsletter on contemporary and advance topics to enrich their learning experience.

Result of poster competition among students

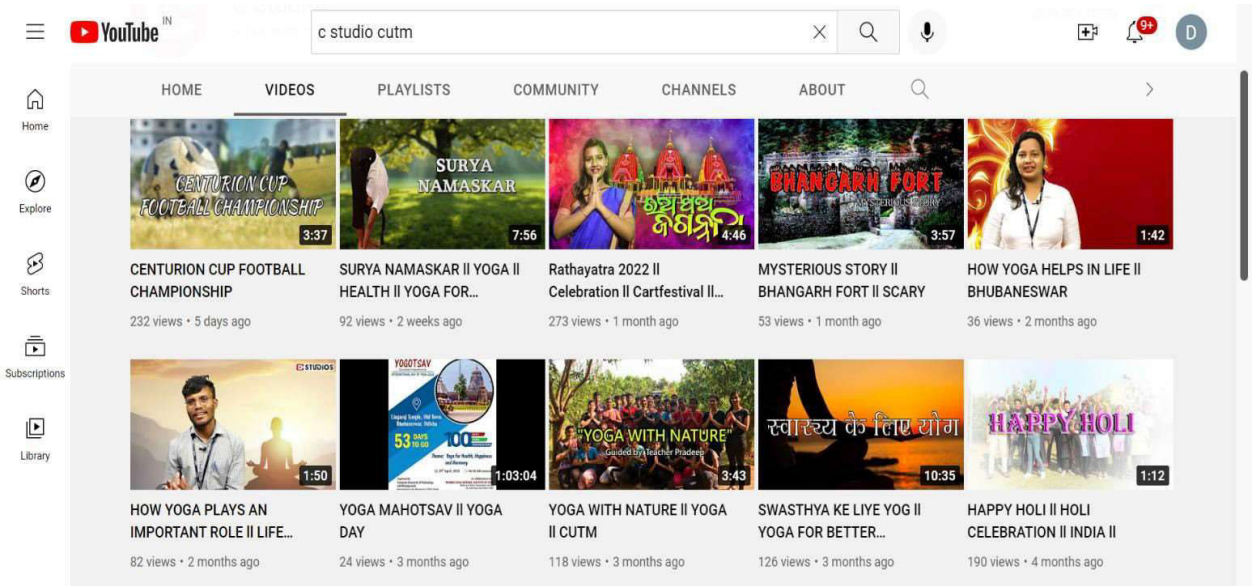
1st Prize

2nd Prize

3rd Prize

Student managed infotainment YouTube Channel

Students of School of Media and Communication are actively involved and are managing a YouTube channel named as "C Studios".



4.3 Practitioners handling themes

In order to enhances the problem solving and analytical skills of students, the University engages practitioners from industry to handle advance themes/ topics on regular basis.

Glimpses of practitioners interacting with students

4.4 Exhibitions, hackathons and entrepreneurial expo.

University on a continuous basis promotes events like project demonstrations, product competitions, idea generation forums, and entrepreneurial events to encourage students to engage in design thinking and innovation.

Glimpses of exhibitions, hackathons and entrepreneurial expo.

5. Contemporary Learning-Teaching Ecosystem

5.1 Group Learning and Flip the Class Pedagogy

Group assignments, group discussions, brainstorming sessions and projects are part of the curriculum design that ensures peer learning. Flip class pedagogy and material sharing with students ensures learning at the pace of the learner.

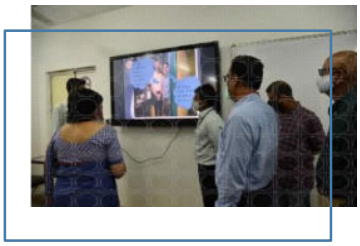
Students engaged in group learning



5.2 ICT Enabled Teaching

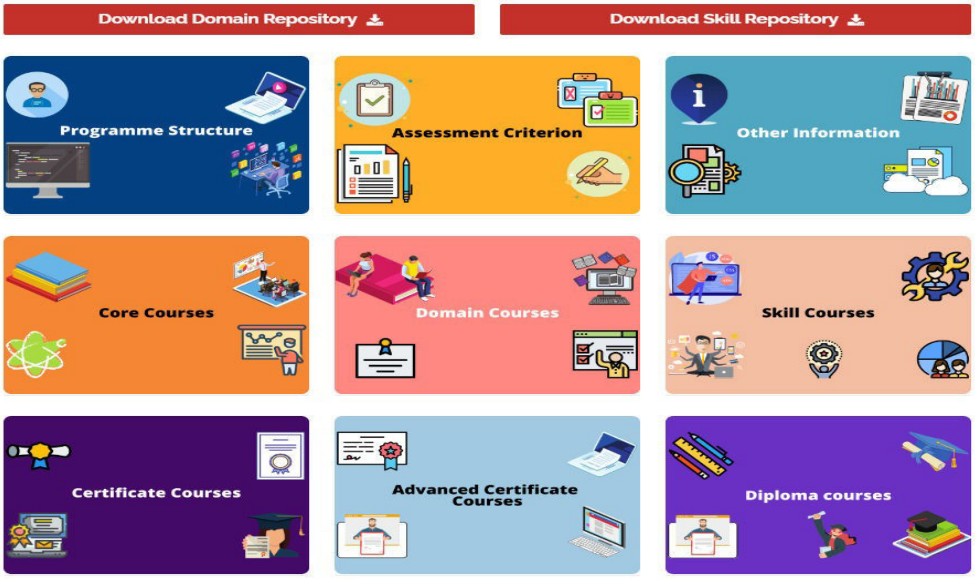
ICT enabled teaching includes Wi-Fi enabled classrooms with LCD, Well equipped Language Lab and Smart Classrooms.

Students of School of Management making presentations in smart classrooms


Supplementing classroom learning, E-learning resources are also available in the Centurion Courseware of the University for the use of students which they can access at any time and from anywhere.

Screenshot of CUTM Courseware



5.3 Case Studies

Case studies are used extensively to enhance critical thinking, problem-solving, communication, and developing interpersonal skills. The students actively participate to discuss and find plausible solutions to real problems encountered by organizations.

Students of School of Management involved in case discussion

5.4 Dissertations and Book Reviews

Certain schools offer dissertation courses to promote self-learning under the mentorship of faculty members or industrial personnel with regular monitoring mechanism.

6. University-Community Linkages

While the academic fraternity largely identifies itself to be linked to industry; we take immense pride to identify ourselves to be equally close to the community. We extend the same approach to our teaching-learning process. We deliver experience based learning, hands on knowledge, practice oriented education by integrating with local communities (especially in remote, economically and socially challenged areas).

Our students work and assist members of the local community to be self-sufficient. Such associates help our students understand the dynamics of rural society and economy. It develops a sense of belongingness and empathy towards the marginalized section of the society.

Special workshop managed by students for Anganwadi workers

Students of School of Agriculture involved in rural agriculture work experience programme

6.1 Knowledge on wheels

'Knowledge on wheels for famer's education' is extensively used by the students of M.S. Swaminathan School of Agriculture to train the farmers of rural hinterland as part of community extension program.

Similarly, there is a separate knowledge on wheels used by the School of Engineering and Technology to demonstrate, train and help the rural technicians especially automobile workers at their location.

Knowledge on Wheels for automobile training

6.2 Community Diagnostic Center and Free Health Check-up

Students of School of Paramedics and Allied Health Science as part of community engagement and learning thereof continuously engaged in Community Diagnostic center to carry out tests and visit different rural areas for free health check up of the community members.

Free Health checkup programmes conducted by students of SOPAHS

Free Vision Check-up programmes conducted by students of SOPAHS

6.3 Community Action Learning Program

Community Action Learning Programme (CALP) of SoVET is an initiative to expose the students (2nd and 3rd year) to the real world (much beyond the classroom and campus) where they are supposed to apply their learning towards solving the problems in their community to unlearn, relearn and uplearn. During the whole course of involvement, the students are expected to learn the art of critical thinking, problem solving, communication, team management, and in overall, the drive for developing a responsible citizenship.

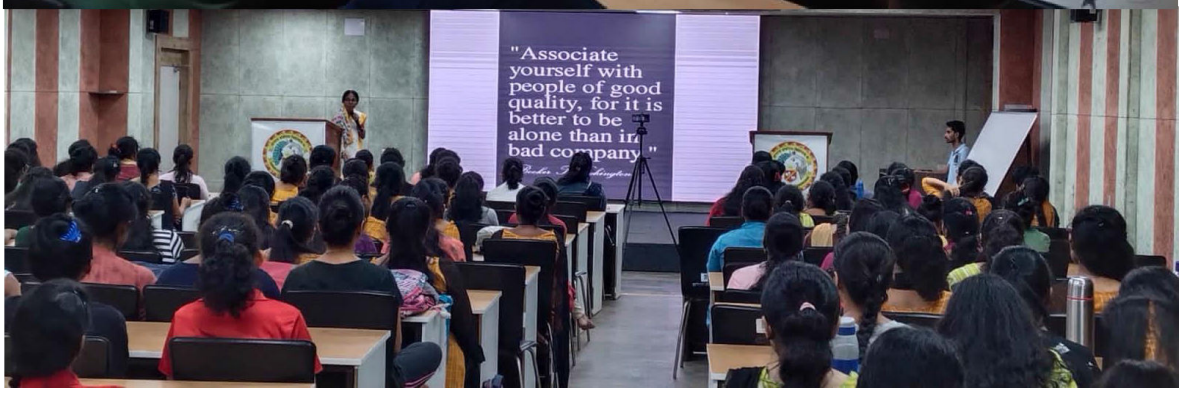
Community Action Learning Programme (CALP) of SoVET

7. Focus on value based education, character building and responsible citizen development

To nurture the students as responsible citizen of the country focusing on integrating societal value systems and character building, university offers value added courses for each student of the University.

Celebration of International Yoga day by faculty and students

Glimpses of various awareness programmes and seminars conducted for students on value based education



Annexure-1 Session Plan (sample)

ADVANCE MANAGERIAL ACCOUNTING

Code: MGFM2310 Credit: 3+0+1

Course Rationale:
Advent of new business models and a rapid evolution of new businesses driven by factors such as digital technologies requires finance managers/leaders to adapt the financial information for it to remain relevant (over and beyond what is mandated by the regulators and markets) for the business leaders. This course builds a strong foundation in managerial accounting as well as exposes the students to the emerging concepts/metrics relevant for new age businesses.

Course Objective:

- CO1.To equip the students with various concepts, tools and techniques Cost and Management accounting.
- CO2.To provide thorough understanding and techniques of financial statements analysis.
- CO3.To provide an understanding of methods of cost accounting and its relevance in management decision making.

Learning Outcomes
On successful completion of this course, students will be able to:

- LO1.Critically analyze and improve the operations of organisations through the application of management accounting techniques;
- LO2. Read, interpret and analyze financial statements; combine financial analysis with other information to assess the financial performance and position of a company;
- LO3. Apply relevant costing methods to analyze specific business issues.
- LO4.Develop (plan and forecast) budgets for difference business.

Course Outline
Module: I Concept of Management Accounting
Concept; Tools of Management Accounting; Difference between Financial Accounting, Cost Accounting & Management Accounting, and their Scopes; Role of Management Accountant in Decision Making

Module: II Financial Performance Analysis
Corporate Financial Statements: Income Statement and Balance Sheet, concepts of triple balance sheet and The integrated report framework
Financial Statement Analysis: Common Size Statements, Comparative Analysis, Trend Analysis, Financial Ratio Analysis, Inter-firm and intra-firm comparison.

Module: III Standard Costing and CVP Analysis
Standard Costing and Variance analysis: Concept of Standard Cost and Standard Costing, Types of Variance (Material Variance and Labour Variance); Activity Based Costing
CVP Analysis and CVP Application in decision making;

Module: IV Budgetary Control
Budget, Budgeting, Classification of Budget: Cash Budget, Fixed Budget and Flexible Budget, Zero-Base Budgeting, Responsibility Accounting;

Text Books:
1.Horngren, Foster & Dater - Cost Accounting: A Managerial Emphasis (Pearson)
2.M.N. Arora – Cost and Management Accounting Theory and Problems Vikash
3.Khan and Jain- Management Accounting-TMH
4.P C Tulsian-Cost Accounting-S Chand

Session Plan

Topic coverage and Internal Test	No. of Sessions (in hrs.)	Activity (lecture, tutorial, lab practice, field studies/field-trip, Workshop)	Assignment (project, assignment, field study, seminar, etc.)	Suggested Reading (Book, Video, Online source, etc.)
Discussion of Course Contents and Session Plan	1	Discussion		https://www.youtube.com/watch?v=jXTf_mn--LQ
Introduction to Management Accounting, Concept of Management Accounting, Nature of Management Accounting	1	Discussion		https://www.slideshare.net/tangiralasruthi/management-accounting-44401238 https://www.youtube.com/watch?v=6oWTJR1zBCI
Functions of Management Accounting, Scope of Management Accounting , Financial Analysis, and Planning	1	Discussion	Assignment	https://www.slideshare.net/tangiralasruthi/management-accounting-44401238 https://www.youtube.com/watch?v=rAogrxqXAeI
Tools of Management Accounting	1	Discussion	Assignment	https://www.slideshare.net/basiljoe010/tools-techniques-of-management-accounting https://www.youtube.com/watch?v=oqauubgsz5I
Difference between Financial Accounting, Cost Accounting & Management Accounting	1	Students' Presentation	Assignment	https://www.slideshare.net/MidhunChandran1/difference-between-financialcost-and-management-accounting https://www.youtube.com/watch?v=qISkyoiGHcI
Project on Management Accounting and its Application as A Variable Tools for Organisational Decision Making	2	Students' Presentation	Project	https://nairaproject.com/projects/2592.html
Corporate Financial Statements, Financial Statements of a company	1	Discussion	Assignment	https://slidemodel.com/templates/financial-statements-powerpoint-template/ https://www.youtube.com/watch?v=KD_cL-6jmms
Corporate Financial Statements, Financial Statements of a company	2	Students' Presentation	Project on Financial Statements of a company - From Annual Report like TCS, TVS Motor, Tata Steel, RIL, etc.	
Overview of Financial Statements Analysis, Business Analysis ,Types of Business Analysis, Components of Business Analysis	1	Discussion	Assignment	https://www.slideshare.net/waelsaid75/business-analysis-fundamentals-13531682 https://www.youtube.com/watch?v=XsKdzHVEXig
Project on Business Analysis- From Annual Report like TCS, TVS Motor, Tata Steel, RIL, etc.	2	Students' Presentation	Project	
Analysis of Financial Statements Meaning Significance Objectives Advantages	1	Discussion	Assignment	https://www.slideshare.net/bentot25/financial-statement-analysis-35636795 https://www.youtube.com/watch?v=kSO7jLwHcME https://www.youtube.com/watch?v=WMDYKDGWGl8&t=158s
Tools of Analysis of Financial Statements	1	Students will enter the financial	Case Study on Financial Statement Analysis of Tata Steel	https://www.slideshare.net/johnobote/tools-of-financial-analysis-and-control

		statement data in excel	http://www.questjournals.org/jrbm/papers/vol4-issue10/G4104960.pdf	https://www.youtube.com/watch?v=hGFG4fbd4Lk 1Students will enter the financial statement data in excel
Comparative Finance Statements Analysis	1	Students will prepare the comparative financial statement data in excel	Project	https://www.youtube.com/watch?v=RlmWa5XiJBA&t=8sSession 16
Common Size Financial Statement Analysis	1	Students will prepare the common size financial statement data in excel	Project	https://www.youtube.com/watch?v=tTKX03hwEf8
Trend Analysis	1	Students will prepare the trend analysis financial statement data in excel	Project	https://www.youtube.com/watch?v=SUr-ZzFBGcQ
Financial Ratio Analysis	1	Discussion	Assignment	https://www.youtube.com/watch?v=3yPsHSrE7Ic https://www.youtube.com/watch?v=VpuKG6CdmQ0
Liquidity Ratios and Efficiency Ratios	1	Students will find out the Liquidity Ratios and Efficiency Ratios in excel	Project	https://www.youtube.com/watch?v=x7piBwj4ar8 https://www.youtube.com/watch?v=Xgie4sAzlbw
Leverage Ratios and Coverage Ratio	1	Students will find out the Leverage Ratios and Coverage Ratio in excel	Project	https://www.youtube.com/watch?v=5ufQekp-KIg https://www.youtube.com/watch?v=vyGRBPLReiY
Profitability Ratios	1	Students will find out the Profitability Ratios in excel	Project	https://www.youtube.com/watch?v=ROqkmlVuXKU https://www.youtube.com/watch?v=VOn03QDHgTU
Project on study of Financial Statement Analysis through excel of different Companies like TCS, TVS Motor, Tata Steel, RIL, etc.	3	Students' Presentation	Project	
Activity-Based Costing: Concept, Stages in Activity-Based Costing, Classification of Activities, Advantages of Activity-Based Costing, Essentials Factors of a Good Activity-Based Costing System	2	Discussion	Assignment	https://www.slideshare.net/ATBHATTI/activity-based-costing-system-15438620 https://www.youtube.com/watch?v=v_0podBvSRw
Project on Analysis of Activity Based Costing	1	Students' Presentation	Project	
Standard Costing and Variance Analysis: Standard Cost, Standard costing, Advantages of Standard Costing, Limitations of Standard Costing, Organisation for Standard Costing, Setting of Standard	1	Discussion	Assignment	https://www.slideshare.net/speedkings/standard-costs-and-variance-analysis https://www.youtube.com/watch?v=1rBh2cTMS1c
Variance Analysis: Types of Variances. Cost Variance, Direct Material	2	Practice Problem on variance analysis	Assignment	https://www.youtube.com/watch?v=Z0fMdDFc40k

Cost Variance, Direct Labour Cost Variance				
Project on Variance Analysis	1	Students' Presentation	Project	
CVP Analysis and CVP Application in decision making;	2	Discussion	Assignment	https://www.slideshare.net/dhiraj.gaur/presentation-cvp-analysis-140908?next_slideshow=1 https://www.slideshare.net/Arifs18/applications-of-marginal-costing https://www.youtube.com/watch?v=g6NOuFS6DcE
Project on CVP Application in decision making	2	Students' Presentation	Project	https://nairaproject.com/projects/2589.html Students' Presentation
Budgeting and Budgetary Control: Concept, Essentials of a Budget, Forecast Vs Budget, Budgetary Control, Objectives of Budgetary Control, Compare between Standard Costing and Budgetary Control, Organisation for Budgetary Control, Organisation Chart, Budget Centre, Budget Committee, Budget Manual, Advantages of Budgetary Control	1	Discussion	Assignment	https://www.slideshare.net/KajalSharma79/budget-budgeting-and-budgetary-control https://www.youtube.com/watch?v=HBspBqK0BcI
Types of Budgets: Classification on the Basis of Time, Classification on the Basis of Function, Classification on the Basis of Capacity, Flexible Budget, Cash Budget	1	Practice Problem on the preparation of budget	Assignment	https://www.slideshare.net/ranasingh0820/types-of-budgets-5773243 https://www.youtube.com/watch?v=bzosH81ocZY
Zero Base Budgeting (ZBB), important Aspects of ZBB, Steps Involved in ZBB, Advantages of ZBB	1	Discussion	Assignment	https://www.slideshare.net/drkulrajat/zero-base-budgeting-37415409 https://www.youtube.com/watch?v=DmP67cH03zM
Project on Analysis of Budgetary Control Small Business	2	Students' Presentation		
Responsibility Accounting	2	Discussion	Assignment	https://www.slideshare.net/SangamVishwakarma1/responsibility-accounting-59930742 https://www.youtube.com/watch?v=VlfkZrl0Gl0

Annexure-2 List of Skill Courses

Sl No.	Code	Corse title	Credit	T+P+P
1	CUTM3029	Apparel Production & Marketing	4	0+3+1
2	CUTM3030	Line Stitching Supervising	4	0+3+1
3	CUTM3031	Apparel Production	4	0+3+1
4	CUTM3032	Light Motor Vehicle Driving	4	0+3+1
5	CUTM3033	Fork Lift Operation	4	0+3+1
6	CUTM3034	Heavy Vehicle Technology	4	0+3+1
7	CUTM3035	Two Wheeler Service Technology	4	0+3+1
8	CUTM3036	Four Wheeler Service Technology	4	0+3+1
9	CUTM3037	E-Vehicle Assembly and Service Technology	4	0+3+1
10	CUTM3038	Robotics	4	0+3+1
11	CUTM3039	CNC Machinist	4	0+3+1
12	CUTM3040	CNC Programming (CAM)	4	0+3+1
13	CUTM3041	Design Supervising Wooden and Modular Furniture	4	0+3+1
14	CUTM3042	Introduction to Composite Manufacturing	4	0+3+1
15	CUTM3043	Computer Aided Drafting	4	0+3+1
16	CUTM3044	Pottery	4	0+3+1
17	CUTM3045	Precast Concrete Manufacturing	4	0+3+1
18	CUTM3046	Fabrication	4	0+3+1
19	CUTM3047	Hi-Tech Surveying	4	0+3+1
20	CUTM3048	Internet of Things	4	0+3+1
21	CUTM3049	Mechatronics System Design	4	0+3+1
22	CUTM3050	Plant/Drug Research using Biovia	4	0+3+1
23	CUTM3051	Introduction to Nanotechnology	4	0+3+1
24	CUTM3052	Drone Piloting	4	0+3+1
25	CUTM3053	Camera Operation	4	0+3+1
26	CUTM3054	Editor	4	0+3+1
27	CUTM3055	Desktop Publishing	4	0+3+1
28	CUTM3056	Introduction to Blender and Unity tools	4	0+3+1
29	CUTM3057	Refraction Technology	4	0+3+1
30	CUTM3058	Emergency Medical Technology	4	0+3+1
31	CUTM3059	Medical Lab Technology	4	0+3+1
32	CUTM3060	Operating Theatre Technology	4	0+3+1
33	CUTM3061	Radiology Technology	4	0+3+1
34	CUTM3062	Phlebotomy Technology	4	0+3+1
35	CUTM3063	First Aid Service	4	0+3+1
36	CUTM3064	General Duty Assistance Service	4	0+3+1
37	CUTM3065	X- ray Technology	4	0+3+1
38	CUTM3066	Wantrepreneur to Entrepreneur	4	0+3+1
39	CUTM3067	Retail Sales	4	0+3+1
40	CUTM3068	Basketball	4	0+3+1
41	CUTM3069	Gym Fitness	4	0+3+1
42	CUTM3070	Swimming	4	0+3+1
43	CUTM3071	Beauty Therapy	4	0+3+1
44	CUTM3072	Yoga & Meditation	4	0+3+1

45	CUTM3073	Solar PV Installation	4	0+3+1
46	CUTM3074	Solar Lighting Technology	4	0+3+1
47	CUTM3075	Gardening	4	0+3+1
48	CUTM3076	Solar PV Microgrid System	4	0+3+1
49	CUTM3077	Solar Driven Equipment Assembly	4	0+3+1
50	CUTM3078	Solar Thermal Engineering	4	0+3+1
51	CUTM3079	Introduction to Quantum Computing	4	0+3+1
52	CUTM3080	Introduction to High-performance Computing	4	0+3+1
53	CUTM3081	Organic Farming	4	0+3+1
54	CUTM3082	Mushroom Farming	4	0+3+1
55	CUTM3083	Hydroponics Technology	4	0+3+1
56	CUTM3084	Poultry Farming	4	0+3+1
57	CUTM3085	Dairy Farming	4	0+3+1
58	CUTM3086	Vermicomposting Farming	4	0+3+1
59	CUTM3087	Transformer Manufacturing, Repairing and Maintenance	4	0+3+1
60	CUTM3088	CCTV Installation	4	0+3+1
61	CUTM3089	Electrical Installation	4	0+3+1
62	CUTM3090	Repair and Maintenance of Home Appliances	4	0+3+1
63	CUTM3091	Refrigeration and air conditioning	4	0+3+1
64	CUTM3092	Super critical Co2 plant operation	4	0+3+1
65	CUTM3093	Seed production - Paddy	4	0+3+1
66	CUTM3094	Paddy Processing and marketing	4	0+3+1
67	CUTM3095	Business Plan Preparation	4	0+3+1
68	CUTM3096	Dairy Plant operation	4	0+3+1
69	CUTM3097	Fruit processing with dryers	4	0+3+1
70	CUTM3098	Composite fabrication practice	4	0+3+1
71	CUTM3099	Powder coating practice	4	0+3+1
72	CUTM3100	Farm appliances operation	4	0+3+1
73	CUTM3101	Sewage Treatment plant operation	4	0+3+1
74	CUTM3102	Solid Waste management	4	0+3+1
75	CUTM3103	Bio fertilisers preparation	4	0+3+1
76	CUTM3104	PCB designing & fabrication	4	0+3+1
77	CUTM3105	Introduction to Block Chain Technology	4	0+3+1
78	CUTM3106	Introduction to Nutraceuticals	4	0+3+1
79	CUTM3107	Introduction to NLP	4	0+3+1
80	CUTM3108	Introduction to Computational Biology	4	0+3+1
81	CUTM3109	Product Life Cycle Management through Gate process	4	0+3+1
82	CUTM3110	New material development with Biovia	4	0+3+1
83	CUTM3111	Spectral image processing using Python	4	0+3+1
84	CUTM3112	Satellite data processing	4	0+3+1
85	CUTM3113	Working with Graphene and carbon fibre	4	0+3+1
86	CUTM3114	Adobe Tools and Illustrations	4	0+3+1
87	CUTM3115	Digital Painting	4	0+3+1
88	CUTM3120	Computer Installation and Maintenance	4	0+3+1
89	CUTM3121	3D Game Art	4	0+3+1
90	CUTM3122	Drug Design using Biovia Discovery Studio	4	0+3+1

91	CUTM3123	Opthalmic Lens and spectacle manufacturing Techniques	4	0+3+1
92	CUTM3124	Medical Diagnostic Techniques_	4	0+3+1
93	CUTM3125	Introduction to Aquaponics	4	0+3+1
94	CUTM3126	Polyhouse Automation	4	0+2+2
95	CUTM3127	Development of Processor (Shakti)	4	0+2+2
96	CUTM3128	Spectroscopy	4	0+2+2
97	CUTM3129	Extraction Technologies	4	0+2+2
98	CUTM3130	Gamified DIY kits using Lasers	4	0+2+2
99	CUTM3131	VR Assets Development	4	0+2+2
100	CUTM3132	Concrete paver Manufacturing	4	0+2+2
101	CUTM3133	GIS and Remote Sensing: Applications in Participatory Natural Resource Management	4	0+2+2
102	CUTM3134	GIS and Remote Sensing: Application Development	4	0+2+2

Annexure-3 Objectives and Learning Outcomes

HORTICULTURE NURSERY

Introduction:

Horticulture nursery plays a pivotal role for nurturing the plants by providing them optimum growing conditions to ensure germination. Nursery saves considerable time for the raising of the next crop. Among flower crops, majority of the annuals are propagated by seeds and require a nursery for raising the seedlings.

Objectives:

- Hands on practice on propagation technique like grafting, budding, layering etc.

Mission:

- Production of various ornamental seedlings for meeting demand of seedling requirement in different Centurion University campuses in Odhisa and Andhra Pradesh.

Vision:

- Raising seedlings of different flower and ornamental plants.

Outcome in terms of research and product:

- Develop innovative agro- techniques to enhance the production and productivity of horticultural crops.
- Establishment of models nurseries in rural areas for availability of quality planting materials.
- Knowledge of nursery management, nursery establishment and nursery rules and regulation.

How connected with farming community

- Increase farmer's income through adopting hi-tech horticulture.
- Community nurseries can offer economic empowerment to women and youth farmers.

(Students working under Horticulture nursery unit, CUTM)

ORGANIC RESEARCH FARM

Introduction:

Organic Research Farm established on 9th January, 2016 with the focus of three pillars Research - Project - Promotion (RPP). The Organic Research Farm runs with a purpose of doing diverse crop cultivation in order to restore soil and environmental health for sustainable future on this planet Earth.

Objective:

- To develop organic package of practice for Agricultural crop production.
- Conservation and multiplication of indigenous seeds.

Mission:

- To make skilled organic farming practitioner.

Vision:

- Reclaiming soil health through sustainable organic farming practices.

Outcome in terms of research and product:

- Organic product
- To generate result regarding production and productivity.

How connected with farming community:

- To fetch premium price for organic product.
- Reducing the cost of cultivation through effective use of on farm by-product.

(Some glimpses of ORF AELP unit)

Annexure-4 Glimpses of Action Learning Labs of School of Management

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<td>At Centurion Coffee Connect which is conceptualized and managed by our own Students</td>
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<td>At Waste to Wealth where the students learn not only business, but also how to value environment</td>
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<tr>
<td>  </td>
<td>  </td>
<td>At Advanced Design and Wood Engineering where students learn the difference between a manager and a leader</td>
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		SoM students at **Sky Rider Electric Vehicle Unit** to study the costing and promote marketing
      	Students learning the nitty gritty at **Dairy Processing Unit** and **Poultry** plan for new value added product development
   	Value the Environment- Learning from **Organic Farming** and **Food Processing Unit** and honing community linkage skills
 	At **Baking Unit** studying commercial viability of food business and value chain analysis At **Horticulture Nursery** students learn nursery establishment, management and marketing

Centurion
UNIVERSITY
Shaping Lives...
Empowering Communities...

CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT, ODISHA

CAMPUSES:

Paralakhemundi Campus
Village Alluri Nagar
P.O. – R Sitapur, Via- Uppalada
Paralakhemundi, Dist.- Gajapati
Odisha, India. PIN– 761211

Bhubaneswar Campus
Ramchandrapur
P.O. – Jatni, Bhubaneswar
Dist.- Khurda, Odisha,
India, PIN– 752050

Balangir Campus
Behind BSNL Office
IDCO land, Rajib Nagar
Dist.- Balangir, Odisha
India, PIN-767001

Rayagada Campus
IDCO Industrial Area
Pitamahal, Rayagada
Dist.-Rayagada, Odisha
India, PIN-765001

Balasore Campus
Gopalpur,
P.O.-Balasore
Dist.-Balasore, Odisha
India, PIN-756044

Chatrapur Campus
Ramchandrapur,
Kaliabali Chhak,
P.O-Chatrapur, Dist.-Ganjam
Odisha, India, PIN-761020