

#### AMRUTA INSTITUTE OF ENGINEERING & MANAGEMENT SCIENCES



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### DEPARTMENT OF COMPUTER SCIENCE AND **ENGINEERING**

2.3.1 Student Centric Methods Such as Experimental Learning, Participative Learning and Problem Solving Methodologies are used for Enhancing Learning Experience.

#### Description about Student Centric Methods

SI. No.	DESCRIPTION
1.	Laboratory session
2.	Project Work
3.	Mini Projects
4.	Participative Learning
5.	Problem Solving Methodologies & Industrial Visit
6.	Leveraging ICT Tools: Enhancing Education and Collaboration

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HOD,CS&E

Amruta Institute of Engineering & Management Sciences Bidadi Industrial Area, Near Toyota Kirloskar Motors Off Mysore Road, Bidadi, Bangalore-562109

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#### 1. Laboratory Session

#### 1.System Programming/ Mobile Application Development Lab



Fig 1. System Software Lab/ Mobile Application Lab

System software lab is a type of laboratory that focuses on the development, testing, and maintenance of system software. System software refers to software that is responsible for managing and controlling computer hardware and providing basic functions that are required for other software to nm on a computer. Examples of system software include operating systems, device drivers, compilers, and utility programs. Students are also able to develop Mobile apps using Android Platform.

#### 2.Networks/Operating System Lab



Fig 2. Networks/Operating System Lab









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It provides students with hands-on experience in designing, configuring, and troubleshooting computer networks. The lab is equipped with network hardware and software tools that allow students to build and test different types of network topologies, protocols, and services.

#### 3.Data Structures /C programming Lab/ ADA Lab

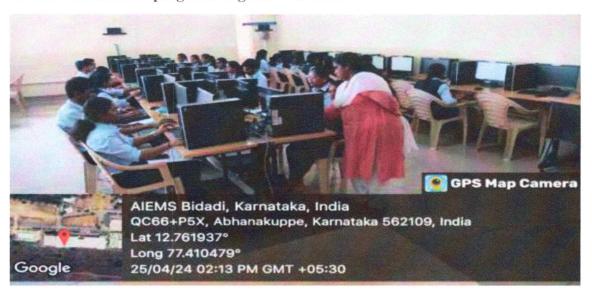


Fig 3. Data Structure Lab/C programming Lab

To provide the students the knowledge about Data Structures, Applications of data structures, Problem solving using data structure tools and Techniques. Students are made familiar with C programming and its applications. Access to both offline and online Internet services is available.

#### 4.DBMS Lab/OOC Lab

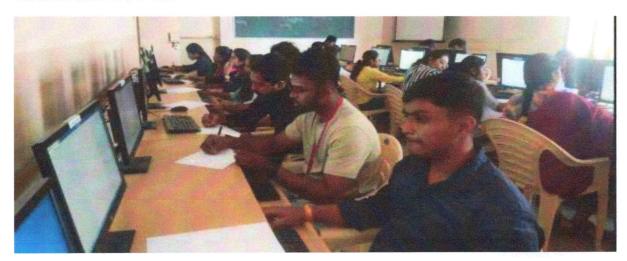




Fig 4. DBMS Lab/OOC Lab







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The important aspects of algorithm design include creating an efficient algorithm to solve a problem in an efficient way using minimum time and space. To solve a problem, different approaches can be followed. Some of them can be efficient with respect to time consumption, whereas other approaches may be memory efficient. However, one has to keep in mind that both time consumption and memory usage cannot be optimized simultaneously.

#### 5.Micro-controller/Analog and Digital Electronics Lab



Fig 5. Micro-controller/Analog and Digital Electronics Lab

An analog lab is a laboratory that is used to study analog electronic circuits and devices. Analog circuits use continuous signals, such as voltage and current, to transmit information. An analog lab typically includes equipment such as oscilloscopes, function generators, power supplies, and signal generators, among others. In an analog lab, students can learn about topics such as amplifiers, filters, oscillators, and other analog electronic circuits. A digital lab is a laboratory that is used to study digital electronic circuits and devices. Digital circuits use binary signals, such as Os and 1s, to transmit information. A digital lab typically includes equipment such as logic analysers, digital oscilloscopes, microprocessors, and other digital signal processing equipment. In a digital lab, students can learn about topics such as digital logic gates, flip-flops, registers, and other digital circuits.





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#### 2. Mini Project Works

Department of computer science and engineering organized open day for mini projects exhibition. More than 40 groups have participated in project exhibition. It's an opportunity for the students to demonstrate their learning experience.





Fig 6. Students Exhibiting Mini Projects

The mini project exhibition provides an opportunity for students to demonstrate their technical skills and knowledge in front of an audience. This can help them build their confidence and develop their communication skills.

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#### 3. Project Work





Fig. Students Exhibiting Projects to chief guest and Audience

Department of Computer Science and Engineering organized Project Exhibition for final year students to provide the platform and unleash the potential of the students by showcasing their innovative projects designed and developed in the final either industry defined problem or user defined problem. It's an opportunity for the students to demonstrate their learning experience. This platform helps to solve real time technical problems from society.









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#### 4. Participative Learning

#### 46th series of Student Project Programme (SPP):2022-23

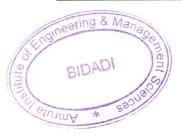
List of Students Project Proposals Approved for Sponsorship

SI NO.	Project Title	Course	Branch	Name Of The Guide	Name Of The Student(s)	Amount Sanctioned (Rs.)
1	Machine Learning Based Flood Prediction	B.E	Computer Science & Engineering	T.P. Lokesh	Meghana V S Jeevitha M Punitha M Y Pooja V	3500
2	Detection Of Missing Person Using AI	в.Е	Computer Science & Engineering	Shreyas S	Prabha K Akshatha	1500

#### 47th series of Student Project Programme (SPP):2023-24

List of Students Project Proposals Approved for Sponsorship

SI NO.	Proposal Reference No.	Project Title	Course	Branch	Name Of The Guide	Name Of The Student(s)	Amount Sanctioned (Rs.)
1	47S_BE_22 27	Agriculture Field Monitoring Using Low Power Wide Area Network Based Land Rover	B.E	Compute r Science & Engineeri ng	Pof. Anil Kumar	Ms.Taiyaba Fathima  Ms.Chithrashr ee U.V  Mr.Mohamme d Khadeemil Ikram  Mr.Abhinanda n	5000.00





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#### 5. Problem Solving Methodologies & Industrial Visit



Computer Science & Engineering department organized industrial visit for Toyota for students on December 6th 2022. Students were greeted by the staff and explained the safety rules to be followed. Later the students went through different manufacturing plants and understood the production of auto components used in the Toyota cars which are assembled in another plant. The departmental staff explained the safety and quality systems followed by the company. Students got an opportunity to witness the manufacturing process of three Toyota models, namely - Etios, Liva, and Corolla. After the plant visit, operation models of Toyota were discussed such as Just in Time process. The industry visit was very helpful to the students in relating the classroom interactions in the 'Strategic Quality Control (SQC)' course with the actual practice. It was a very good learning experience for the group.









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#### 6. Leveraging ICT Tools: Enhancing Education and Collaboration

#### Introduction:

In the contemporary educational landscape, Information and Communication Technology (ICT) has revolutionised the way Mechanical Engineering departments operate, offering an array of tools that enrich teaching, learning, collaboration, and research endeavours. This presentation delves into the diverse ICT tools utilised by Mechanical Engineering departments to foster an enriching educational environment.

#### 1. PowerPoint Presentation (PPT):

- PPT remains a cornerstone tool for delivering lectures, seminars, and presentations in Mechanical Engineering programs. Its versatility allows instructors to craft visually engaging content, facilitating effective knowledge dissemination.
- Features like animations, transitions, and multimedia integration enhance the learning experience and captivate students' attention.

#### 2. MS Office Suite:

- The MS Office suite, comprising applications like Word, Excel, and Outlook, serves as a comprehensive productivity platform for Mechanical Engineering departments.
- Word: Document creation, report writing, and collaborative editing.
- Excel: Data analysis, financial modeling, and statistical calculations.
- Outlook: Communication, scheduling, and task management.

#### 3. Google Platforms:

Google's suite of tools, including Google Docs, Sheets, Slides, and Drive, offers cloud-based collaboration and document management solutions.

Google Docs: Real-time collaboration on documents, facilitating group projects and

peer feedback.



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- Google Sheets: Shared spreadsheets for collaborative data analysis and project management.
- Google Slides: Interactive presentations with seamless sharing and commenting features.
- Google Drive: Centralized storage for documents, enabling easy access and file sharing.

#### 4. YouTube:

- YouTube serves as a rich repository of educational content, with Mechanical Engineering departments utilizing it for supplemental learning resources.
- Channels dedicated to business education offer lectures, tutorials, case studies, and interviews with industry experts.
- Students benefit from diverse perspectives, practical insights, and engaging content that complements traditional coursework.

#### 5. NPTEL Course Material:

- NPTEL (National Programme on Technology Enhanced Learning) provides highquality course material developed by esteemed faculty from premier institutions.
- Mechanical Engineering departments leverage NPTEL resources to supplement core curriculum, offering specialized modules on topics like finance, marketing, operations, and strategy.
- The platform enhances accessibility to cutting-edge knowledge, promoting interdisciplinary learning and skill development.

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#### 6. WhatsApp:

- WhatsApp emerges as a popular communication tool among Mechanical Engineering cohorts, facilitating instant messaging, group discussions, and information sharing.
- Dedicated groups for course updates, assignment reminders, and study groups foster a sense of community and collaboration.
- Quick dissemination of information and real-time interaction promote seamless communication between faculty and students.

#### 7. Projector:

- Projectors enhance classroom engagement by enabling multimedia presentations,
   video screenings, and live demonstrations.
- Visual aids, diagrams, and interactive content augment lectures, catering to diverse learning styles and enhancing comprehension.
- Projectors also facilitate guest lectures, virtual presentations, and remote learning initiatives, expanding educational outreach beyond traditional confines.

#### 8. E-Books:

- E-Books offer Mechanical Engineering students convenient access to a wealth of academic literature, textbooks, and reference materials.
- Digital libraries and online repositories provide instant availability of resources, fostering independent study and research.
- E-Books are accessible across devices, promoting flexibility and convenience in learning, especially in the era of remote and hybrid education models.

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#### Conclusion

Incorporating ICT tools into Mechanical Engineering education transcends traditional boundaries, enriching teaching and learning experiences while fostering collaboration and innovation. By harnessing the power of tools like PowerPoint, MS Office, Google platforms, e-books, Whatsapp, projectors, YouTube, and NPTEL course material, Mechanical Engineering departments can nurture a dynamic and future-ready cohort of business leaders equipped with the knowledge and skills to thrive in today's competitive landscape.



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# DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

2.3.1 Students Cenric Methods such as Experimental Learning, Participative Learning and Problem solving Methodologies are Used for Enhanced Learning Experience.

#### **Description about Student Centric Methods**

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1	Laboratory Sessions
2	Mini Projects
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4	Problem Solving Methods and Industrial Visit
5	Participative Learning
6	Leveraging ICT Tools: Enhancing Education and Collaboration

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#### 1. Laboratory Sessions

#### 1. ECE-Electronic Devices and Instrumentation Laboratory



#### **Description:**

This laboratory course enables students to

- Understand the circuit schematic and it's working.
- Study the characteristics of different electronic devices.
- Design and test simple electronic circuits as per the specifications using discrete electronic components.
- Familiarize with EDA software which can be used for electronic circuit simulation.

#### **Major Equipments:**

- Digital Oscilloscope,
- CRO,
- Function generators,

DC power supplies,





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Computer Systems

■ Processor: Intel(R) Core(TM) i5-7500

■ CPU@3.40GHz

Installed Memory: 8GB

■ System Type: 64-bit Operating System, x64-based

Processor.

Multisim

#### 2. ECE-Digital System Design Laboratory



#### **Description:**

This laboratory course enables students to get practical experience in design, realization and verification of

- Demorgan's Theorem, SOP, POS forms
- Full/Parallel Adders, Subtractors and Magnitude Comparator
- Multiplexer using logic gates





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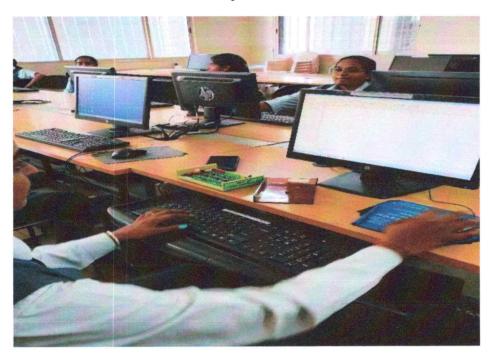
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- Demultiplexers and Decoders
- Flip-Flops, Shift registers and Counters.

#### **Major Equipments:**

- Digital Trainer Kits,
- Digital IC Tester.
- Computer Systems
  - Processor: Intel(R) Core(TM) i5-7500
  - CPU@3.40GHz
  - Installed Memory: 8GB
  - System Type: 64-bit Operating System, x64-based
  - Processor.
  - Multisim

#### 3. ECE-Microcontroller Laboratory



#### **Description:**

This laboratory course enables students to

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• Understand the basics of microcontroller and its applications.



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- Have in-depth knowledge of 8051 assembly language programming.
- Understand controlling the devices using C programming.
- The concepts of I/O interfacing for developing real time embedded systems.

#### **Major Equipments:**

- Controller Kits,
- Interfacing Kits
- Computer Systems
  - Processor: Intel(R) Core(TM) i5-7500
  - CPU@3.40GHz
  - Installed Memory: 8GB
  - System Type: 64-bit Operating System, x64-based Processor.
  - Keil Embedded C, Flash Magic S/W

#### 4. ECE- Analog Circuits Laboratory



#### **Description:**

This laboratory course enables students to

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- Understand the circuit configurations and connectivity of BJT and FET Amplifiers and
   Study of frequency response
- Design and test of analog circuits using OPAMPs
- Understand the feedback configurations of transistor and OPAMP circuits
- Use of circuit simulation for the analysis of electronic circuits.

#### **Major Equipments:**

- Digital Oscilloscopes,
- CROs,
- Signal generators,
- Power Supplies
- Computer Systems
  - Processor: Intel(R) Core(TM) i5-7500
  - CPU@3.40GHz
  - Installed Memory: 8GB
  - System Type: 64-bit Operating System, x64-based
  - Processor.
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#### 5. ECE-Digital Signal Processing Laboratory







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#### **Description:**

This course will enable students to

- Simulate discrete time signals and verification of sampling theorem.
- Compute the DFT for a discrete signal and verification of its properties using MATLAB.
- Find solution to the difference equations and computation of convolution and correlation along with the verification of properties.
  - Compute and display the filtering operations and compare with the theoretical values.
  - Implement the DSP computations on DSP hardware and verify the result.

#### **Major Equipments:**

- TMS Processor Kits,
- Adapters
- Computer Systems
  - Processor:
  - $\blacksquare$  Intel(R)
  - Core(TM)
  - i5-7500
  - CPU@3.40GHz
  - Installed Memory: 8GB
  - System Type: 64-bit Operating System, x64-based
  - Processor.
  - MATLAB-13, Code Composer Stud

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#### 6. ECE-HDL Laboratory



#### **Description:**

This course will enable students to:

- Familiarize with the CAD tool to write HDL programs.
- Understand simulation and synthesis of digital design.
- Program FPGAs/CPLDs to synthesize the digital designs.
- Interface hardware to programmable ICs through I/O ports.
- Choose either Verilog or VHDL for a given Abstraction level.

#### **Major Equipments:**

- FPGA/CPLD Trainer Kits,
- Spartan 2 Kits.
- Computer Systems
  - Processor: Intel(R) Core(TM) i5-7500

■ CPU@3.40GHz







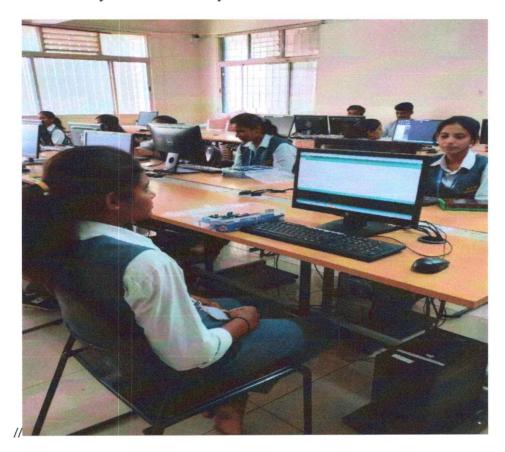
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- Installed Memory: 8GB
- System Type: 64-bit Operating System, x64-based
- Processor.
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#### 7. ECE-Embedded Systems Laboratory



#### **Description:**

This course will enable students to:

- Understand the instruction set of ARM Cortex M3, a 32 bit microcontroller and the software tool required for programming in Assembly and C language.
- Program ARM Cortex M3 using the various instructions in assembly level language for different applications.
- Interface external devices and I/O with ARM Cortex M3.
- Develop C language programs and library functions for embedded system applications.

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#### **Major Equipments:**

Computer Systems

■ Processor: Intel(R) Core(TM) i5-7500

■ CPU@3.40GHz

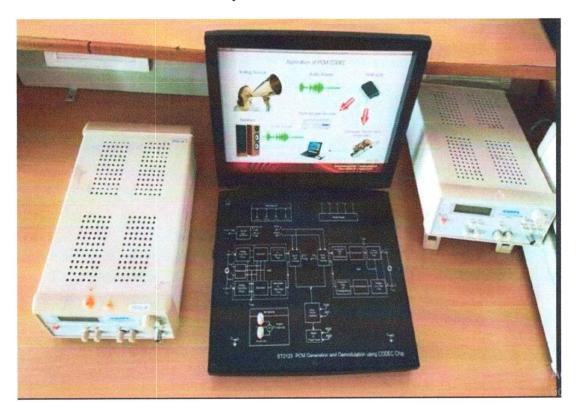
■ Installed Memory: 8GB

■ System Type: 64-bit Operating System, x64-based

Processor.

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#### 8. ECE-Communication Laboratory







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#### **Description:**

This course will enable students to:

- Design and test the communication circuits for different analog modulation schemes.
- Design and demonstrate the digital modulation techniques
- Demonstrate and measure the wave propagation in microstrip antennas
- Characteristics of microstrip devices and measurement of its parameters.
- Understand the probability of error computations of coherent digital modulation schemes.

#### **Major Equipments:**

TDM Kits, DPSK Kits, QPSK Kits, Fibre Optic Kits, Micro Wave Bench, Digital Oscilloscope, CROs, Power Supplies.

- Computer Systems
  - Processor: Intel(R) Core(TM) i5-7500
  - CPU@3.40GHz
  - Installed Memory: 8GB
  - System Type: 64-bit Operating System, x64-based
  - Processor.
  - Multisim





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#### 9. ECE-Computer Networks Laboratory



#### **Description:**

This course will enable students to:

- Choose suitable tools to model a network and understand the protocols at various OSI reference levels.
- Design a suitable network and simulate using a Network simulator tool.
- Simulate the networking concepts and protocols using C/C++ programming.
- Model the networks for different configurations and analyze the results.

#### **Major Equipments:**

- Computer Systems
  - Processor: Intel(R) Core(TM) i5-7500
  - CPU@3.40GHz
  - Installed Memory: 8GB
  - System Type: 64-bit Operating System, x64-based
  - Processor.
  - NS2

Head of the Department

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#### 10. ECE-VLSI Laboratory



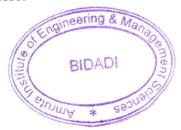
#### **Description:**

This course will enable students to:

- Design, model, simulate and verify CMOS digital circuits
- Design layouts and perform physical verification of CMOS digital circuits
- Perform ASIC design flow and understand the process of synthesis, synthesis
   constraints and evaluating the synthesis reports to obtain optimum gate level netlist
- Perform RTL-GDSII flow and understand the stages in ASIC design

#### Major Equipments:

- AARON (EDA) Tool,
- Computers
  - Processor: Intel(R) Core(TM) i5-7500
  - CPU@3.40GHz
  - Installed Memory: 8GB
  - System Type: 64-bit Operating System, x64-based
  - Processor





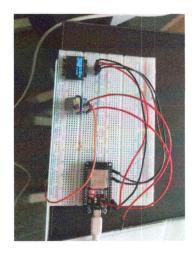
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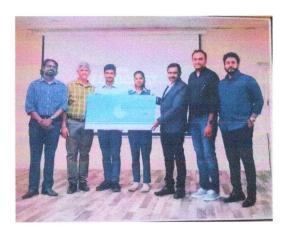
#### 2. Mini Projects

The college conduced open day where around 40 students from various colleges and schools participated in various events by different departments. The events provided students an excellent opportunity for students to gain confidence and improve their communication skills by presenting their mini projects to industry experts, academics and peers. Also, it provided a platform for students to share their ideas with other likeminded individuals. Students from ECE department participated in Techno fest and won the first place and cash prize of Rs.15,000/-. The team consisted Shravana and Rajkamal of third semester, who conducted mini project on gas monitoring system















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#### 3. Project Work

The department of ECE encourages the final year students to select the project work closer to real-life solutions. The following two projects were recognized by KSCST and were funded\

## 1. Arduino based automatic ration material distribution using finger-print technology –





The team was led by Tejashree with her friends developed this project which was guided by Dr. Prathibhadevi T, Prof. ECE Dept.

#### 2. Low cost self-charging hybrid electric bicycle









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The team was led by Shwetha with her friends who developed this project guided by Prof. Hamsaveni N, Asst. Prof. ECE Dept.

#### 4. Problem Solving Methods and Industrial Visit

#### 1. Industrial visit to Carl Zeiss plant:

The department of ECE had organized industrial visit to Carl Zeiss Plant in Jigani on Friday 29<sup>th</sup>, April 2022 organized by Training and placements department. Students from second and third and final year participated. They were fortunate enough to visit the plant to have state of the art manufacturing process of optical systems and optoelectronics

Carl Zeiss AG, branded as ZEISS, is a German manufacturer of optical systems and optoelectronics, founded in Jena, Germany in 1846 by optician Carl Zeiss.



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#### **DEPARTMENT OF TRAINING & PLACEMENTS**

ORGANIZES INDUSTRIAL VISIT OF STUDENTS FROM DEPARTMENT OF ELECTRONICS & COMM ENGINEERING





FRIDAY, 29 Apr 2022 9.00 AM TO 5.30 PM, CARL ZEISS PLANT, JIGANI, BANGALORE

**Prof.Abhsishek H**Faculty Coordinator
Dept of ECE

John Bruno Director Training & Placements Dr.Veeresh Patil HOD Dept of ECE **Dr.C.B.Shivayogimath** Principal AIEMS, Bengaluru





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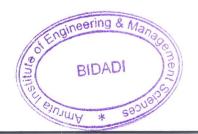


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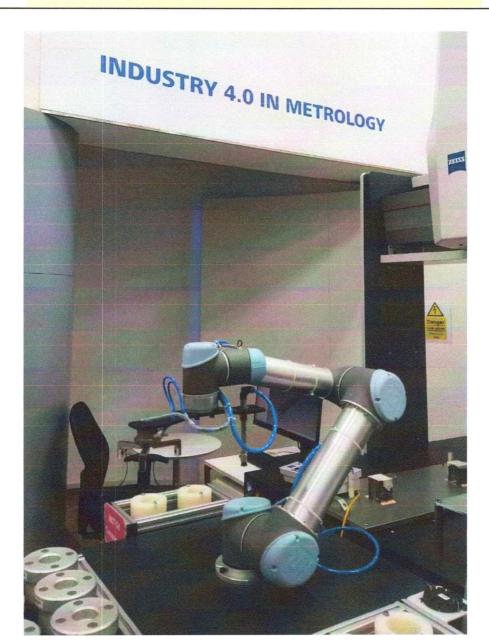




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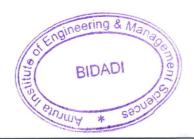
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#### 2. Industrial visit to KREDL:

The department of ECE had organized industrial visit to KREDL in Nagrabhavi in the year 2023 organized by Institute Innovative cell . Students from second and third and final year participated.

Karnataka Renewable Energy Development Limited (KREDL) was established in 1996 as a State Nodal Agency for the Government of Karnataka to identify, promote and develop Renewable Energy projects in the state.





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Besides, KREDL co-ordinates with all agencies both at state level and national level to promote Renewable Energy in the state.

It also coordinates for all issues relating to development of Renewable Energy projects in the private sector and assists the independent power producers and Government at the state level and national level







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#### 5. Participative Learning

The second- and third-year students of ECE department participated in Jnana Vijnana Tantrajnana mela organised by Adichunchanagiri University on 19<sup>th</sup> and 20<sup>th</sup> February, 2024







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1. The team of Sumaya Banu and Yashaswini from 3<sup>rd</sup> sem ECE explaining the project in project exhibition



2. Second team of Shravana and Rajkamal from 3<sup>rd</sup> semester and third team of Md. Resalth and Vidhyashree from third semester in the stall alloted for their project exhibition









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3. Another team of Sahana (5<sup>th</sup> sem) and Anurag (3<sup>rd</sup> sem) participated in the PPT presentation Event at JVTM













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The final year students of ECE department participated in Jnana Vijnana Tantrajnana mela organised by Adichunchanagiri University on 19th and 20th February, 2023



### 6. Leveraging ICT Tools: Enhancing Education and Collaboration

#### Introduction:

In the contemporary educational landscape, Information and Communication Technology (ICT) has revolutionised the way Electronics and Communication Engineering departments operate, offering an array of tools that enrich teaching, learning, collaboration, and research endeavours. This presentation delves into the diverse ICT tools utilised by Electronics and Communication Engineering departments to foster an enriching educational environment.





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#### 1. PowerPoint Presentation (PPT):

- PPT remains a cornerstone tool for delivering lectures, seminars, and presentations in Electronics and Communication Engineering programs. Its versatility allows instructors to craft visually engaging content, facilitating effective knowledge dissemination.
- Features like animations, transitions, and multimedia integration enhance the learning experience and captivate students' attention.

#### 2. MS Office Suite:

- The MS Office suite, comprising applications like Word, Excel, and Outlook, serves as a comprehensive productivity platform for Electronics and Communication Engineering departments.
- Word: Document creation, report writing, and collaborative editing.
- Excel: Data analysis, financial modeling, and statistical calculations.
- Outlook: Communication, scheduling, and task management.

#### 3. Google Platforms:

- Google's suite of tools, including Google Docs, Sheets, Slides, and Drive, offers cloud-based collaboration and document management solutions.
- Google Docs: Real-time collaboration on documents, facilitating group projects and peer feedback.
- Google Sheets: Shared spreadsheets for collaborative data analysis and project management.
- Google Slides: Interactive presentations with seamless sharing and commenting features.





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 Google Drive: Centralized storage for documents, enabling easy access and file sharing.

#### 4. YouTube:

- YouTube serves as a rich repository of educational content, with Electronics and Communication Engineering departments utilizing it for supplemental learning resources.
- Channels dedicated to business education offer lectures, tutorials, case studies, and interviews with industry experts.
- Students benefit from diverse perspectives, practical insights, and engaging content that complements traditional coursework.

#### 5. NPTEL Course Material:

- NPTEL (National Programme on Technology Enhanced Learning) provides highquality course material developed by esteemed faculty from premier institutions.
- Electronics and Communication Engineering departments leverage NPTEL resources to supplement core curriculum, offering specialized modules on topics like finance, marketing, operations, and strategy.
- The platform enhances accessibility to cutting-edge knowledge, promoting interdisciplinary learning and skill development.

#### 6. WhatsApp:

- WhatsApp emerges as a popular communication tool among Electronics and Communication Engineering cohorts, facilitating instant messaging, group discussions, and information sharing.
- Dedicated groups for course updates, assignment reminders, and study groups foster a sense of community and collaboration.

 Quick dissemination of information and real-time interaction promote seamless communication between faculty and students.

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### 7. Projector:

- Projectors enhance classroom engagement by enabling multimedia presentations,
   video screenings, and live demonstrations.
- Visual aids, diagrams, and interactive content augment lectures, catering to diverse learning styles and enhancing comprehension.
- Projectors also facilitate guest lectures, virtual presentations, and remote learning initiatives, expanding educational outreach beyond traditional confines.

#### 8. E-Books:

- E-Books offer Electronics and Communication Engineering students convenient access to a wealth of academic literature, textbooks, and reference materials.
- Digital libraries and online repositories provide instant availability of resources, fostering independent study and research.
- E-Books are accessible across devices, promoting flexibility and convenience in learning, especially in the era of remote and hybrid education models.

#### Conclusion

Incorporating ICT tools into Electronics and Communication Engineering education transcends traditional boundaries, enriching teaching and learning experiences while fostering collaboration and innovation. By harnessing the power of tools like PowerPoint, MS Office, Google platforms, e-books, Whatsapp, projectors, YouTube, and NPTEL course material, Electronics and Communication Engineering departments can nurture a dynamic and future-ready cohort of business leaders equipped with the knowledge and skills to thrive in today's competitive landscape.

Head of the Department
Dept. of Electronics & Communication Enga
Amruta Institute of Engineering &

Management Sciences Bidadi, Off Mysore Road, Bangalore

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# DEPARTMENT OF CIVIL ENGINEERING

2.3.1 Student Centric Methods Such as Experimental Learning, Participative Learning and Problem Solving Methodologies Are Used for Enhancing Learning Experience.

# Description about Student Centric Methods

SI. No.	DESCRIPTION	
1.	Laboratory session	
2.	Project Work	
3.	Participative Learning	
4.	Problem Solving Methodologies & Industrial Visit	
5.	Leveraging ICT Tools: Enhancing Education and Collaboration	

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Department of Civil Engineering

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# 1. Laboratory Session

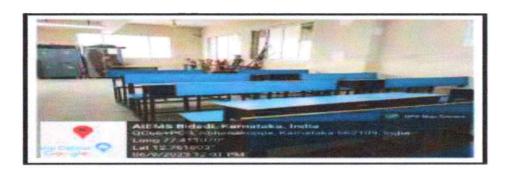
### 1. Concrete and Highway Material Testing Lab



Fig 1. Concrete and Highway Material Testing Lab

Highway Material Testing Lab is a type of laboratory that focuses on the testing and analysis of materials used in highway construction and maintenance. This includes various materials such as aggregates, bitumen, asphalt, concrete, and soil. The lab conducts a range of tests to ensure that these materials meet the required standards and specifications for their intended use. Concrete testing is an important part of this lab, where the quality and strength of concrete material are evaluated through various tests, including slump tests, and density tests. These tests help to ensure that the concrete used in highway construction is of the required quality and can withstand the stresses and loads of heavy traffic.

### 2. Survey Laboratory









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Surveying Lab is a laboratory that focuses on teaching students about the principles and techniques used in land surveying. The lab is equipped with advanced instruments and tools that enable students to learn about various aspects of surveying, such as plane surveying, leveling, traversing, and topographical surveying. In the Surveying Lab, students learn about the different types of Surveying instruments and their uses, including the odolites, total stations, levels, and GPS receivers. They also learn about data collection and analysis, as well as mapping and drafting techniques. It provides students with hands-on experience in designing, configuring, and troubleshooting computer networks. The lab is equipped with network hardware and software tools that allow students to build and test different types of network topologies, protocols, and services.

### 3. Environmental Engineering Laboratory



Fig 3. Environmental Engineering Lab

It includes testing of water, air, soil, and solid waste samples for various parameters such as pH, turbidity, BOD, COD, heavy metals, and organic pollutants. The lab is equipped with advanced instruments and techniques to analyze the samples accurately and efficiently. The laboratory also focuses on testing the efficiency of various treatment processes for wastewater, air pollution, and solid waste management.







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### 4. Geotechnical Engineering Laboratory

Geotechnical engineering lab is a specialized laboratory that deals with the study of soil and rock mechanics. The lab conducts various tests on soil and rock samples to determine their properties, behavior, and stability under different loading conditions.



Fig 4. Geotechnical Engineering Lab.

#### 5. Engineering Geology Laboratory

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Fig 5. Engineering Geology Lab

Engineering Geology Lab is a specialized laboratory that deals with the study of geological materials and their behaviour under various engineering conditions. The lab is equipped with tools and instruments to analyse and test the physical, chemical, and mechanical properties of rocks, soils, and minerals. The tests conducted in the lab help to determine the suitability of materials for construction and assess their stability and strength.





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### 6.CAD laboratory

Civil Engineering CAD lab is a specialized laboratory that provides students with the tools and software necessary to develop and design technical drawings, models, and simulations related to civil engineering projects. In this lab, students learn how to use Computer-Aided Design (CAD) software such as AutoCAD.

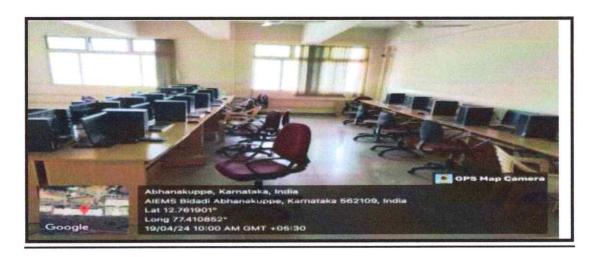


Fig 6. CAD lab

#### 7. Fluid Mechanics Lab



Fig 7. Fluid Mechanics Lab

The Fluid Mechanics Laboratory is a type of laboratory that focuses on the study of fluid behavior and properties. The lab includes various instruments and equipment for the measurement and analysis of fluid flow, such as flow meters, pressure gauges, and





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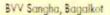


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velocity probes. Students can perform experiments to understand concepts such as Bernoulli's principle, Reynolds number, and hydraulic jump. Additionally, the lab provides an opportunity for students to conduct experiments to study different types of pumps, turbines, and open channel flow. The experiments conducted in the Fluid Mechanics Lab help students gain practical knowledge and experience in the field of fluid mechanics.

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# 2. Project Work and Exhibition



Fig 8. Students Exhibiting Project

The Department of Civil Engineering organized a Project Exhibition to provide a platform for final year students to showcase their innovative projects. These projects were designed and developed to solve real-world problems related to the civil engineering field, either defined by the industry or by the users. The exhibition served as an opportunity for the students to demonstrate their technical skills and knowledge, and also helped them to build their confidence and communication skills. Through this event, students were able to highlight their ability to solve society's technical problems by applying their learning experiences in creative and innovative ways.

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# 3. Participative Learning

Students of Civil Engineering Department participated in following events.

- 1. Following Students project proposals were approved by KSCST.
- Paver block manufacturing using waste plastic. Mr. Kushnappa B K Civil Engineering 2022-23 5000/- 6 months KSCST Government.
- (ii) Utilization of waste plastic by manufacturing of bricks along with quarry dust. Ms.Vinutha.S Civil Engineering 2022-23 5000/- 6 months KSCST Government.
- (iii) An Experimental Study on Reinforced Mud Block Using Synthetic Fiber & Eggshell Powder. Mr. ADARSH SHETTY H N Civil Engineering 2022 6000/- 6 months KSCST Government.
- (iv) "INVESTIGATION ON SOIL STABILIZED MUD BRICKS WITH STEEL FIBER AND COPPER SLAG" Mrs. Deepika.K.P Civil Engineering 2021 5000/- 6 months KSCST Government
- (v) Effects and usage of Harvested rainwater and storm water in the properties of concrete
   Mrs. Vidya B R Civil Engineering 2019 6000/- 6 months KSCST Government

### 2. 13th edition of Anveshana

Sl.No.	Sem/Dept	Name	Event Name	Date	Organized By
1	CE	Kruthika.B.V	Science &	3 <sup>rd</sup> , 4 <sup>th</sup>	Anveshana –
		& team	Engineering	March	Agastya
			Fair 2023	2023	international
					foundation





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3.The Civil Engineering Department of Amruta Institute of Engineering and Management Sciences, Bidadi organized an industrial visit on 22<sup>nd</sup> December 2023. 22 students (3<sup>rd</sup>, 5<sup>th</sup> and 7<sup>th</sup> semester) along with the faculty members of the Civil Engineering Department, visited Manchanabele Dam.







Mangalore Ambuja cement factory



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# 4. Problem Solving Methodologies & Industrial Visit

The Civil Engineering Department of Amruta Institute of Engineering and Management Sciences, Bidadi organized an industrial visit on 23<sup>rd</sup> February 202**3** 13 students (3<sup>rd</sup>, 5<sup>th</sup> and 7<sup>th</sup> semester) along with the faculty members of Civil Engineering Department, visited Sigandhoor Balanced Cantilever Bridge, Harangi dam & Sewage treatment plant in Mangalore, Ambhuja cement factory Mangalore.





A Sluice gate

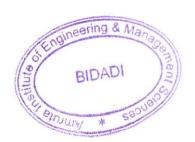


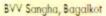


Sigandhoor Balanced Cantilever Bridge



Mangalore Sewage Treatment plant









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# 5. Leveraging ICT Tools: Enhancing Education and Collaboration

#### Introduction:

In the contemporary educational landscape, Information and Communication Technology (ICT) has revolutionised the way Mechanical Engineering departments operate, offering an array of tools that enrich teaching, learning, collaboration, and research endeavours. This presentation delves into the diverse ICT tools utilised by Mechanical Engineering departments to foster an enriching educational environment.

### 1. PowerPoint Presentation (PPT):

- PPT remains a cornerstone tool for delivering lectures, seminars, and presentations in Mechanical Engineering programs. Its versatility allows instructors to craft visually engaging content, facilitating effective knowledge dissemination.
- Features like animations, transitions, and multimedia integration enhance the learning experience and captivate students' attention.

#### 2. MS Office Suite:

- The MS Office suite, comprising applications like Word, Excel, and Outlook, serves as a comprehensive productivity platform for Mechanical Engineering departments.
- Word: Document creation, report writing, and collaborative editing.
- Excel: Data analysis, financial modeling, and statistical calculations.
- Outlook: Communication, scheduling, and task management.

#### 3. Google Platforms:

Google's suite of tools, including Google Docs, Sheets, Slides, and Drive, offers cloud-based collaboration and document management solutions.





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- Google Docs: Real-time collaboration on documents, facilitating group projects and peer feedback.
- Google Sheets: Shared spreadsheets for collaborative data analysis and project management.
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### 6. WhatsApp:

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### 7. Projector:

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- Digital libraries and online repositories provide instant availability of resources, fostering independent study and research.
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#### Conclusion

Incorporating ICT tools into Mechanical Engineering education transcends traditional boundaries, enriching teaching and learning experiences while fostering collaboration and innovation. By harnessing the power of tools like PowerPoint, MS Office, Google platforms, e-books, Whatsapp, projectors, YouTube, and NPTEL course material, Mechanical Engineering departments can nurture a dynamic and future-ready cohort of business leaders equipped with the knowledge and skills to thrive in today's competitive landscape.

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# DEPARTMENT OF MECHANICAL ENGINEERING

2.3.1 Students Centric Methods such as Experimental Learning, Participative Learning and Problem solving Methodologies are Used for Enhanced Learning Experience.

# **Description about Student Centric Methods**

S. No	DESCRIPTION		
- 1	Laboratory Sessions		
2	Mini Projects		
3	Project Work		
4	Industrial Visit		
5	Problem Solving Methods		
6	Leveraging ICT Tools: Enhancing Education and Collaboration		

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Department of Mechanical Engineering Amruta Institute of Engineering & Management Sciences Bidadi Industrial Area, Near Toyota Kidoskar Motors, Bidadi, Bengaluru 582 1





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### 1. Laboratory Sessions

### 1. Foundry and Forging Laboratory





The Foundry and Forging Laboratory aims to;

Provide an insight into different sand preparation and foundry equipment.

- Provide an insight into different forging tools and equipment and arc welding tools and equipment.
- Provide training to students to enhance their practical skills in welding, forging and hand moulding.
- Practically demonstrate precautions to be taken during casting, hot working and welding operations.

### Major Equipment:

Universal Sand Testing Machine, Permeability Tester, Moisture Content Tester, Mould Hardness Tester, Core Hardness Tester, Sand Rammer, Muffle Furnace, Green Sand, Sand Baker, Sand Miller (5kg capacity)

#### 2. Materials Testing Laboratory











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### The Materials Testing Laboratory aims to;

- Teachtheconceptofthepreparationofsamplestoperformcharacterizationsuchas microstructure, Volumefraction of phases and grainsize.
- Teach mechanical behaviourofvariousengineeringmaterials by conductingstandardtests.
- Teach material failure modesandthedifferentloadscausingfailure.
- Teach&demonstratetheconceptsofimprovingthemechanical properties ofmaterials by different methods like Heat treatment, surfacetreatment etc.

### **Major Equipment:**

TorsionTestingMachinewithBending attachments,Izod And Charpy
Test(ImpactTestingMachine)with attachments,Brinell/ Rockwell HardnessTesting
Machine withStandard attachments,VickersHardnessTestMachine with
standardattachments,DoubleDisc

PolishingMachinewithDCMotor,MetallurgicalSpecimen,MuffleFurnace(6x6x12)

### 3. Workshop







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#### TheWorkshopaimsto;

- Provide skills about the use offitting tools to perform fitting operations.
- Trainintofittingoperationstoenrichtheirpracticalskills.
- Inculcate team qualities and exposes tudents to shop floor activities.
- Educate students aboutethical, environmental and safety standards.

### **Major Equipment:**

PowerHacksawMachine, ACArcWelderWinner, BenchGrinder 8", Bench Vice 6"Smith Make, Bench Vice6", Anvil50kg, Angle Plate4", V-Block4"

### 4. Heat TransferLaboratory



The Heat TransferLaboratoryaimsto;

- Primarily provide thefundamentalknowledgenecessary to understandthe behavior of thermal systems.
- Provide a detailed experimental analysis, including the application and heat transfer through solids, fluids, and vacuum.





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• TeachConvection,conduction, and radiationheat transfer in one and twodimensional steady andunsteady systems.

### Major Equipment:

Thermal Conductivity of Metal Rod, Composite Walls, Pin Fin Apparatus, Natural Free Convection Forced Convection (Flow Through Pipes), Emissivity of Surface, Stefan Boltzmann Constant, Parallel Flow & Counter Flow, Boiling of Liquid & Condensation of Vapour, Refrigeration, Transient Heat Conduction

### 5. ComputerAidedDrafting, Modeling, Analysis and Simulation Laboratory



The Computer Aided Drafting, Modeling, Analysis and Simulation Laboratory aims to;

- Train the students in computer aided mechanical drafting, modeling, analysis and simulations, using industry grade software like Solid Edge, Ansys and Vero Edgecam.
- Provide practical exposure to the students in the concepts like, Geometric Dimensioning & Tolerancing (GD & T), analysis of mechanical, thermal stresses & strains on machine components, CNC coding, and simulating the machining of various mechanical components within the software environment with different variables.





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### **Major Equipment:**

### 1) Computer Desktop (15 No.s)

Intel Core i5 4440/8GB

Transcend DDR3 RAM/1TB

Seagate Hard

Disk/Cabinet/SMPS/Dell

LED 21.5" 2240L Monitor

### 2) Computer Desktop (15 No.s)

Make: HP, Model: Pro G1

MT/8GB DDR4 RAM/1TB

**HDD SATA** 

7200RPM/18.5"

Monitor/USB

Keyboard/USB

Mouse/DOS/3 Years Warranty

#### **Software Details:**

- 1) Vero Edgecam SoftwareEducational Keyless Network License 2018 R1 (20 No.s)
- 2) Solid Edge ST-6 AcademicPerpetual-License (60 No.s)
- 3) ANSYS Academic Teaching Mechanical Version 18.0 (25 No.s)

#### 6. Machine Shop



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The Machine Shop aims to; Provide an insight to different machine tools, accessories and

attachments.





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- Train into machining operations to enrich their practical skills.
- Inculcate team qualities and expose students to shop floor activities.
- Educate students about ethical, environmental and safety standards.

### **Major Equipment:**

Lathe Machine (10 No.s),

Universal Horizontal Milling Machine,

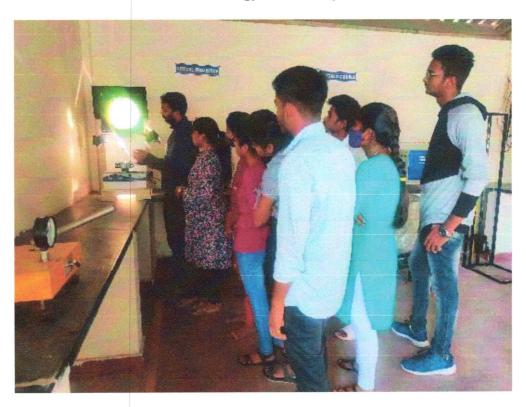
Shaper Machine,

Radial Drilling Machine,

Bench Grinder,

Power Hacksaw Machine

### 7. Mechanical Measurements & Metrology Laboratory



The Mechanical Measurements & Metrology Laboratory aims to;

• Illustrate the theoretical concepts taught in Mechanical





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Measurements & Metrology through experiments.

- Illustrate the use of various measuring tools & measuring techniques.
- Teach the calibration techniques of various measuring devices.

### **Major Equipment:**

Profile Projector, Vision plus Vertical Type Profile Projector, Three wire set with accessories, Sine Bar (0 - 200 mm), Sine Centre (0 - 200 mm), Gear Tooth Vernier (0 - 25 mm),

Gear Tooth Micrometer (0 – 25 mm), Calibration of LVDT, Strain Gauge, Autocollimator, Lathe Tool Dynamometer, Slip Gauges, Optical Flats, Pitch Gauge, Digimatic Micrometer, Granite Surface Plate, Dead-Weight Pressure Gauge

### 8. Energy Conversion Laboratory



The Energy Conversion Laboratory aims to;

• Provide a basic understanding of fuel properties and its measurements using various types of measuring devices.





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- Teach energy conversion principles, analysis and understanding of I C Engines, and also demonstrate application of these concepts for these machines. Students will be able to carry out performance analysis using characteristic curves.
- Exhaust emissions of I C Engines will be measured and compared with the standards.

### Major Equipment:

Valve Timing Study, Port Timing Study, Bomb Calorimeter, Boy's Gas Calorimeter, 4 Stroke Single Cylinder Diesel Engine, 4 - Stroke Single Cylinder Diesel Engine with VCR, 2 - Stroke Single Cylinder Diesel Engine, 4 - Stroke Single Cylinder Diesel Engine with 1100 cc

### 9. Design Laboratory





The Design Laboratory aims to;

- Teach the concepts of natural frequency, logarithmic decrement, damping and damping ratio.
- Teach the techniques of balancing of rotating masses.
- Teach the concept of the critical speed of a rotating shaft.
- To illustrate the concept of stress concentration using Photo elasticity.
- Teach the concepts of equilibrium speed, sensitiveness, power and effort of a Governor.
- Illustrate the principles of pressure development in oil film of a hydrodynamic
- journal bearing.





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### Major Equipment:

Photoelastic Bench, Journal Bearing, Vibration Equipment, Balancing of Rotating Masses, Universal Governor, Whirling of Shaft, Gyroscope, Rosset Strain Gauge, Stress on Curved Beam

### 10. Fluid Mechanics Laboratory





The Fluid Mechanics Laboratory aims to;

- Provide a basic understanding of flow measurements using various types of flow measuring devices, calibration and losses associated with these devices.
- Teach energy conversion principles, analysis and understanding of hydraulic turbines and pumps, and also demonstrate application of these concepts for these machines. Students will be able to carry out performance analysis using characteristic curves. Major Equipment: Minor & Major Losses, Impact of Jet on Vanes, Orifice, Nozzle, Venturimeter, VNotch, Pelton Wheel Turbine, Francis Turbine, Kaplan Turbine, Centrifugal Pump (Single Stage), Centrifugal Pump (Multi Stage), Reciprocating Pump, Air Compressor, Air Blower, Bernoullis Theorem Apparatus, Calibration of Collecting Tank, Dead-Weight Pressure Gauge



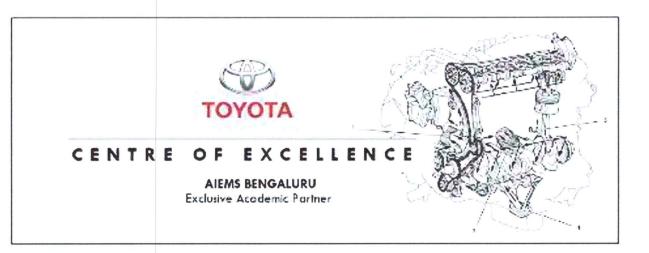


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### 11. BVVS AIEMS Toyota Centre of Excellence







The BVVS AIEMS Toyota Centre of Excellence aims to;

• Impart technical skills pertaining to working of an IC Engine, maintenance, troubleshooting etc., to meet the needs of automobile industry in providing skilled trainees.

### Major Equipment:

- Toyota Innova Crysta Engine,
- Toyota Etios Drive Assembly

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Bidadi, Bangalore-562 109

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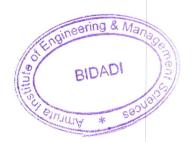


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### 2. Mini Projects

Students Of Mechanical Engineering Department as a part of Academic curriculum successfully completed the mini project, this helps to the students to gain the industrial Knowledge and Current Technology in the Engineering and technology.

AMRUTA INSTITUTE OF ENGINEERING & MANAGEMENT SCIENCES, BIDADI- 562109 DEPARTMENT OF MECHANICAL ENGINEERING AIEMS CERTIFICATE This is to certify that the Mini- Project entitled as "POWER GENERATION USING FOREARM MACHINE" is a bonafide work carried out by PRUTHVI S (1AR21ME404), SHASHIDHARA J S (1AR21ME406), SRIDHARA M S (1AR21ME407), in partial fulfillment for the award of Bachelor of Degree in Mechanical Engineering of the Visvesvaraya Technological University, Belagavi during the year 2022-23. It is certified that all the corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the department library. This Mini-Project report has been approved as it satisfies the academic requirements. Departs and the charlical Engineering Signature of Principal Signature of the Guide Amruta Institute of Engineering & Management Sciences Bidadi Industrial Area, Mear Toyota Kirloskar Motors, Bidadi, Bengaluru-562 105 Signature with date Name of the examiners 1. Nogoppa Pottomoskati - Op. 19/01/2023. 2. DI Shinidhi Achalya: S.B. A. 19/7/2023.





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AIEMS RENGALURU

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# AMRUTA INSTITUTE OF ENGINEERING & MANAGEMENT SCIENCES, BENGALURU- 562109 DEPARTMENT OF MECHANICAL ENGINEERING

# AIEMS

# CERTIFICATE

Certified that the Project work entitled "DESIGN AND FABRICATION OF WATER TANK MADE FROM PVC"is a Bonafede work carried out by Pavan Kumar B(1AR21ME402), Punith Gowda DS(1AR21ME405), Yogesh Kumar RM (1AR21ME409), in partial fulfillment for the project of engineering in Mechanical Engineering of the Visvesvaraya Technological University, Belagavi during the year 2022-23. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The Mini Project report has been approved as it satisfies the academic requirements.

Signature of the Guides

Department of Mechaniga Traineering Amruta Institute of Engineering & Management Sciences

Signature of Principal

Amruta Institute of Engineering & Management actions

Bidadi Industrial Area, Near Toyota Kirloskar Motors.

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ENGINEERING Bidadi Industrial Area, Near Toyota Kirloskar Motors Bidadi, Bangalore - 562 109

Name of the examiners

Signature with date

Exp. 19107/2013

1. Nogoppa Pottanashetti -2. 201 - Skiniolhi Jeholya. S.R.



Amruta Institute of Engineering & Management Sciences Bidadi Industrial Area Near Toyota Kirloskar Motors Bidadi, Bangalore-562 109

Head

Department of Mechanical Engineering Amruta Institute of Engineering & Management Sciences Bidadi Industrial Area, Near Toyota Kirloskar Motors, Bidadi, Bengaluru-562 109



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### 3. Project Work

### Karnataka State Council for Science and Technology

(An autonomous organisation under the Dept. of Science & Technology, Govt. of Karnataka) Indian Institute of Science Campus, Bengaluru - 560 012 Telephone: 080-23341652, 23348848, 23348849, 23348840

Email: office.kscst@iisc.ac.in, office@kscst.org.in • Website: www.kscst.iisc.ernet.in, www.kscst.org.in

#### Mr. H. Hemanth Kumar

**Executive Secretary** 

Ref: 7.1.01/SPP/91

11th May, 2022

The Principal, Amrutha Institute of Engineering and Management Sciences, Bidadi Industrial Zone, Near Toyota Kirloskar Motors, Bengaluru - 562 109.

Dear Sir/Madam,

Sub: Sanction of Student Project - 45th Series: Year 2021-2022

Project Proposal Reference No.: 45S BE 1945

Ref: Project Proposal entitled

**EXPERIMENTAL INVESTIGATION ON UCO, AVOCADO ( PERSEA** AMERICANA ) PEAR OIL , MUSTARD OIL ( KACHI GHANI ) **BLENDED WITH DIESEL AS A BIO FUEL FOR FOUR STROKE** SINGLE CYLINDER DIESEL ENGINE.

We are pleased to inform that your student project proposal referred above, has been approved by the Council under "Student Project Programme - 45th Series". The project details are as below:

Student(s)	Mr. ADARSH H P		
	Mr. KARTHIK KUMAR M	Department	MECHANICAL ENGINEERING
	Mr. VIJAY B		
	Mr. SHANMUKHA R C	Sanctioned	
Guide(s)	Prof. MAHADEVA	Amount	7,000.00
		(in Rs.)	

#### **Instructions:**

- a) The project should be performed based on the objectives of the proposal submitted.
- b) Any changes in the project title, objectives or students team is liable for rejection of the project and your institution shall return the sanctioned funds to KSCST.
- c) Please quote your project reference number printed above in all your future correspondences.
- d) After completing the project, 2 to 3 page write-up (synopsis) needs to be uploaded on to the following Google Forms link https://forms.gle/YMn9K7XETu96i8KbA. The synopsis should include following:
  - 1) Project Reference Number
  - 2) Title of the project
  - 3) Name of the College & Department
  - 4) Name of the students & Guide(s)
  - 5) Keywords
  - 6) Introduction / background (with specific reference to the project, work done earlier, etc) about 20 lines
  - 7) Objectives (about 10 lines)





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- 8) Methodology (about 20 lines on materials, methods, details of work carried out, includingdrawings, diagrams etc)
- 9) Results and Conclusions (about 20 lines with specific reference to work carried out)
- 10) Scope for future work (about 20 lines).
- e) In case of incompeted projects, the sanctioned amount shall be returned to KSCST.
- f) The sanctioned amount will be transferred by NEFT to the bank account provided by the College/Institute.
- g) The sponsored projects evaluation will be held in the Nodal Centre/Online Mode and the detailsof the same will be intimated shortly by email / Website announcement.
- h) After completion of the project, soft copy of the project report duly signed by the Principal, theHoD, Guide(s) and studetn(s) shall be uploaded in the following Google Forms Link https://forms.gle/PciAaAVisn6bn8AM7. The report should be prepared in the format prescribedby the university.

Please visit our website for further announcements / information and for any clarifications pleaseemail to spp@kscst.org.in

Thanking you and with

best regards, Yours

Sincerety

(H. Hemanth Kumar)

#### Copy to:

1) The HoD
MECHANICAL ENGINEERING
AMRUTA INSTITUTE OF ENGINEERING AND MANAGEMENT SCIENCES, BIDADI

2) Prof. MAHADEVA
MECHANICAL ENGINEERING
AMRUTA INSTITUTE OF ENGINEERING AND MANAGEMENT SCIENCES, BIDADI

3) THE ACCOUNTS OFFICER KSCST, BENGALURU

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Bidadi Industrial Area Near Toyota Kirloskar Motors
Bidadi, Bangalore-562 109

Department of Mechanical Engineering & Management Sciences:

Amruta Institute of Engineering & Management Sciences:

Bidadi Industrial Area, Near Toyota Kirloskar Motors.

Bidadi, Bengaluru-562 109

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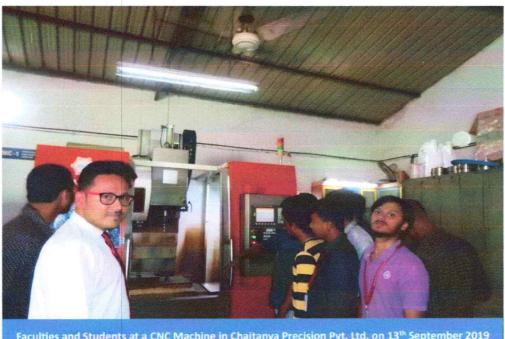


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# **Industrial Visit and Problem Solving Methods**



Faculties and Students at a CNC Machine in Chaitanya Precision Pvt. Ltd. on 13th September 2019



Department of Mechanical Engineering visited Chaitanya Precision Pvt.Ltd on dated 13th September 2019 under the guidance of Pro.Nagappa pattanshetty for the enhancement of Advance Manufacturing Technology in the field of Mechanical Engineering.





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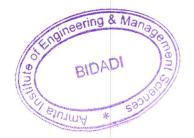
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Department of Mechanical Engineering visited Distinct Productivity Solutions

Bangalore on dated 6th October 2018 under the guidance of Pro. Mahadev to get a

awareness in Product and Design of Various Components in Mechanical Field.





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# 5. Leveraging ICT Tools: Enhancing Education and Collaboration

#### Introduction:

In the contemporary educational landscape, Information and Communication Technology (ICT) has revolutionised the way Mechanical Engineering departments operate, offering an array of tools that enrich teaching, learning, collaboration, and research endeavours. This presentation delves into the diverse ICT tools utilised by Mechanical Engineering departments to foster an enriching educational environment.

### 1. PowerPoint Presentation (PPT):

- PPT remains a cornerstone tool for delivering lectures, seminars, and presentations in Mechanical Engineering programs. Its versatility allows instructors to craft visually engaging content, facilitating effective knowledge dissemination.
- Features like animations, transitions, and multimedia integration enhance the learning experience and captivate students' attention.

#### 2. MS Office Suite:

- The MS Office suite, comprising applications like Word, Excel, and Outlook, serves as a comprehensive productivity platform for Mechanical Engineering departments.
- Word: Document creation, report writing, and collaborative editing.
- Excel: Data analysis, financial modeling, and statistical calculations.
- Outlook: Communication, scheduling, and task management.

#### 3. Google Platforms:

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• Google's suite of tools, including Google Docs, Sheets, Slides, and Drive, offers cloud-based collaboration and document management solutions.

Google Docs: Real-time collaboration on documents, facilitating group projects and peer feedback.



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- Google Sheets: Shared spreadsheets for collaborative data analysis and project management.
- Google Slides: Interactive presentations with seamless sharing and commenting features.
- Google Drive: Centralized storage for documents, enabling easy access and file sharing.

#### 4. YouTube:

- YouTube serves as a rich repository of educational content, with Mechanical Engineering departments utilizing it for supplemental learning resources.
- Channels dedicated to business education offer lectures, tutorials, case studies, and interviews with industry experts.
- Students benefit from diverse perspectives, practical insights, and engaging content that complements traditional coursework.

#### 5. NPTEL Course Material:

- NPTEL (National Programme on Technology Enhanced Learning) provides highquality course material developed by esteemed faculty from premier institutions.
- Mechanical Engineering departments leverage NPTEL resources to supplement core curriculum, offering specialized modules on topics like finance, marketing, operations, and strategy.
- The platform enhances accessibility to cutting-edge knowledge, promoting interdisciplinary learning and skill development.

### 6. WhatsApp:

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WhatsApp emerges as a popular communication tool among Mechanical Engineering cohorts, facilitating instant messaging, group discussions, and information sharing.



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- Dedicated groups for course updates, assignment reminders, and study groups foster a sense of community and collaboration.
- Quick dissemination of information and real-time interaction promote seamless communication between faculty and students.

### 7. Projector:

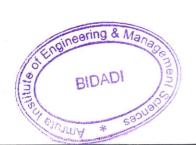
- Projectors enhance classroom engagement by enabling multimedia presentations,
   video screenings, and live demonstrations.
- Visual aids, diagrams, and interactive content augment lectures, catering to diverse learning styles and enhancing comprehension.
- Projectors also facilitate guest lectures, virtual presentations, and remote learning initiatives, expanding educational outreach beyond traditional confines.

#### 8. E-Books:

- E-Books offer Mechanical Engineering students convenient access to a wealth of academic literature, textbooks, and reference materials.
- Digital libraries and online repositories provide instant availability of resources, fostering independent study and research.
- E-Books are accessible across devices, promoting flexibility and convenience in learning, especially in the era of remote and hybrid education models.

#### Conclusion

Incorporating ICT tools into Mechanical Engineering education transcends traditional boundaries, enriching teaching and learning experiences while fostering collaboration and innovation. By harnessing the power of tools like PowerPoint, MS Office, Google platforms, e-books, Whatsapp, projectors, YouTube, and NPTEL course material, Mechanical Engineering departments can nurture a dynamic and future-ready cohort of business leaders equipped with the knowledge and skills to thrive in today's competitive landscape.







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# **DEPARTMENT OF MBA**

Student centric method such as Experimental learning, Participative Learning and Problem solving Methodologies are used for enhancing learning experience

# Description about student centric method

SI.NO	Description
1	Industry Visit & Problem solving methodologies
2	Participative Learning & Experiential Learning
3	Leveraging ICT Tools: Enhancing Education and Collaboration

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HOD-MBA

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Off Mysore Road, Bangalore 562 109

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Motors, Bidadi, Bangalore - 562109



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# **Industry Visit**

Industry visits are crucial for MBA students as they offer a bridge between theoretical learning and practical application in the business world. Through these visits, students witness firsthand how theoretical concepts translate into real-world scenarios, gain exposure to industry practices, and forge valuable networking connections. Moreover, industry visits enhance the overall learning experience by providing experiential learning opportunities, aiding in career exploration, understanding organizational culture, and honing soft skills. Additionally, these visits offer a feedback loop for academic institutions to continuously refine their curriculum, ensuring its relevance and responsiveness to industry demands. Overall, industry visits play a pivotal role in preparing MBA students for successful careers by providing a comprehensive understanding of the dynamic business landscape and fostering professional development.





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1. An industrial visit was organised by department of MBA to HCCB (Hindustan Cococola Breverages Pvt Ltd, situated in Bidadi industrial area, Bidadi for the students of 2<sup>nd</sup> sem MBA. The visit took place on 14<sup>th</sup> September 2023. Around 60 students and 5 faculty members were a part of this visit. The students gained practical insights in to the manufacturing and operational process of a renowned global beverages company. The highlight of the visit was guided tour of a production. We had the opportunity to witness the different departmental activities and functions of various departments as a part of the visit.







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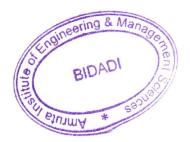


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2. On 24, Aug, 2023, MBA students from AIEMS College had the privilege of visiting Karl Zeiss India Pvt Ltd, a renowned company specializing in optics and optoelectronics. The visit aimed to provide students with insights into the company's operations, industry practices, and its contribution to the field of optics.

Karl Zeiss India Pvt Ltd is a subsidiary of Carl Zeiss AG, a global leader in optics and optoelectronics. Established in 1846, the company has a significant presence in India, offering a wide range of products and solutions in various sectors including healthcare, industrial manufacturing, research, and consumer optics.

The visit was an enlightening and enriching experience. It not only bordend students knowledge about the field of optics and imaging technology and its supply chain management and other processes of n industry but also motivated them to consider carriers in this dynamic and innovative industries.





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3. Students of MBA Visited M/s SM Kannappa Automobiles Pvt Ltd., on 11<sup>th</sup> August 2023 located near Lalbagh, Bangalore. Around 80 students of both 2<sup>nd</sup> and 4<sup>th</sup> sem MBA students along with 5 faculties members were a part of the visit. The industry visit provided the valuable insights into the process of Bus Manufacturing as it is well known for wide range of busses, material sourcing, fabrication and assembly, TQM and paint and finish.





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The industry experts of HR department (Mr. Ramesh), and Production department interacted with students and gave information on number of labors, Competitors details, Strength of company, job descriptions, clients information, time taken to manufacture,

product profile and Annual Production and Turnover.





4. The industrial visit to BAMUL (Bangalore Milk Union Limited), a KMF unit on 14, Sept, 2022 was organised for second semester MBA students. Marketing officer Ms Pallavi M explained and helped in coordinating the visit guided throughout the campus. Student got to know the interaction of business process with technology, SCM process & Marketing.





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During your visit, you might get to see firsthand how milk is collected from farmers, processed into various dairy products like milk, butter, cheese, and yogurt, and then packaged for distribution. Understanding the entire process, from farm to table, can give you valuable insights into the dairy industry's operations and challenges. Students were provided with an opportunity to learn practically through interaction, working methods and employment practices. Students got an exposure to play a crucial role in increasing networking opportunities such as internship/projects.







# BVV Sangha, Bagalket AMRUTA INSTITUTE OF ENGINEERING & MANAGEMENT SCIENCES

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# Participative and Experiential Learning

# 1. "A Report on Customer Survey of Nayara Energy"

# **Introduction:**

The 1<sup>st</sup> year MBA students took an Internship survey on Nayara energy for 7 days from 4<sup>th</sup> April 2023 to 10<sup>th</sup> April 2023. Around 35 students participated in the survey. Nayara Energy, a leading energy company, commissioned a customer survey conducted by students to understand customer tastes, preferences, and perceptions. The objective was to gather insights for potential improvements and to introduce the concept of Shell to Nayara Energy, thereby enhancing customer satisfaction and loyalty.





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# Methodology:

The survey was conducted by students across various demographics, including age groups, income levels, and geographic locations, ensuring a diverse sample. A mix of quantitative and qualitative methods, such as questionnaires and interviews, was employed to gather comprehensive data.

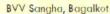
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Bidadi Industrial Zone, Near Toyota Kirloska Motors

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# **Key Findings:**

- Product Preferences: Customers expressed preferences for high-quality fuels and lubricants, emphasising the importance of reliability and performance.
- Service Expectations: Prompt and courteous service emerged as crucial factors influencing customer satisfaction. Customers valued convenience, cleanliness, and efficient operations at Nayara Energy outlets.
- Brand Perception: While Nayara Energy enjoys a positive brand reputation, customers
  expressed interest in the introduction of Shell products, citing familiarity and trust
  associated with the brand.
- Environmental Awareness: There was a growing concern among customers regarding environmental sustainability. Many expressed interest in eco-friendly initiatives and products, indicating a potential market for sustainable energy solutions.

#### **Conclusion:**

The customer survey conducted by students provided valuable insights into customer tastes, preferences, and expectations. Nayara Energy can strategically enhance its offerings, service experience, and environmental initiatives to better meet customer needs and strengthen its competitive position in the market. Introducing Shell products represents a significant opportunity for Nayara Energy to expand its product portfolio and appeal to a wider customer base.

# 2. 'Report on Consumer Research at Honda Bigwing Showroom'

Team Members: Prathiksha Gowda KS, Shivraju L, Aishwarya, Dushyant

Duration: April 5, 2023, to April 10, 2023

Location: Honda Bigwing Showroom, RR Nagar, Bangalore





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# Introduction:

The team of four 1st year MBA students conducted consumer research at the Honda Bigwing Showroom in RR Nagar, Bangalore, from April 5th to April 10th, 2023. The objective of the assignment was to understand various aspects of consumer behaviour, product knowledge, customer handling, and service-related inquiries.















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#### **Activities:**

During six days in the field, students were engaged in several activities including:

- Product Knowledge Acquisition: Students familiarize themselves with the range of products available at the showroom, including motorcycles, accessories, and related services. This involved them studying specifications, features, and benefits of different models.
- Customer Handling: Students observed and actively participated in customer interactions, learning how to address inquiries, provide information, and assist potential buyers in making informed decisions.
- Field Activities: Ventured into different areas to conduct surveys, gather feedback, and gauge consumer preferences regarding Honda Bigwing products and services.
- Customer Communication: Utilising the data provided, students reached out to customers
  via phone calls to inquire about their satisfaction levels, address any concerns, and offer
  assistance with service-related matters.

#### **Key Learnings:**

Through our experiences at Honda Bigwing Showroom, we gained valuable insights into various aspects of consumer research, including:

- Product Understanding: Enhanced knowledge about Honda Bigwing products, their features, and benefits.
- Customer Engagement: Improved skills in engaging with customers, understanding their needs, and providing tailored solutions.
- Market Insights: Obtained valuable feedback from consumers, enabling us to identify trends, preferences, and areas for improvement.
- Communication Skills: Developed effective communication strategies for interacting with customers and addressing their queries professionally.

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#### **Conclusion:**

The six-day assignment at Honda Bigwing Showroom provided students with a comprehensive understanding of consumer behaviour, product knowledge, and customer service in the context of the automotive industry. Students were confident that the insights gained will prove invaluable in their future endeavours in consumer research and related fields.

# 'A report on Re-commerce Expo'

Date: 9th - 10th August 2023

Venue: Gayathri Vihar, Palace Grounds, Bengaluru

Participants: A team of four 1st-year MBA students namely Triveni. R, Mahesh S.R, William

Prajwal and Meghana.

# Objective of the Expo:

The Re-commerce Expo - 4th Edition focused on promoting the reuse of waste products and efficient waste management practices. It aimed to showcase innovative solutions, technologies, and initiatives aimed at sustainability and environmental conservation.









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# **Team Participation:**

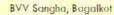
A team of four 1st-year MBA students enthusiastically participated in the two-day event. With a keen interest in sustainability and environmental issues, students were eager to learn about the latest developments in re-commerce and waste management.

#### **Activities:**

Throughout the event, our team actively engaged with various companies, exhibitors, and experts present at the expo. Students participated in:

- Information Collection: We diligently collected information from different stalls and exhibitors regarding their products, services, and initiatives related to waste reuse and management. This included gathering data on innovative technologies, recycling processes, and sustainable business models.
- Interactions and Queries: We interacted with representatives from different companies to
  gain insights into their approaches towards waste management and re-commerce. We
  posed relevant queries to understand the feasibility, scalability, and environmental impact
  of their solutions. Our discussions ranged from circular economy principles to the
  challenges faced in implementing sustainable practices.







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 Problem Solving: Leveraging our analytical skills and knowledge gained from our MBA program, we actively participated in solving queries and addressing concerns raised by both exhibitors and fellow attendees. We offered practical solutions and suggestions based on our understanding of business management principles and sustainability practices.

# **Key Learnings:**

Participating in the Re-commerce Expo - 4th Edition was a valuable learning experience for Students. Some of the key learnings include:

- Understanding the importance of waste reuse and management in promoting sustainability and reducing environmental impact.
- Exploring innovative technologies and solutions aimed at recycling and repurposing waste materials.
- Gaining insights into the challenges and opportunities associated with implementing sustainable business practices.
- Enhancing our problem-solving and communication skills through interactions with industry professionals and experts.
- Recognizing the role of business management principles in driving positive environmental change and fostering sustainable development.

#### Conclusion:

The Re-commerce Expo - 4th Edition provided an excellent platform for our students to immerse themselves in the world of sustainability and waste management. Through active participation, interactions, and problem-solving, students gained valuable insights and experiences that will undoubtedly influence their future careers in business management. Students were grateful for the opportunity to contribute to the discourse on re-commerce and waste management and look forward to applying learnings in academic and professional endeavours.





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# "Internship Report on Offline Survey on Consumer Perception of ICICI Bank's Loan and Banking Services"

# Introduction:

During a one-week internship at ICICI Bank, a team of MBA students conducted an offline survey to assess consumer perception regarding the availability of loans, credit, and overall banking services provided by ICICI Bank, Ittamadu branch, Bidadi. The objective was to gain insights into consumer sentiments, identify areas of improvement, and to enhance customer satisfaction and engagement.







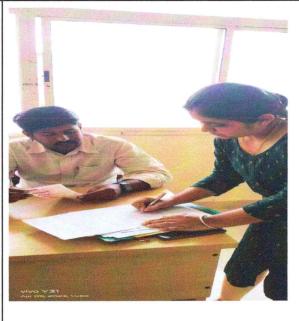


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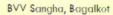
# Methodology:

- Survey Design: A structured questionnaire was developed to collect relevant data. The
  questionnaire encompassed various aspects such as loan accessibility, credit facilities,
  customer service experience, and satisfaction levels.
- Sampling: The survey targeted a diverse demographic of ICICI Bank customers across Bidadi area. Participants were approached in person at various ICICI Bank branches.
- Data Collection: Trainedstudents administered the survey through face-to-face interviews with respondents.

# **Findings:**

- Loan Accessibility: The majority of respondents expressed satisfaction with the availability of loans offered by ICICI Bank. However, a significant proportion indicated a desire for more simplified application processes and quicker approval timelines.
- Credit Facilities: While many respondents acknowledged the diverse range of credit facilities provided by ICICI Bank, some raised concerns regarding the complexity of terms and conditions, as well as high-interest rates.







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- Customer Service Experience: Feedback on customer service varied. While some customers praised the responsiveness and professionalism of ICICI Bank staff, others reported instances of long waiting times and dissatisfaction with problem resolution.
- Satisfaction Levels: Overall satisfaction levels among respondents were mixed. While some customers were highly satisfied with ICICI Bank's services, others expressed dissatisfaction primarily due to perceived lack of transparency and communication.

#### **Conclusion:**

The offline survey conducted during the internship provided valuable insights into consumer perceptions of ICICI Bank's loan offerings and banking services. ICICI Bank can strengthen its customer relationships and enhance its position as a trusted financial institution.

# Leveraging ICT Tools in MBA Department: Enhancing Education and Collaboration

#### Introduction:

In the contemporary educational landscape, Information and Communication Technology (ICT) has revolutionised the way MBA departments operate, offering an array of tools that enrich teaching, learning, collaboration, and research endeavours. This presentation delves into the diverse ICT tools utilised by MBA departments to foster an enriching educational environment.

# 1. PowerPoint Presentation (PPT):

- PPT remains a cornerstone tool for delivering lectures, seminars, and presentations in MBA programs. Its versatility allows instructors to craft visually engaging content, facilitating effective knowledge dissemination.
- Features like animations, transitions, and multimedia integration enhance the learning experience and captivate students' attention.

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# 2. MS Office Suite:

- The MS Office suite, comprising applications like Word, Excel, and Outlook, serves as a comprehensive productivity platform for MBA departments.
- Word: Document creation, report writing, and collaborative editing.
- Excel: Data analysis, financial modeling, and statistical calculations.
- Outlook: Communication, scheduling, and task management.

# 3. Google Platforms:

- Google's suite of tools, including Google Docs, Sheets, Slides, and Drive, offers cloudbased collaboration and document management solutions.
- Google Docs: Real-time collaboration on documents, facilitating group projects and peer feedback.
- Google Sheets: Shared spreadsheets for collaborative data analysis and project management.
- Google Slides: Interactive presentations with seamless sharing and commenting features.
- Google Drive: Centralized storage for documents, enabling easy access and file sharing.

#### 4. YouTube:

 YouTube serves as a rich repository of educational content, with MBA departments utilizing it for supplemental learning resources.





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- Channels dedicated to business education offer lectures, tutorials, case studies, and interviews with industry experts.
- Students benefit from diverse perspectives, practical insights, and engaging content that complements traditional coursework.

#### 5. NPTEL Course Material:

- NPTEL (National Programme on Technology Enhanced Learning) provides high-quality course material developed by esteemed faculty from premier institutions.
- MBA departments leverage NPTEL resources to supplement core curriculum, offering specialized modules on topics like finance, marketing, operations, and strategy.
- The platform enhances accessibility to cutting-edge knowledge, promoting interdisciplinary learning and skill development.

# 6. WhatsApp:

- WhatsApp emerges as a popular communication tool among MBA cohorts, facilitating instant messaging, group discussions, and information sharing.
- Dedicated groups for course updates, assignment reminders, and study groups foster a sense of community and collaboration.
- Quick dissemination of information and real-time interaction promote seamless communication between faculty and students.

# 7. Projector:

- Projectors enhance classroom engagement by enabling multimedia presentations, video screenings, and live demonstrations.
- Visual aids, diagrams, and interactive content augment lectures, catering to diverse learning styles and enhancing comprehension.

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 Projectors also facilitate guest lectures, virtual presentations, and remote learning initiatives, expanding educational outreach beyond traditional confines.

#### 8. E-Books:

- E-Books offer MBA students convenient access to a wealth of academic literature, textbooks, and reference materials.
- Digital libraries and online repositories provide instant availability of resources, fostering independent study and research.
- E-Books are accessible across devices, promoting flexibility and convenience in learning, especially in the era of remote and hybrid education models.

#### Conclusion

Incorporating ICT tools into MBA education transcends traditional boundaries, enriching teaching and learning experiences while fostering collaboration and innovation. By harnessing the power of tools like PowerPoint, MS Office, Google platforms, e-books, Whatsapp, projectors, YouTube, and NPTEL course material, MBA departments can nurture a dynamic and futureready cohort of business leaders equipped with the knowledge and skills to thrive in today's competitive landscape.

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