BABA FARID COLLEGE OF ENGG. & TECHNOLOGY

Report

on

Android App Development

Eligible Students: B.Tech. 6th Semester

Date: 10-03-2022 to 02-06-2022

Duration of Course: 36 Hours

Course Code: CC_AAD

No. of students Enrolled: 30

Timing: 11.30-1.05

Days: Thursday & Friday

Course Coordinator: Er. Manpreet Kaur, Assistant Professor (CSE)

The Android App Development course conducted during the session 2021-22 for B.Tech. students. It was a comprehensive program aimed for providing a strong foundation in Android application development. The course duration was 36 hours, where 30 enrolled students successfully completed the course.

The faculty expert ensured that the modules covered various aspects of Android development, including the introduction to Android, installation, building the first application, testing, debugging, user interaction, background tasks, data storage using SQLite, and more.

Teaching Pedagogy:

The teaching pedagogy enhances problem-solving skills, students were given code snippets that demonstrated the practical implementation of the concepts covered in the presentations. These code snippets served as practical examples and helped students understand how to apply the theoretical knowledge in real-world scenarios. Active participation and engagement were encouraged through group discussions and quizzes. Students were encouraged to explore and experiment with different features and functionalities of the Android platform. They were given guidance and support to develop their own Android applications, thereby fostering creativity and innovation. By providing detailed presentations, code snippets, group discussions, quizzes, hands-on practice, and lab exercises, the course aimed to equip students with a strong foundation in Android application development and the ability to solve real-world problems in the field.

Topics Covered:

The course covers the following modules:

Module 1: Introduction to Android, its history and versions, Android fundamentals, programming languages, components, and app lifecycle.

Module 2: focuses on software installation and building the first Android app with layouts, views, resources, and activities.

Module 3: Covers testing, debugging, and the Android Support Library.

Module 4: It explores user interaction, including menus, navigation, internet connectivity, maps, broadcast receivers, notifications, and alarms.

Module 5: Students learned about SQLite database, data storage, content providers, permissions, and interface testing.

Overall, the course provides a comprehensive understanding of Android app development, including design, functionality, data handling, and testing.

Assessment Procedure:

The students were evaluated throughout the course based on four parameters: Technical Knowledge, Hands-on Practice, Skill Test, and Attendance. Each parameter carried a certain weightage in the overall evaluation.

1. Technical Knowledge in Concerned Field (20 marks):

This parameter measured their theoretical knowledge, conceptual understanding, and ability to apply that knowledge to practical scenarios.

2. Hands-on Practice (10 marks):

Hands-on practice evaluated the student's ability to apply their knowledge in practical situations. It measured their proficiency in utilizing tools, techniques, or software relevant to the course.

3. Skill Test (10 marks):

The skill test assessed the student's competency and proficiency in specific skills related to the course. It focused on practical skills that were essential for the field of study.

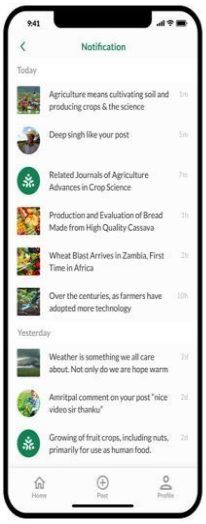
4. Attendance (10 marks):

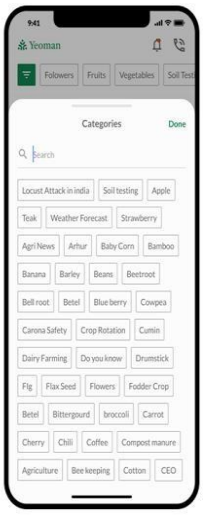
Attendance refers to the student's regular presence in the course. It emphasizes the importance of active participation and consistent engagement throughout the duration of the program.

Outcome:

1. Android App Development course successfully equipped students with the necessary knowledge and skills to create mobile applications using Android Studio.

2. Student gained proficiency in using various Android components, working with databases, integrating services like location and maps, and publishing their developed applications.
3. This course played a vital role in enhancing the students' abilities and preparing them for real-world Android development challenges.
4. Students made Android Applications such as Farmer's app, and many more. It was the major achievement of the certificate course.





Screenshots of Farmer's Application

BABA FARID COLLEGE OF ENGG. & TECHNOLOGY

Report

on

Web Programming using PHP & MySQL

Eligible Students: B.Tech. 4th Semester

Date: 04-03-2022 to 03-06-2022

Duration of Course: 36 Hours

Course Code: CC_WPP

No. of Students enrolled in the course: 28

Timing: 11:30 am to 01:05 pm

Days: Monday & Friday

Course Coordinator: Er. Gursewak Singh, Assistant Professor (CSE)

The Web Programming using PHP & MySQL module in the 4th semester of B.Tech. Computer Science & Engineering focused on web development technologies. The course duration was 36 hours, where 28 enrolled students successfully completed the course. Under the guidance of faculty expert, students learned HTML/CSS fundamentals and PHP programming. They set up the Xampp Server, including Apache Server, PHP compiler, and MySQL Database. The course covered dynamic web page creation using PHP/MySQL and CSS for visual appeal. Students also learned about data structure creation, website authentication, and data retrieval from databases. The completion of this course provided students with a solid foundation in web development, preparing them for future challenges in computer science and engineering.

Teaching Pedagogy:

The teaching pedagogy for the web development course employed interactive presentations, hands-on practice, group discussions, and collaboration to impart knowledge and skills. Students set up the Xampp Server and learned the fundamentals of HTML/CSS and PHP programming. They practiced creating dynamic web pages, implementing responsive GUI with CSS, and designing efficient data structures for storing user data using MySQL. Concepts of website authentication and data retrieval were also covered. Regular assessments and feedback ensured continuous learning and improvement. Overall, the course aimed to equip students witha strong foundation in web development and foster critical thinking, problem-solving, and collaboration skills

Topic Covered:

Module 1: Basic Syntax, Defining variable and constant, PHP Data type, Operator and Expression.

Module 2: Making Decisions, Doing Repetitive task with looping, Mixing Decisions and looping.

Module 3: What is a function, Define a function, Call by value and Call by reference, Recursive function,String Creating and accessing, String Searching & Replacing String, Formatting String, StringRelated Library function.

Module 4: Anatomy of an Array, Creating index based and Associative array Accessing array, Element Looping with Index based array, Looping with associative array using each () and foreach(), Some useful Library function.

Module 5: Capturing Form, Data Dealing with Multi-value filed, and Generating File uploaded form,redirecting a form after submission.

Module 6: Understanding file& directory, Opening and closing, a file, Coping, renaming and deleting afile, working with directories, Creating and deleting folder, File Uploading & Downloading.

Module 7: Introduction to Session Control, Session Functionality What is a Cookie, Setting Cookies withPHP. Using Cookies with Sessions, Deleting Cookies, Registering Session variables, Destroying the variables and Session.

Module 8: Introduction to RDBMS, Connection with MySql Database, Performing basic database operation (DML) (Insert, Delete, Update, Select), Setting query parameter, Executing query- Join (Cross joins, Inner joins, Outer Joins, Self joins.)

Assessment Procedure:

The students were evaluated throughout the course based on four parameters: Technical Knowledge, Hands-on Practice, Skill Test, and Attendance. Each parameter carried a certain weightage in the overall evaluation.

1. Technical Knowledge in Concerned Field (20 marks):

This parameter measured their theoretical knowledge, conceptual understanding, and ability to apply that knowledge to practical scenarios.

2. Hands-on Practice (10 marks):

Hands-on practice evaluated the student's ability to apply their knowledge in practical situations. It measured their proficiency in utilizing tools, techniques, or software relevant to the course.

3. Skill Test (10 marks):

The skill test assessed the student's competency and proficiency in specific skills related to the course. It focused on practical skills that were essential for the field of study.

4. Attendance (10 marks):

Attendance refers to the student's regular presence in the course. It emphasizes the importance of active participation and consistent engagement throughout the duration of the program.

Outcomes:

1. Students have learned the process of converting a static website into a dynamic one by utilizing PHP and MySQL. They gained insights into the necessary steps and techniques involved in this conversion.
2. Students acquired the ability to analyze the fundamental structure of a PHP web application. They learned how different components of the application interact and contribute to its functionality.
3. The course enabled students to install, compile, and execute web applications on web servers. They learned the necessary steps and configurations required to ensure proper functioning of PHP applications.
4. Students gained knowledge and skills related to designing databases for web applications. They learned how to create efficient and structured databases to store and retrieve information. Additionally, they explored various techniques for manipulating and querying databases using PHP.
5. Students learned the process of integrating PHP with MySQL, enabling them to perform database operations within PHP scripts. They gained a deep understanding of how to establish connections, execute queries, and manage data between PHP and MySQL.
6. Students are well-prepared to develop live project ""Dynamic E-commerce Website" using PHP and MySQL effectively.

Screenshots of Staff Management Website

BABA FARID COLLEGE OF ENGG. & TECHNOLOGY

Report
On
Advance Python Programming

Eligible Student: B.Tech 6th Semester

Date: 17-03-2022 to 02-06-2022

Duration of Course: 32 Hours

Course Code- CC_APP

No. of Students Enrolled in the course: 35

Timing: 01:50 pm to 03:20 pm

Days: Thursday & Friday

Course Coordinator: Er. Sukhwinder Singh, Assistant Professor (CSE)

The "Python Programming" course was conducted for the 6th semester students pursuing B.Tech. in Computer Science & Engineering. The course duration was 32 hours, where 35 enrolled students successfully completed the course. Python, a widely used general-purpose programminglanguage known for its readability and efficiency, was the primary focus of the course. Students were introduced to the fundamentals of Python and its applications in various fields.

Topic Covered:

Module 1: Python environment setup and basic plot manipulation.

Module 2: Working with lists, arrays, and image manipulation using arrays.

Module 3: Matrix operations, loops, tuples, dictionaries, and basic datatypes.

Module 4: Functions, Python modules, scripting, testing, debugging, and error handling.

Module 5: Introduction to Python Django, models, views, URLs, HTML templates, database queries, forms, and web authentication.

Assessment Procedure:

The students were evaluated throughout the course based on four parameters: Technical Knowledge, Hands-on Practice, Skill Test, and Attendance. Each parameter carried a certain weightage in the overall evaluation.

1. Technical Knowledge in Concerned Field (20 marks):

This parameter measured their theoretical knowledge, conceptual understanding, and ability to apply that knowledge to practical scenarios.

2. Hands-on Practice (10 marks):

Hands-on practice evaluated the student's ability to apply their knowledge in practical situations. It measured their proficiency in utilizing tools, techniques, or software relevant to the course.

3. Skill Test (10 marks):

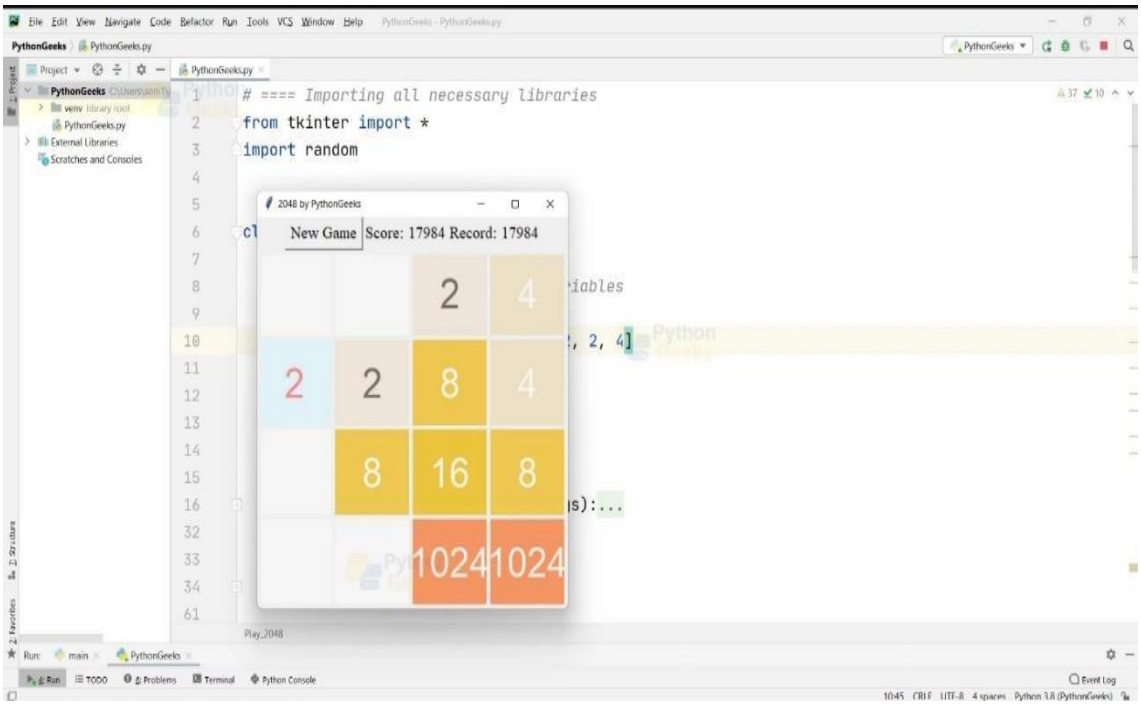
The skill test assessed the student's competency and proficiency in specific skills related to the course. It focused on practical skills that were essential for the field of study.

4. Attendance (10 marks):

Attendance refers to the student's regular presence in the course. It emphasizes the importance of active participation and consistent engagement throughout the duration of the program.

Outcomes:

1. Students gained the necessary knowledge and skills to work effectively with Python programming language across various domains.
2. Students acquired the ability to perform numeric and symbolic computations using Python. They learned techniques for handling complex mathematical operations and calculations.
3. Students learned how to create and manipulate graphs using Python. They gained proficiency in plotting 2D and 3D graphs, enabling them to visually represent data and analyze trends.
4. The course equipped students with the fundamentals of web development using Python. They learned concepts and techniques for developing web applications, utilizing frameworks such as Django.
5. Through practical exercises and projects, students gained hands-on experience working with various Python modules. They became proficient in selecting and utilizing the right modules to enhance their engineering activities.



Screenshot of Python 2048 Game

Report

on

REVIT Software for Planning & Drawing

Eligible Students: B.Tech. 4th, 6th & 8th Semester

Date: 25-03-2022 to 17-06-2022

Duration of Course: 33 Hours

Course Code: CC_RPD

No. of students Enrolled: 36

Timing: 01.50-03.20

Days: Monday & Friday

Course Coordinator: Er. Jaspreet Singh, Assistant Professor (CE)

REVIT is a building information modeling (BIM) software developed by Autodesk, catering to architects, engineers, and construction professionals. It offers a comprehensive set of tools for designing, constructing, and maintaining buildings and infrastructure. With its user-friendly interface and analytical capabilities, REVIT enables efficient architectural design, MEP engineering, structural engineering, construction documentation, and project collaboration.

Throughout the course, students were evaluated based on skill tests, hands-on practice, attendance, and technical knowledge. The feedback from students was overwhelmingly positive, indicating their successful acquisition of knowledge and skills. Out of the 36 participants, 34 students received certificates upon completing the course.

Teaching Pedagogy:

The course began with an introduction to the basic techniques of REVIT, covering initialsoftware settings and the user interface. Students were then exposed to various modules, including structures and annotation, types of loads and patterns, requirements for structuredesign, and reinforcement settings. These modules provided in-depth knowledge of REVITfunctionalities, such as fabric selection, foundation slab types, line patterns, load types, and material selection.

Topics Covered:

The modules covered in this course are as follows:

Module-1: Basics of REVIT software

- Introduction to the basic techniques of REVIT
- Basic initial settings and user interface of the software
- Analytical Link types in detail

Module-2: Structures and Annotation

- Annotation Family Label Types in detail
- Fabric (select all three) in detail
- Foundation Slab Types for different types of structures

Module-3: Types of loads, patterns, and styles

- How to do Halftone and Underlay Settings
- Line Patterns, Line Styles for different structures
- Load Types for different structures

Module-4: Materials for different structures

- Requirement for structure design
- Reinforcement Settings and Slab Edge Settings
- Structural Settings for different structures

Assessment Procedure:

The students were evaluated throughout the course based on four parameters: Technical Knowledge, Hands-on Practice, Skill Test, and Attendance. Each parameter carried a certain weightage in the overall evaluation.

1. Technical Knowledge in Concerned Field (20 marks):

This parameter measured their theoretical knowledge, conceptual understanding, and ability to apply that knowledge to practical scenarios.

2. Hands-on Practice (10 marks):

Hands-on practice evaluated the student's ability to apply their knowledge in practical situations. It measured their proficiency in utilizing tools, techniques, or software relevant to the course.

3. Skill Test (10 marks):

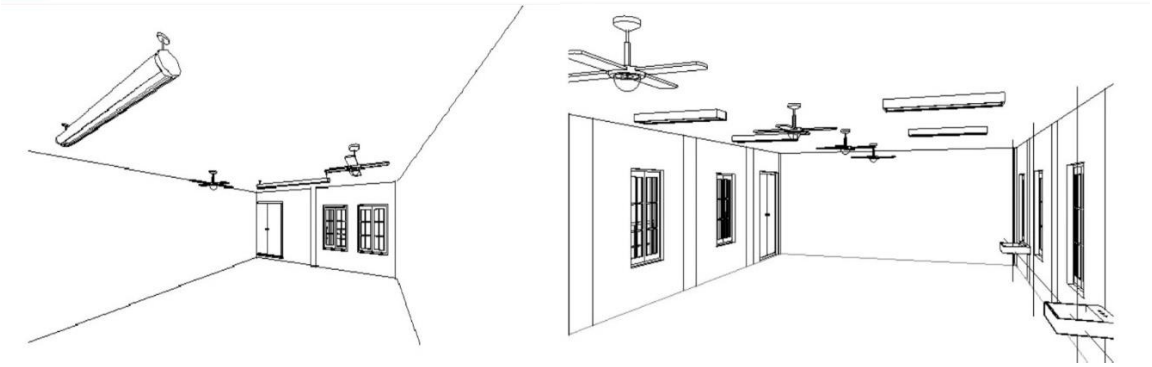
The skill test assessed the student's competency and proficiency in specific skills related to the course. It focused on practical skills that were essential for the field of study.

4. Attendance (10 marks):

Attendance refers to the student's regular presence in the course. It emphasizes the importance of active participation and consistent engagement throughout the duration of the program.

Outcomes:

1. Acquired knowledge and skills in architectural design, building element analysis, and static analysis from the cloud.
2. Proficiency in creating structural analytical models and utilizing BIM-based building performance workflows.
3. Enhanced efficiency in cropping non-rectangular model areas and managing elevation cut- line configuration.
4. Mastery in automatically displaying dimension values and deriving construction insight from design models.
5. Proficiency in calculating detailed material quantities and displaying totals in current or load values.
6. The project undertaken during the course involved designing of building structure using REVIT. Students had the opportunity to apply their knowledge and skills to develop an architectural model, perform analysis, and generate accurate documentation.



Inside views of Building structure project using REVIT

3D Design of building structure project using REVIT

Report

on

Engineering Practices in Civil

Eligible Students: B.Tech. 4th & 6th Semester

Date: 25-03-2022 to 17-06-2022

Duration of Course: 33 Hours

Course Code: CC_EPC

No. of students Enrolled: 40

Timing: 01.50-03.20

Days: Monday & Friday

Course Coordinator: Er. Rajan Vinayak, Assistant Professor (CE)

The Engineering Practices in Civil course covered various aspects of surveying and construction, focusing on the use of total station instruments, bar bending schedules (BBS), and quantity surveying of building materials. The course aimed to provide students with the necessary knowledge and skills required in the surveying industry, including theoretical and practical aspects of total station operation, BBS preparation, and material quantity calculations.

This course proved to be an effective platform for students to acquire practical skills and knowledge related to surveying, total station instruments, bar bending schedules, and quantity surveying of building materials. Overall, the course received positive feedback from students, and 38 out of 40 participants received certificates for successfully completing the program.

Teaching Pedagogy:

The course began with an introduction to surveying methods, principles, and basic trigonometry functions for distance and angular measurements. Students learned about coordinate systems, units of measurement, and the establishment of survey control points. The theoretical aspects of total station instruments were covered, including their components, working principles, advantages, and limitations. Practical sessions focused on familiarizing students with the machine parts, instrument handling, machine setup, job and station setup, traversing techniques, and detailed surveys. The theoretical aspects of bar bending schedules and the calculation of bar

length, weight, and numbers were also taught. Additionally, methods for calculating material volume and analyzing rates of different building materials were covered.

Topics Covered:

The modules covered in this course are as follows:

Module-1: Fundamentals of Surveying (Theoretical Aspects)

- Introduction to surveying methods and principles.
- Basics of trigonometry functions for distance and angular measurements.
- Understanding coordinate systems and units of measurements.
- Establishing survey control points.

Module-2: Total Station (Theoretical Aspects)

- Common concepts related to Total Station (EDM).
- How Total Station works and its machine components.
- Exploring the advantages and limitations of Total Station technology.

Module-3: Total Station (Practical Aspects)

- Familiarization with the different parts of the Total Station machine.
- Handling and operating the Total Station instrument.
- Setting up the Total Station equipment, including leveling, centering, and focusing.
- Job setup, station setup, and orientation techniques.
- Traversing methods (Close and Open).
- Conducting detail surveys using Total Station.

Module-4: Bar Bending Schedule (BBS) (Theoretical Aspects)

- Preparation of Bar Bending Schedule for reinforcement steel.
- Calculation of length, weight, and quantity of bars.

Module-5: Quantity Surveying of Building Materials

- Methods for calculating the volume of building materials.
- Analysis of rates for different types of building materials.

These modules provide a comprehensive understanding of surveying fundamentals, the practical aspects of using Total Station, preparing Bar Bending Schedules, and conducting quantity surveying for building materials.

Assessment Procedure:

The students were evaluated throughout the course based on four parameters: Technical Knowledge, Hands-on Practice, Skill Test, and Attendance. Each parameter carried a certain weightage in the overall evaluation.

1. Technical Knowledge in Concerned Field (20 marks):

This parameter measured their theoretical knowledge, conceptual understanding, and ability to apply that knowledge to practical scenarios.

2. Hands-on Practice (10 marks):

Hands-on practice evaluated the student's ability to apply their knowledge in practical situations. It measured their proficiency in utilizing tools, techniques, or software relevant to the course.

3. Skill Test (10 marks):

The skill test assessed the student's competency and proficiency in specific skills related to the course. It focused on practical skills that were essential for the field of study.

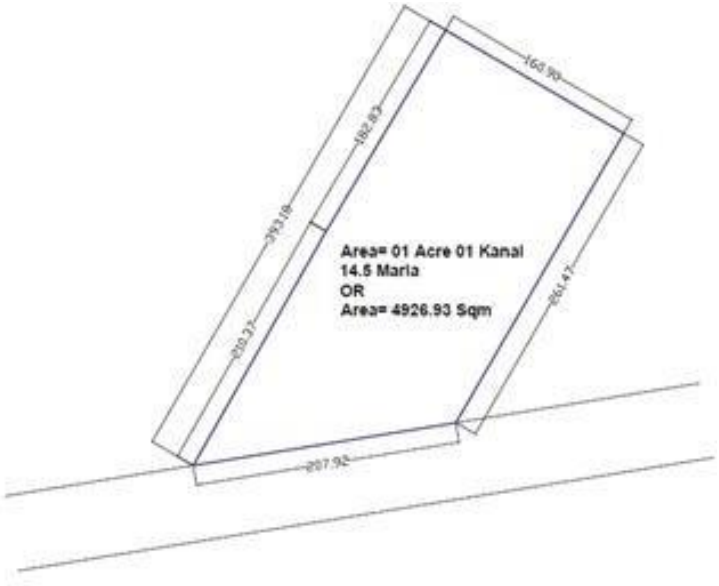
4. Attendance (10 marks):

Attendance refers to the student's regular presence in the course. It emphasizes the importance of active participation and consistent engagement throughout the duration of the program.

Outcomes:

1. Students gained the necessary knowledge about the diverse applications of total station technology, enabling them to apply it effectively in various surveying tasks.
2. Through practical training, students learned how to conduct accurate field surveys using total station techniques.
3. Students gained an in-depth understanding of the functions and components of total station equipment and became proficient in setting up the equipment using techniques such as centering, leveling, and focusing.
4. They learned how to calculate the quantities of various building materials needed for construction purposes.

5. Students were provided with coordinate files for AutoCAD software, allowing them to create maps, measure distances, and calculate areas accurately. They successfully utilized this data to determine the dimensions of existing buildings on the college campus.



Dimensions of Existing Buildings on the College Campus in AUTOCAD software

Report

on

Brick Work Masonry

Eligible Students: B.Tech. 2nd, 4th & 8th Semester

Date: 25-03-2022 to 17-06-2022

Duration of Course: 33 Hours

Course Code: CC_BWM

No. of students Enrolled: 30

Timing: 01.50-03.20

Days: Monday & Friday

Course Coordinator: Er. Sandeep Maan, Assistant Professor (CE)

Brick laying is a skill-intensive process used for constructing walls and structures using bricks as the primary building material. It involves precise techniques to ensure stability and durability of the finished structure. This report highlights the key modules covered during a brick laying course, including an overview of bricks, tools and equipment used, types of brick bonding,setting out walls, and the importance of plumbing, leveling, and gauging. The course aimed to provide students with the necessary knowledge and skills to successfully execute brickwork.

This course offered a comprehensive curriculum that covered essential aspects of bricklaying. It provided students with theoretical knowledge, practical skills, and hands-on experience required in brickwork construction. The course successfully trained 28 students, who received certificates upon completion, and received positive feedback for its effectiveness in imparting bricklaying expertise.

Teaching Pedagogy:

The course followed a structured approach to teaching brick laying. It began with an understanding of bricks and related terms, including their dimensions, manufacturing process, and different types available. Students were then introduced to the various tools and equipment used in brickwork, ranging from hand tools to power tools and measuring devices. The course

extensively covered different brick bonding techniques, emphasizing the importance of choosing the right bond for specific projects. Setting out walls, plumbing, leveling, and gauging were crucial skills taught to ensure accurate brick placement. Lastly, students were guided on setting out complex wall designs and excavations, enabling them to tackle intricate projects.

Topics Covered:

The required modules for the bricklaying course can be summarized as follows:

Module 1: Bricks and Related Terms

- Dimensions of bricks
- Manufacturing process of bricks
- Different types of bricks and their characteristics (class and strength)

Module 2: Bricklaying Tools and Brick Cut Shapes

- Hand tools: trowels, hammers, bolsters
- Power tools: heavy-duty drills, mixers for mortar and plaster
- Measuring devices: laser levels, tape measure
- Lifting equipment: bosun's chairs

Module 3: Types of Brick Bonding

- Stretcher bond
- Header bond
- English bond
- Flemish bond
- Facing bond
- Dutch bond
- English cross bond
- Brick on edge bond
- Raking bond
- Zigzag bond
- Garden wall bond

Module 4: Setting out a Basic Wall

- Process of developing the physical positions of corners and walls
- Transferring dimensions from the layout plan to the ground

Module 5: Plumbing, Leveling, and Gauging

- Gauge: Checking the height of the course
- Level: Ensuring the course is level
- Plumb: Verifying that the wall is vertical

Module 6: Setting out a Complex Design of Wall

- Clearly defining the outline of the excavations for complex wall designs

These modules cover essential aspects of bricklaying, including understanding bricks, utilizing tools, mastering different brick bonding techniques, setting out walls accurately, and ensuring proper plumbing, leveling, and gauging.

Assessment Procedure:

The students were evaluated throughout the course based on four parameters: Technical Knowledge, Hands-on Practice, Skill Test, and Attendance. Each parameter carried a certain weightage in the overall evaluation.

1. Technical Knowledge in Concerned Field (20 marks):

This parameter measured their theoretical knowledge, conceptual understanding, and ability to apply that knowledge to practical scenarios.

2. Hands-on Practice (10 marks):

Hands-on practice evaluated the student's ability to apply their knowledge in practical situations. It measured their proficiency in utilizing tools, techniques, or software relevant to the course.

3. Skill Test (10 marks):

The skill test assessed the student's competency and proficiency in specific skills related to the course. It focused on practical skills that were essential for the field of study.

4. Attendance (10 marks):

Attendance refers to the student's regular presence in the course. It emphasizes the importance of active participation and consistent engagement throughout the duration of the program.

Outcomes:

1. Students acquired the necessary knowledge about bricklaying, including understanding brick dimensions, manufacturing processes, and different types of bricks.
2. They learned how to select bricks that are true to shape and angle, and reject damaged or chipped bricks.
3. Students gained knowledge about different brick bonding techniques, enabling them to choose the appropriate bond for specific projects.
4. Students learned how to construct projects in accordance with provided drawings, translating the dimensions and specifications into actual brickwork.
5. The bricklaying project undertaken during the course entitled Mastering the Art of Brickwork. By understanding the technical aspects, utilizing appropriate tools, and implementing precise techniques, students acquired the ability to construct robust and visually appealing brick structures.

Construction of Wall Using Brickwork

Report

on

AUTO CAD Essentials

Eligible Students: B.Tech. 2nd Semester

Duration of Course: 32 Hours

Date: 04-03-2022 to 27-05-2022

Course Code: CC_ACE

No. of Students Enrolled in the course: 28

Timing: 01:50 pm to 03:20 pm

Days: Tuesday and Friday

Course Coordinator: Er. Indraj Kumar

The AutoCAD Essentials course conducted during the session 2021-22 for B.Tech. students. This certificate course offers a comprehensive learning experience for individuals seeking to develop proficiency in computer-aided design (CAD). AutoCAD is a powerful software widely used in various industries, including architecture, engineering, and construction. The course duration was 32 hours, where 25 students successfully completed the course.

The faculty expert ensured to equip students with the necessary knowledge and skills to effectively utilize AutoCAD for creating precise 2D and 3D digital designs. Through hands-on practice and interactive sessions, students will learn the fundamental tools and techniques of AutoCAD, enabling them to produce professional drawings, models, and layouts.

Teaching Pedagogy:

The teaching pedagogy for the AutoCAD Essentials course focuses on hands-on learning and interactive methods. Students will receive live demonstrations to understand AutoCAD functionalities, followed by ample opportunities for hands-on practice. Individual guidance and collaborative learning activities will enhance the learning experience. Regular assessments will provide feedback, and real-world applications will highlight the practical relevance of AutoCAD. A project-based approach will allow students to apply their skills, and additional resources will encourage continuous learning beyond the classroom. Through these methods, the course aims to provide a comprehensive and practical understanding of AutoCAD for 2D and 3D design purposes.

Topics Covered:

Module 1: Introduction to Auto CAD

Introduction of AutoCAD, AutoCAD versions, Interface, Control the Drawing, Function keys, AutoCAD basics, Coordinate system, Cartesian, coordinate system,

Module 2: Draw and Modify commands

Draw Commands-Line, Poly line command, Rectangle command, Modify commands-Move, Rotate, Scale, copy, Mirror, erase, trim, extend, Annotate-Dimension Style, Manager Linear, Aligned, Radius, Angular, Arc length

Module 3: Text command, Layers, blocks

Text command-Single line text, Multiline text Layers, Layer properties, Blocks, Insert blocks, Parametric Geometric, Dimensional Manage

Module 4: Isometric views

Isometric views-Isometric top, left, right Isometric diagrams, Isometric drawings, Isometric diagrams, exercise, 2D Fundamentals, Drawing units, Sheet settings, Mechanical diagrams

Module 5: Project

Mechanical Projects

Assessment Procedure:

The students were evaluated throughout the course based on four parameters: Technical Knowledge, Hands-on Practice, Skill Test, and Attendance. Each parameter carried a certain weightage in the overall evaluation.

1. **Technical Knowledge in Concerned Field (20 marks):**
   This parameter measured their theoretical knowledge, conceptual understanding, and ability to apply that knowledge to practical scenarios.

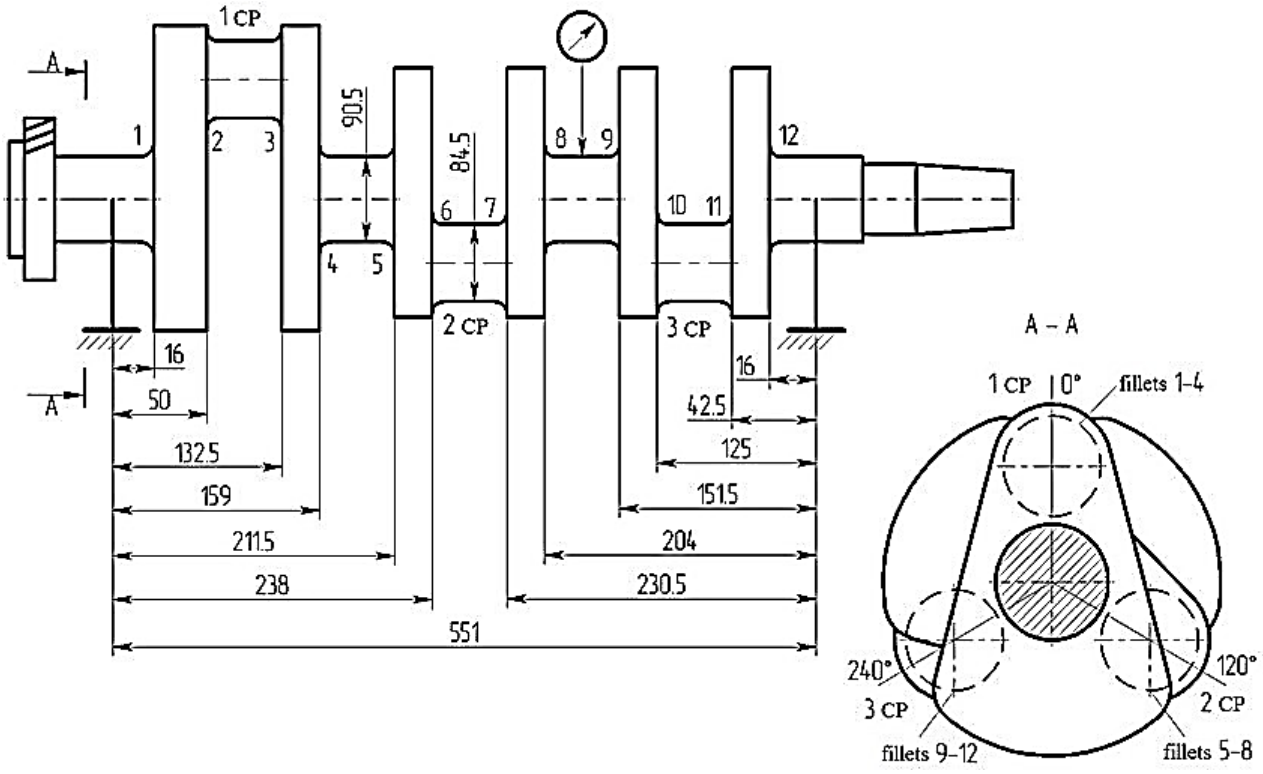
2. **Hands-on Practice (10 marks):**
   Hands-on practice evaluated the student's ability to apply their knowledge in practical situations. It measured their proficiency in utilizing tools, techniques, or software relevant to the course.

3. **Skill Test (10 marks):**
   The skill test assessed the student's competency and proficiency in specific skills related to the course. It focused on practical skills that were essential for the field of study.

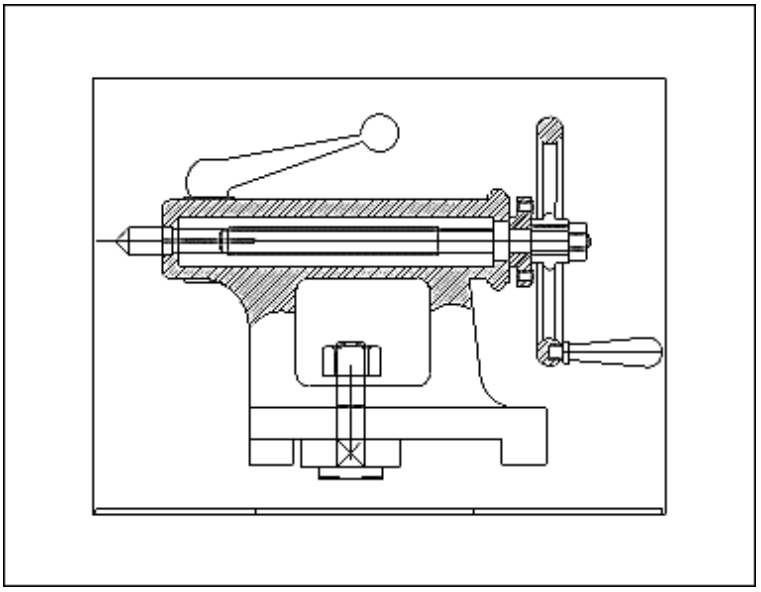
4. **Attendance (10 marks):**
   Attendance refers to the student's regular presence in the course. It emphasizes the importance of active participation and consistent engagement throughout the duration of the program.

Outcome:

1. They have gained a comprehensive understanding of CAD concepts and CAD tools, allowing them to navigate and utilize CAD software effectively.
2. The students now possess a solid understanding of Concepts, Wireframe, and Surface modeling techniques, enabling them to create complex and detailed 3D models.
3. They have acquired the ability to create precise engineering drawings using CAD software, utilizing the Part modeling feature to develop accurate representations of engineering components.
4. Students made a design of crankshaft, design of tailstock and many more. It was the major achievement of the certificate course.



Design of Crankshaft using AUTOCAD software



Design of Tailstock using CAD software

Report

on

Industrial Automation

Eligible Students: B.Tech. 6th and 8th Semester

Date: 08-03-2022 to 27-05-2022

Duration of Course: 32 Hours

Course Code: CC_IA

No. of Students Enrolled in the course: 46

Timing: 11:30 am pm to 01:05 pm

Days: Tuesday and Friday

Course Coordinator: Dr. Sunil Kumar Paswan

Industrial Automation course conducted during the session 2021-22 for B.Tech. students. This certificate course was designed to provide a solid understanding of automation technologies and their applications in various industries. The course duration was 32 hours, where 46 enrolled students successfully completed the course.

The course will cover hydraulic and pneumatic systems, including their components such as pumps, compressors, cylinders, and valves. You will learn about pressure regulation, air treatment, fluid power control elements, and graphical symbols associated with hydraulics and pneumatics.

Teaching Pedagogy:

The Industrial Automation Course utilizes a comprehensive teaching approach to ensure effective learning. It combines conceptual explanations, visual learning aids, hands-on activities with the Festo-Pneumatic training setup, real-life case studies, interactive discussions, assessments with feedback, technology integration, and project-based learning. This approach aims to provide students with a solid understanding of automation technologies, practical skills in designing circuits, and the ability to apply automation principles in various industries.

Topics Covered:

Module-1: This module introduces automation technologies, discussing the need and benefits of industrial automation. It covers applications in mechanical industries, automation hierarchy,

system comparison, and important terms like mass, force, pressure, work, energy, power, and torque.

Module-2: Focuses on hydraulic and pneumatic systems, covering pumps (pressure regulation and types), air compressors, treatment and pressure regulation, hydraulics/pneumatics elements, cylinders, valves (pressure control, flow/direction control, safety), control valves, and actuators.

Module-3: Explores circuit design approach for hydraulic and pneumatic systems, covering logic control circuits, sequence operation of cylinders, safety applications, hydraulic system analysis, and practical execution using Festo-Pneumatic training setup.

Module-4: Focuses on electro-pneumatic control, covering elements, advantages over hydraulic/pneumatic, solenoid valves, automation sensors (factory, electrical, process), control circuits design using relay logic, sequence control, electro-pneumatic/hydraulic systems, relays, and feedback control systems.

Module-5: Explores projects in industrial automation, covering PLC-based control systems, programming languages, ladder logic, HMI/SCADA systems, motion controllers, smart sensors, RFID technology, machine vision, and control applications.

Assessment Procedure:

The students were evaluated throughout the course based on four parameters: Technical Knowledge, Hands-on Practice, Skill Test, and Attendance. Each parameter carried a certain weightage in the overall evaluation.

1. **Technical Knowledge in Concerned Field (20 marks):**
   This parameter measured their theoretical knowledge, conceptual understanding, and ability to apply that knowledge to practical scenarios.

2. **Hands-on Practice (10 marks):**
   Hands-on practice evaluated the student's ability to apply their knowledge in practical situations. It measured their proficiency in utilizing tools, techniques, or software relevant to the course.

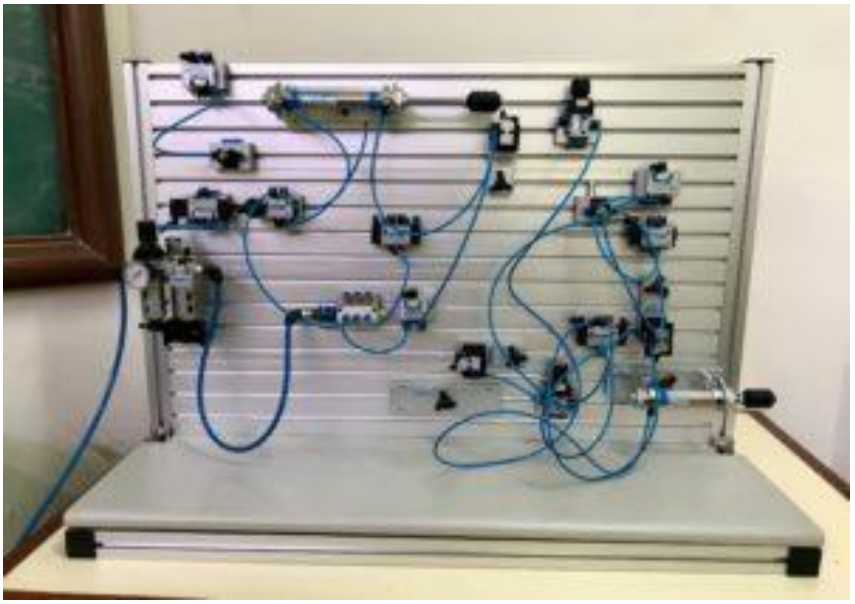
3. **Skill Test (10 marks):**
   The skill test assessed the student's competency and proficiency in specific skills related to the course. It focused on practical skills that were essential for the field of study.

4. **Attendance (10 marks):**
   Attendance refers to the student's regular presence in the course. It emphasizes the

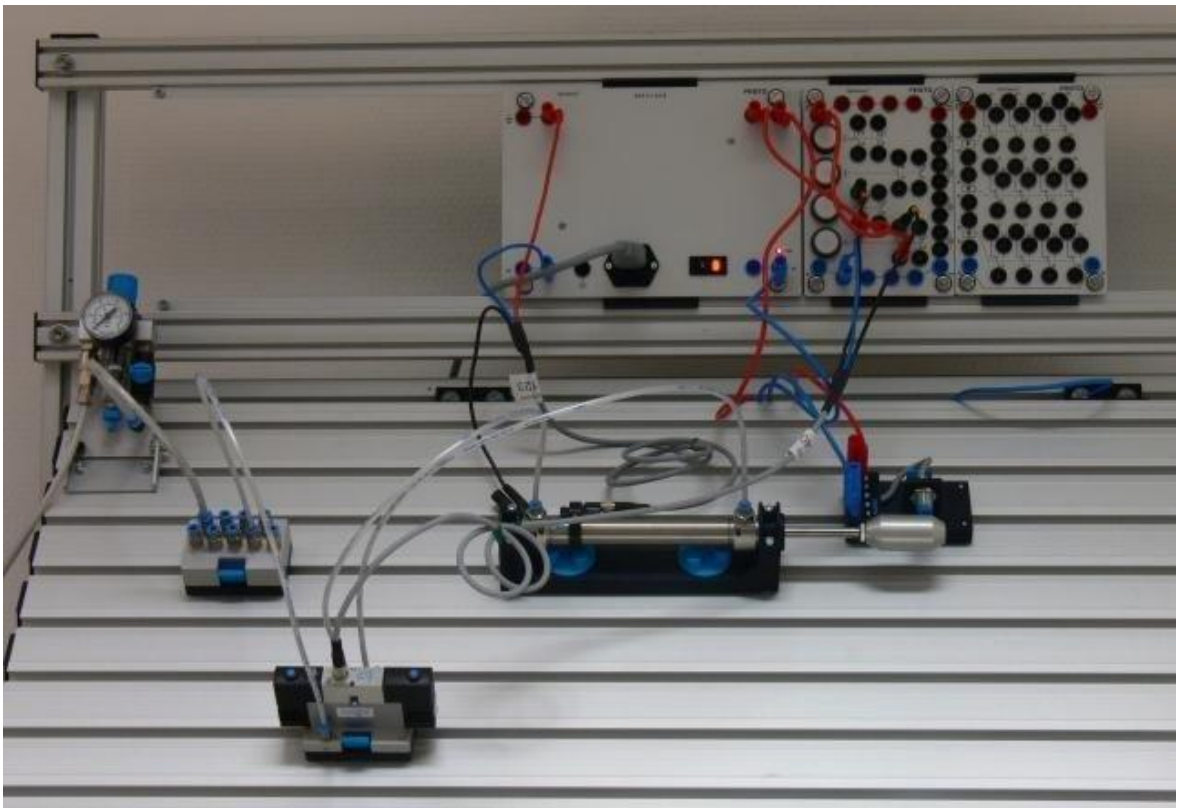
importance of active participation and consistent engagement throughout the duration of the program.

Outcome:

1. Solid Understanding: Students achieved a strong grasp of automation technologies, including the fundamental concepts and principles associated with industrial automation.
2. Practical Skills: Through hands-on activities using the Festo-Pneumatic training setup, students acquired practical skills in designing and operating hydraulic and pneumaticcircuits, valves, and actuators.
3. Application in Real-Life Scenarios: The inclusion of real-life case studies enabled students to connect theoretical knowledge to practical applications, allowing them to understand how automation technologies are implemented in different industries.
4. Technology Integration: By leveraging simulation software, virtual labs, and online resources, students were exposed to the latest technological tools in automation, preparing them to adapt to advancements in the field
5. Students had hands-on practice of different automation techniques using FESTO Lab.



Industrial Automation in Festo Lab



Industrial Automation in Festo Lab

Report

on

Fundamental of Python

Eligible Students: B.Tech 6thSemester

Date:16/03/2022 to 27/05/2022

Duration of Course: 32 Hours

Course Code: CCFP-02

No. of students Enrolled: 21

Timing: 1:50 to 3:20

Days: Wednesday & Friday

Course Coordinator: Er. Satvir Singh, Assistant Professor (EE)

The Fundamental of Python course conducted during the session 2021-22 for B.Tech. Students. It was a comprehensive program aimed for providing a strong foundation in Fundamentals of python. The course duration was 32 hours, where out of 21 enrolled students, 19 successfully completed the course.

Python is a highly popular programming language known for its extensive libraries, simplicity, and readability. It is widely used in today's technology-driven world. Python is a high-level general-purpose language designed to write code in fewer lines while maintaining clarity. It is an interpreted language, meaning there are no type declarations required in the source code, making it flexible but sacrificing compile-time type checking. Python tracks the types of values at runtime and identifies code that doesn't make sense. There are two major versions of Python: Python 2 and Python 3, which have significant differences. Python enables programmers to work quickly and effectively integrate systems.

Teaching Pedagogy:

The teaching pedagogy for the Fundamentals of Python course focuses on providing a comprehensive learning experience for students. The course begins with an introduction to Python, highlighting its significance and relevance in the programming world. Interactive lectures are conducted to explain core concepts, with visual aids and real-world examples used to engage students. Hands-on coding exercises are provided to allow students to apply

their knowledge, with varying difficulty levels to cater to different skill levels. Code reviews and feedback are given to reinforce good coding practices and improve skills. The importance of code documentation and best practices is emphasized, along with interactive code debugging to develop problem-solving skills.

Topics Covered:

The course covers various modules essential for learning Python programming.

Module 1: Introduces built-in and external modules, pip installation, and using Python as a calculator.

Module 2: Focuses on variables, keywords, and operators.

Module 3: covers strings, including slicing and string functions.

Module 4: Covers Lists, tuples, and their methods .

Module 5: Explores dictionaries, sets, and their operations.

Module 6: Covers different types of loops and statements.

By studying these modules, students will acquire a foundational understanding of Python programming, including variables, data types, strings, lists, tuples, dictionaries, sets, and loops.

Assessment Procedure:

The students were evaluated throughout the course based on four parameters: Technical Knowledge, Hands-on Practice, Skill Test, and Attendance. Each parameter carried a certain weightage in the overall evaluation.

1. Technical Knowledge in Concerned Field (20 marks):

This parameter measured their theoretical knowledge, conceptual understanding, andability to apply that knowledge to practical scenarios.

2. Hands-on Practice (10 marks):

Hands-on practice evaluated the student's ability to apply their knowledge in practical situations. It measured their proficiency in utilizing tools, techniques, or software relevant to the course.

3. Skill Test (10 marks):

The skill test assessed the student's competency and proficiency in specific skills related to the course. It focused on practical skills that were essential for the field of study.

4. Attendance (10 marks):

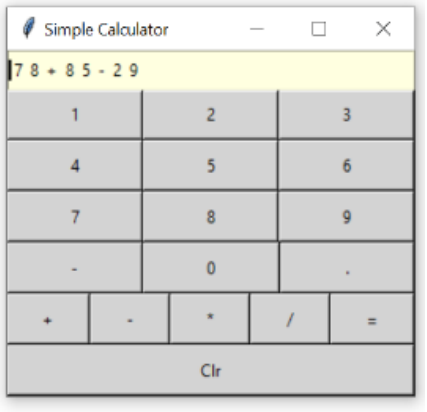
Attendance refers to the student's regular presence in the course. It emphasizes the

importance of active participation and consistent engagement throughout the duration of the program.

Outcomes:

Overall, the course equipped students with a solid foundation in Python programming and enabled them to create functional programs, apply their knowledge to practical scenarios, and enhance their problem-solving abilities, it can be summarized in the following points:

1. Students demonstrated proficiency in fundamental programming constructs, such as variables, conditionals, loops, and functions. They applied these skills to develop projects like a simple calculator, a text-based adventure game, or a number guessing game. This showcased their ability to implement core programming concepts effectively.
2. Students gained expertise in creating interactive programs by incorporating user input.
3. Through the course and projects, students developed strong problem-solving and logical thinking skills. They learned to break down complex problems into smaller, manageable tasks and used Python to devise solutions. This skill set is valuable not only in programming but also in various professional fields requiring analytical thinking and structured problem-solving.



Screenshots of Simple Calculator project

Report

on

Analysis of Circuits using Multi Sim

Eligible Students: B.Tech 4thSemester

Date: 16/03/2022 to 27/05/2022

Duration of Course: 32 Hours

Course Code: CCACM-03

No. of students Enrolled: 47

Timing: 1:50 PM to 3:20 PM

Days: Wednesday & Friday

Course Coordinator: Er. Shilpy Goyal, Assistant Professor (EE)

Analysis of Circuits using Multi Sim course conducted during the session 2021-22 for B.Tech. students. It was a comprehensive program aimed for providing a strong foundation in Analysis of Circuits using Multi Sim. The course duration was 32 hours, where out of 47 enrolled students, 43 successfully completed the course.

Multisim TM is a popular electrical circuit simulation package that allows users to create simple schematics and run basic simulations. It explores the distinctions between virtual, real, and 3D components, as well as the use of virtual instruments for simulated measurements. While the appearance of windows, menus, and dialogue boxes may vary depending on the version of Multisim used, the functionality remains consistent. Engineers, students, and professors can utilize Multisim to simulate electronic circuits, prototype PCBs, and perform schematic capture. This article focuses on capturing, simulating, and laying out a design using Multisim, using an example circuit of an amplifier. The circuit involves an operational amplifier and passive resistor components to create a feedback network and provide gain.

Teaching Pedagogy:

The teaching pedagogy for the MultisimTM course on electrical circuit simulation and design focused on providing a practical learning experience for students. The course introduced students to Multisim through interactive lectures and hands-on practice, where they created and simulated relevant electrical circuits. They explored the distinctions

between virtual and real components, learned circuit design and analysis techniques, and engaged in project-based assignments. Regular assessments and feedback sessions were conducted to monitor progress. The course emphasized real-world applications of Multisim in fields like electronics design. By following this pedagogy, students developed practical skills in circuit simulation, problem-solving abilities, and a solid understanding of utilizing Multisim effectively for electrical circuit design.

Topics covered:

Module 1: Introduction to Multisim software, including toolbars, menus, and library installation.

Module 2: Multisim Library usage, creating new libraries, and component exploration.

Module 3: Analysis of DC networks using Kirchhoff's laws and writing equations for branch currents and voltages.

Module 4: Application of Thevenin's theorem to determine equivalent circuit parameters.

Module 5: Calculation and interpretation of impedance (Z) and admittance (Y) parameters.

Module 6: Understanding and application of ABCD parameters and their inverse in two-port network analysis. Students gain a comprehensive understanding of Multisim, library functionality, circuit analysis techniques, and network parameters.

Assessment Procedure:

The students were evaluated throughout the course based on four parameters: Technical Knowledge, Hands-on Practice, Skill Test, and Attendance. Each parameter carried a certain weightage in the overall evaluation.

1. Technical Knowledge in Concerned Field (20 marks):

This parameter measured their theoretical knowledge, conceptual understanding, andability to apply that knowledge to practical scenarios.

2. Hands-on Practice (10 marks):

Hands-on practice evaluated the student’s ability to apply their knowledge in practical situations. It measured their proficiency in utilizing tools, techniques, or software relevant to the course.

3. Skill Test (10 marks):

The skill test assessed the student’s competency and proficiency in specific skills related to the course. It focused on practical skills that were essential for the field of study

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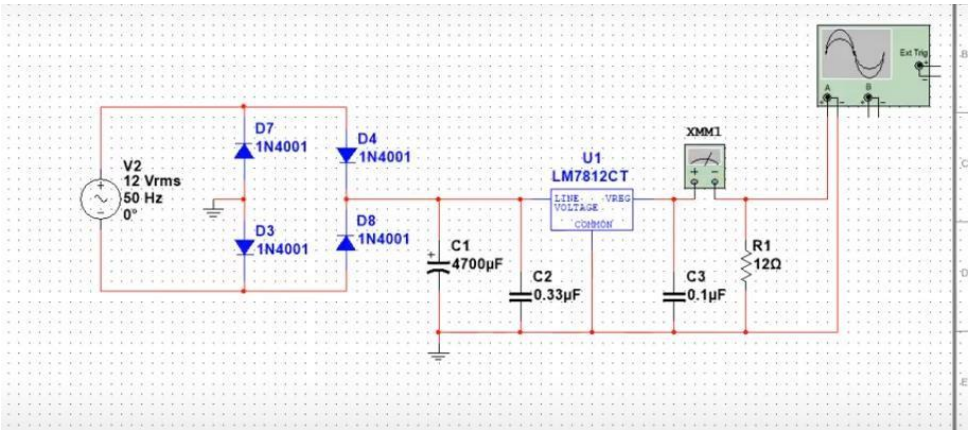
4. Attendance (10 marks):

Attendance refers to the student's regular presence in the course. It emphasizes the importance of active participation and consistent engagement throughout the duration of the program.

Outcomes:

This course has enabled students to understand about basic Ni-Multisim. After completion of the course the students will get know about:

1. Acquired knowledge about electrical systems and their applications.
2. Developed an understanding of parameters and how to calculate them.
3. Learned to draw multisim networks.
4. Explored the role of electrical systems in the industry.
5. Successfully completed the "12V Power Supply in NI Multisim Simulator" project, designing and simulating a 12V power supply circuit using NI Multisim software.



Screenshots of project 12V Power Supply in NI Multisim Simulator

Report

on

Programming in Arduino and Hardware Fundamentals

Eligible Students: B.Tech.8th Semester

Date: 16/03/2022 to 27/05/2022

Duration of Course: 32 Hours

Course Code: CCPAHF-01

No. of students Enrolled: 35

Timing: 1:50 PM to 3:20 PM

Days: Wednesday & Friday

Course Coordinator: Er.Veenu Jindal ,Course Coordinator (EE)

The Programming in Arduino and Hardware Fundamentals course was conducted during the 2021-22 session for B.Tech. students. This comprehensive program aimed to provide a strong foundation in programming using Arduino and understanding hardware fundamentals. The course duration was 32 hours, and out of 35 enrolled students, 32 successfully completed the course.

Arduino is an open-source electronics platform that enables the creation of interactive projects. It consists of both hardware and software components. This course focused on introducing students to Arduino programming, understanding the basics of hardware components, and integrating them to create functional projects.

Teaching Pedagogy:

The Programming in Arduino and Hardware Fundamentals course employed a comprehensive teaching methodology to facilitate effective learning. Practical demonstrations were used to illustrate the practical applications of Arduino programming and hardware components in real-world scenarios. Hands-on practice allowed students to gain practical experience by working directly with Arduino kits and hardware components. Interactive lectures provided theoretical knowledge, explained programming concepts, and discussed the functionalities of hardware components. Through this teaching methodology, students developed proficiency in Arduino programming, acquired a solid foundation in

hardware fundamentals, and gained practical skills for designing and implementing Arduino-based projects.

Topics Covered:

Module 1: Introduction to Arduino and Simulator - Covers the basics of Arduino and its simulator, providing an overview of the platform.

Module 2: Programming in Arduino IDE and Tinker CAD - Focuses on the fundamentals of programming in Arduino IDE and hands-on practice using Tinker CAD.

Module 3: Sensor Interfacing and Coding - Explores the interfacing and coding techniques for various sensors, both on hardware and simulator platforms.

Module 4: Introduction to Blynk App and IoT Cloud - Introduces the Blynk app and IoT cloud, teaching students how to integrate Arduino projects with mobile applications and cloud platforms.

Assessment Procedure:

The students were evaluated throughout the course based on four parameters: Technical Knowledge, Hands-on Practice, Skill Test, and Attendance. Each parameter carried a certain weightage in the overall evaluation.

1. Technical Knowledge in Concerned Field (20 marks):

This parameter measured their theoretical knowledge, conceptual understanding, and ability to apply that knowledge to practical scenarios.

2. Hands-on Practice (10 marks):

Hands-on practice evaluated the student's ability to apply their knowledge in practical situations. It measured their proficiency in utilizing tools, techniques, or software relevant to the course.

3. Skill Test (10 marks):

The skill test assessed the student's competency and proficiency in specific skills related to Arduino programming and hardware fundamentals. It focused on practical skills essential for the field of study.

4. Attendance (10 marks):

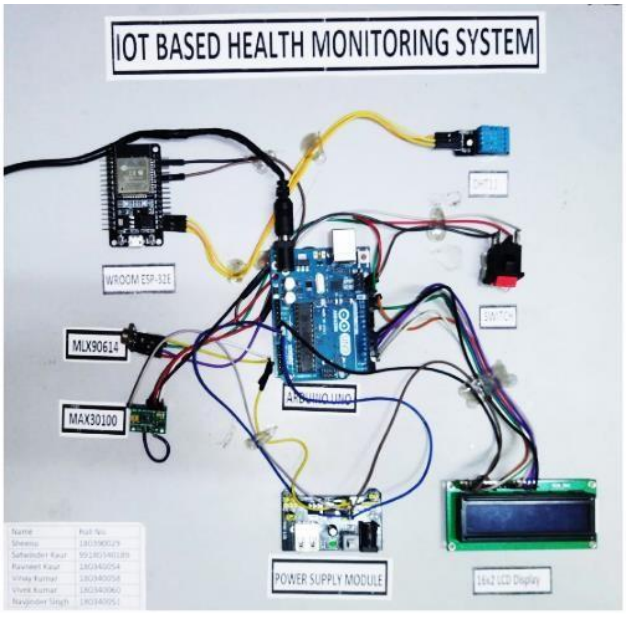
Attendance referred to the student's regular presence in the course. It emphasized the importance of active participation and consistent engagement throughout the duration of the program.

Outcomes:

The Programming in Arduino and Hardware Fundamentals course provided students with a solid foundation in Arduino programming and hardware fundamentals. Upon completion of the course, students achieved following outcomes:

1. Acquired knowledge of Arduino platform and its applications in interactive project development.
2. Developed programming skills in Arduino, including digital and analog input/output.
3. Learned to integrate various hardware components, such as sensors and actuators, with Arduino.
4. Explored communication protocols and interfacing Arduino with external devices.
5. Successfully completed project-based assignments, demonstrating their ability to apply Arduino programming concepts to create functional projects.

One notable project undertaken by the students was the IoT-Based Health Monitoring System. In this project, students designed and implemented a system that automated various home functions, such as controlling appliances and monitoring health parameters remotely. This project showcased their ability to utilize Arduino programming and hardware knowledge to create innovative solutions. Overall, the course provided students with essential skills and knowledge to work with Arduino and apply it in practical projects.



Project on IoT-Based Health Monitoring System

BABA FARID COLLEGE OF ENGG. & TECHNOLOGY

Report

on

Full Stack Web Development

Eligible Student: B.Tech 3rd Semester

Date: 17-09-2021 to 10-12-2021

Duration of Course: 32 Hours

Course Code- CC_FSWD

No. of Students Enrolled in the course: 37

Timing: 01:50 pm to 03:20 pm

Days: Thursday & Friday

Course Coordinator: Er. Charandeep Singh Bedi, Assistant Professor (CSE)

The B.Tech 3rd Semester course aimed to provide students with a comprehensive understanding of important technologies in web development within the field of Computer Science and Engineering. Led by faculty expert, the course encompassed a duration of 32 hours, during which students delved into modules covering fundamental concepts such as HTML/CSS, as well as focused on the programming aspects of PHP. The course commenced with the setup of Xampp Server, introducing students to Apache Server, PHP language compilation, and MySQL database. By bridging theory with hands-on exercises and lab practice, students gained a complete understanding of web development and its application in creating dynamic, database-driven web applications.

Teaching Pedagogy:

The course followed a comprehensive teaching pedagogy to ensure effective learning. It began with the setup of Xampp Server, including the Apache Server, PHP language compiler, and MySQL database. The modules covered during the course provided a step-by-step understanding of web development concepts, starting from the fundamentals of HTML/CSS to programming aspects of PHP. The pedagogy included theoretical explanations, practical hands-on exercises, and lab exercises to develop competence in web development.

Topic Covered:

Module 1: Basic syntax, defining variables and constants, PHP data types, operators, and expressions.
Module 2: Making decisions, performing repetitive tasks with looping, combining decisions and

looping.

Module 3: Introduction to functions, defining and calling functions, pass-by-value and pass-by-reference, recursive functions, string manipulation and related library functions.

Module 4: Anatomy of an array, creating indexed-based and associative arrays, accessing array elements, looping through arrays, useful library functions.

Module 5: Capturing form data, dealing with multi-value fields, generating file uploaded forms, form redirection after submission.

Module 6: Understanding files and directories, opening, closing, copying, renaming, and deleting files, working with directories, file uploading and downloading.

Module 7: Introduction to session control, session functionality, cookies in PHP, setting and using cookies with sessions, managing session variables.

Module 8: Introduction to Relational Database Management Systems (RDBMS), connecting to MySQL database, performing basic database operations (DML), setting query parameters, executing queries (joins).

Assessment Procedure:

The students were evaluated throughout the course based on four parameters: Technical Knowledge, Hands-on Practice, Skill Test, and Attendance. Each parameter carried a certain weightage in the overall evaluation.

1. Technical Knowledge in Concerned Field (20 marks):

This parameter measured their theoretical knowledge, conceptual understanding, and ability to apply that knowledge to practical scenarios.

2. Hands-on Practice (10 marks):

Hands-on practice evaluated the student's ability to apply their knowledge in practical situations. It measured their proficiency in utilizing tools, techniques, or software relevant to the course.

3. Skill Test (10 marks):

The skill test assessed the student's competency and proficiency in specific skills related to the course. It focused on practical skills that were essential for the field of study.

4. Attendance (10 marks):

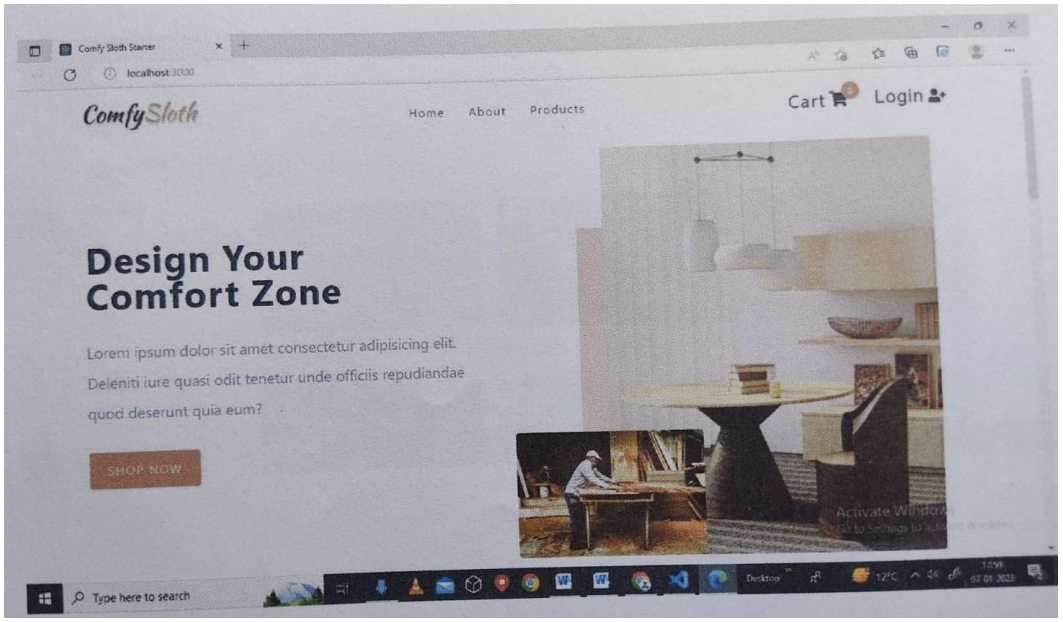
Attendance refers to the student's regular presence in the course. It emphasizes the importance of active participation and consistent engagement throughout the duration of the program.

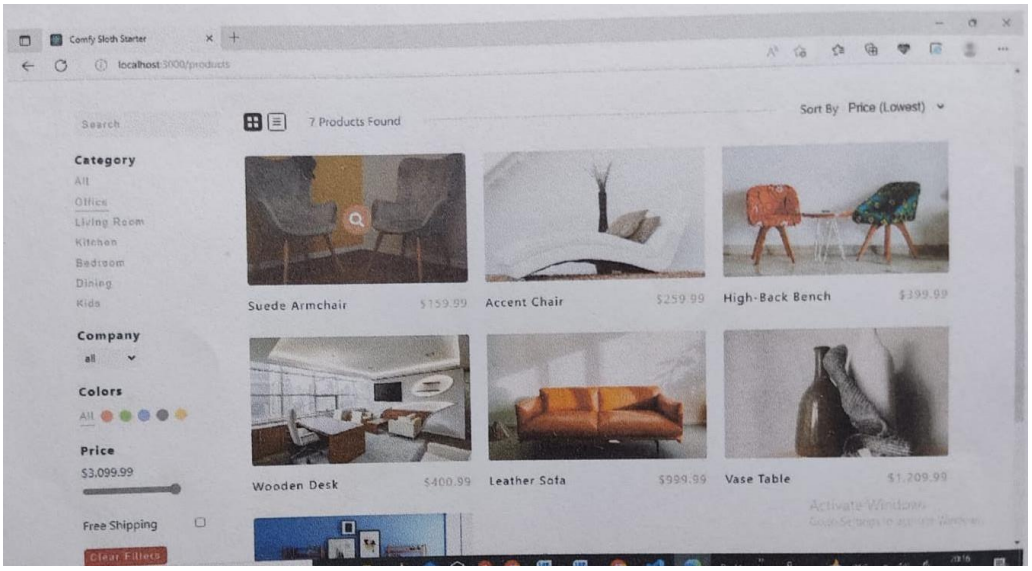
Outcome:

1. Understanding of Web Development: Students gained a complete understanding of web

development concepts, including HTML/CSS, PHP programming, and working with databases.

2. Dynamic Website Development: Students learned how to transform static websites into dynamic websites by utilizing PHP and MySQL to create database-driven web applications.
3. Application Analysis: Students acquired the ability to analyze the basic structure of a PHP web application, install and maintain a web server, compile and run a simple web application.
4. Practical Skills: Through comprehensive lab exercises, students obtained hands-on practice in developing web applications, configuring PHP and Apache Web Server, and performing database operations.
5. Competence in Web Development: The course equipped students with the necessary knowledge and skills to design and develop dynamic, database-driven web applications using PHP version 5, connecting to ODBC-compliant databases, and creating database-drivenHTML forms and reports.





Screenshots of Furniture Website

BABA FARID COLLEGE OF ENGG. & TECHNOLOGY

Report

on

Advance Data Structure & Algorithm

Eligible Student: B.Tech 5th Semester

Date: 17-09-2021 to 10-12-2021

Duration of Course: 35 Hours

Course Code- CC_ADSA

No. of Students Enrolled in the course: 40

Timing: 11:30 am to 01:05 pm

Days: Thursday & Friday

Course Coordinator: Er. Ashu Bansal, Assistant Professor (CSE)

The B.Tech 5th Semester course focused on the study of advanced data structures, which play a crucial role in storing, organizing, and managing data efficiently. The course duration was 35 hours, where 40 enrolled students successfully completed the course. Taught by an experienced faculty member, the course aimed to provide students with a profound understanding of data organization and the development of efficient algorithms. Through modules covering algorithm analysis, searching and sorting techniques, stacks, queues, trees, heaps, graphs, and hashing, students refined their skills in designing and implementing advanced data structures. The course emphasized the strategic selection of data structures to solve specific problems, enabling optimal performance and efficiency in software development.

Teaching Pedagogy:

The course employed a comprehensive teaching pedagogy to facilitate effective learning. Through theoretical explanations, practical examples, and problem-solving exercises, students gained a deep understanding of advanced data structures. The course emphasized the analysis of algorithms, searching and sorting techniques, algorithm complexity, stacks, queues, lists, iterators, trees, binary search trees, heaps, priority queues, graphs, and hashing. The pedagogy focused on building students' ability to design new algorithms, perform operations on different data structures, and select the most appropriate data structure for solving specific problems.

Topic Covered:

Module 1: Introduction to algorithm analysis, techniques for analyzing algorithms, searching algorithms (linear search, binary search), sorting algorithms (bubble sort, insertion sort, selection sort, merge sort, quicksort).

Module 2: Understanding and analyzing algorithm complexity, Big O notation, time complexity, space complexity.

Module 3: Implementation and applications of stacks and queues, stack and queue operations, stack and queue applications.

Module 4: Linked lists, doubly linked lists, circular linked lists, iterators, iterator operations.

Module 5: Introduction to trees, binary trees, binary search trees, tree traversal, tree operations, balanced search trees.

Module 6: Heaps, priority queues, heap operations, graph data structures, graph operations, hashing techniques.

Assessment Procedure:

The students were evaluated throughout the course based on four parameters: Technical Knowledge, Hands-on Practice, Skill Test, and Attendance. Each parameter carried a certain weightage in the overall evaluation.

1. Technical Knowledge in Concerned Field (20 marks):

This parameter measured their theoretical knowledge, conceptual understanding, and ability to apply that knowledge to practical scenarios.

2. Hands-on Practice (10 marks):

Hands-on practice evaluated the student's ability to apply their knowledge in practical situations. It measured their proficiency in utilizing tools, techniques, or software relevant to the course.

3. Skill Test (10 marks):

The skill test assessed the student's competency and proficiency in specific skills related to the course. It focused on practical skills that were essential for the field of study.

4. Attendance (10 marks):

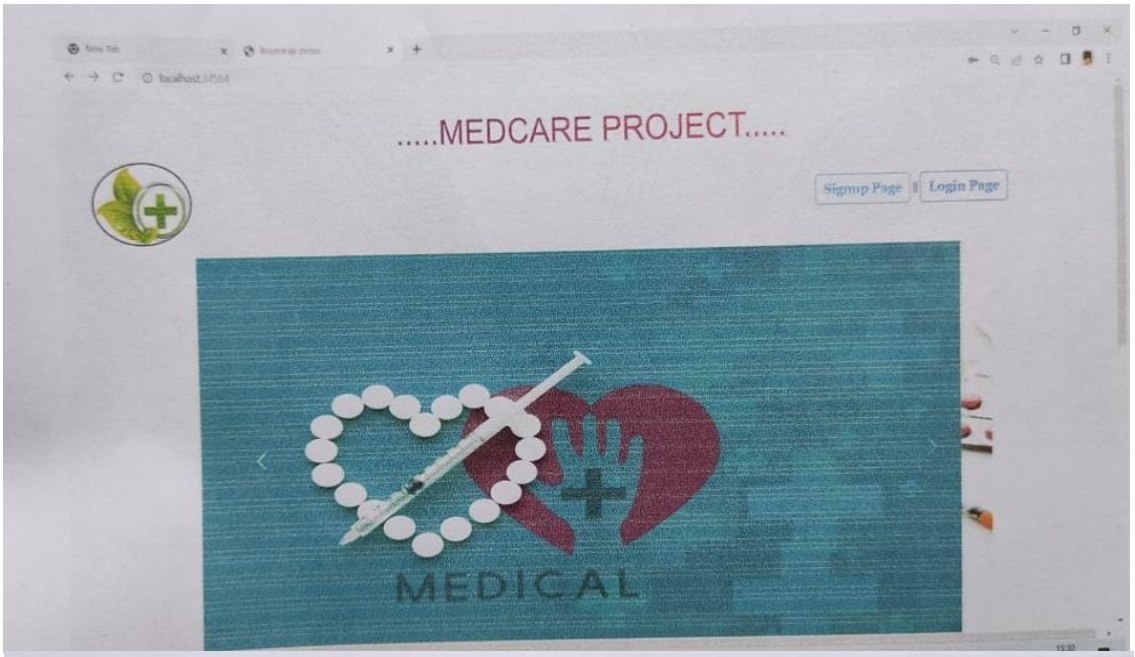
Attendance refers to the student's regular presence in the course. It emphasizes the importance of active participation and consistent engagement throughout the duration of the program

Outcome:

1. Understanding of Data Importance: Students gained knowledge about the significance of data and its organization, recognizing the importance of efficient data structures in

software development.

2. Algorithm Efficiency: Students learned how to write faster and more efficient code by implementing famous algorithms and analyzing their complexity.
3. Conceptual Understanding: Students developed a deep understanding of dynamic memory management, various data types, and algorithms used in advanced data structures.
4. Design and Development Skills: The course enabled students to learn, design, and develop various advanced data structures utilized in organizations, equipping them with practical skills for real-world applications



Screenshots of Medcare Website

Report

on

Basics of Network Security

Eligible Student: M. Tech. 1st Semester

Date: 16-09-2021 to 10-12-2021

Duration of Course: 35 Hours

Course Code- CC_BSNS

No. of Students Enrolled in the course: 18

Timing: 11:30 am to 01:05 pm

Days: Thursday & Friday

Course Coordinator: Er. Sunil Kumar Nagpal, Assistant Professor (CSE)

The M. Tech. 1st Semester course focused on Network Security, an essential discipline in the field of computer science. The course aimed to equip students with the knowledge and skills required to secure computer networks and data using hardware and software systems. Led by faculty Expert, the course emphasized the importance of ensuring confidentiality and accessibility of data and networks. Throughout the course, students explored topics such as DDoS attacks, cybercrimes, browser security models, HTTPS, DNS security, and internet protocols. With a total of 18 students enrolled, the course witnessed successful completion by all students, further validating their understanding and competence in the subject matter.

Teaching Pedagogy:

The course employed a comprehensive teaching pedagogy to facilitate effective learning. Through theoretical explanations, practical examples, and discussions, students gained a deep understanding of network security concepts and their applications. The modules covered during the course included an introduction to network security, understanding DDoS attacks, cybercrimes, browser security models, HTTPS, DNS security, and internet protocols. The pedagogy emphasized the identification and classification of attacks,

vulnerability analysis, encryption systems, and hybrid security systems.

Topic Covered:

Module 1: Overview of network security, principles, and importance.

Module 2: Introduction to DDoS attacks, types, and mitigation strategies.

Module 3: Overview of cybercrimes, common threats, and preventive measures.

Module 4: Browser security models, HTTPS protocol, secure web communication.

Module 5: Processing HTML forms using PHP, securing user input and data.

Module 6: Understanding DNS (Domain Name System), DNS security threats, and securing DNS infrastructure.

Module 7: Overview of internet protocols, their vulnerabilities, and secure communication protocols.

Assessment Procedure:

The students were evaluated throughout the course based on four parameters: Technical Knowledge, Hands-on Practice, Skill Test, and Attendance. Each parameter carried a certain weightage in the overall evaluation.

1. Technical Knowledge in Concerned Field (20 marks):

This parameter measured their theoretical knowledge, conceptual understanding, and ability to apply that knowledge to practical scenarios.

2. Hands-on Practice (10 marks):

Hands-on practice evaluated the student's ability to apply their knowledge in practical situations. It measured their proficiency in utilizing tools, techniques, or software relevant to the course.

3. Skill Test (10 marks):

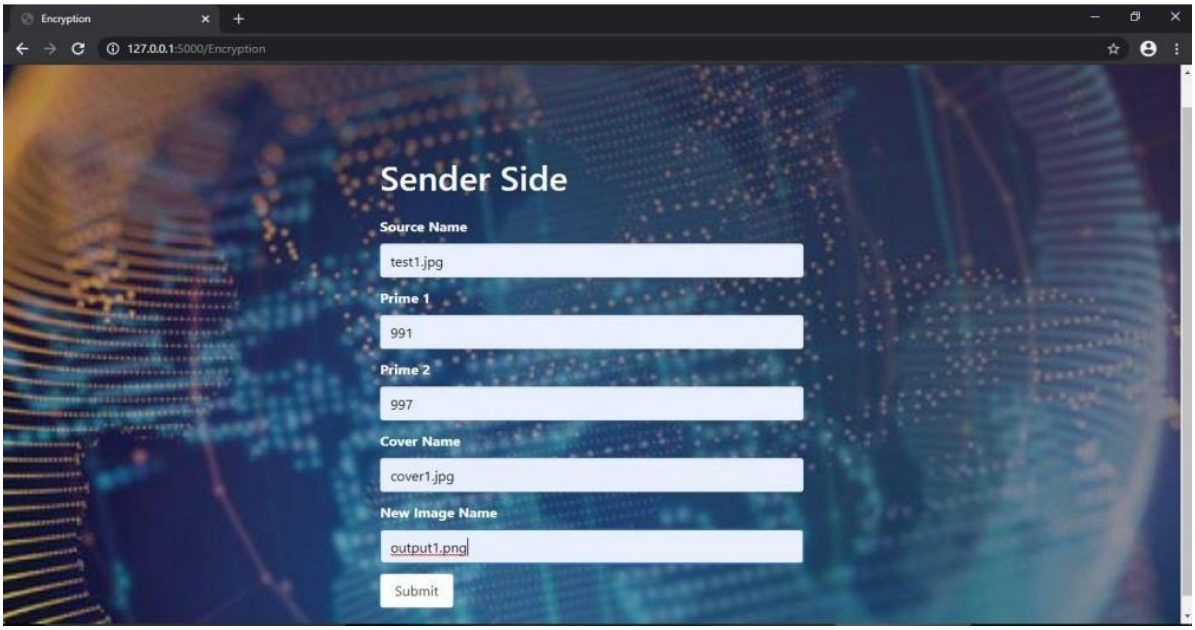
The skill test assessed the student's competency and proficiency in specific skills related to the course. It focused on practical skills that were essential for the field of study.

4. Attendance (10 marks):

Attendance refers to the student's regular presence in the course. It emphasizes the importance of active participation and consistent engagement throughout the duration of the program

Outcome:

1. Students gained a comprehensive understanding of network security principles and the factors driving the need for network security in organizations.
2. Students acquired knowledge of DDoS attacks and cybercrimes, including their types, characteristics, and mitigation strategies.
3. Students learned about browser security models, HTTPS protocol, and the importance of secure web communication.
4. Students gained insights into DNS security, vulnerabilities, and the secure implementation of internet protocols.
5. The course enhanced students' awareness of the importance of network security and the role of encryption systems in protecting data.



Screenshots of Secure Data Encryption and Decryption

Report

on

Introduction and Implementation of Neural Networks

Eligible Students: B.Tech.7th Semester

Date: 06-09-2021 to 18-11-2021

Duration of Course: 32 Hours

Course Code: CC_INN

No. of students Enrolled:33

Timing: 1:50 to 3:20

Days: Monday & Thursday

Course Coordinator: Er. Shilpy Goyal, Assistant Professor (EE)

The Introduction and Implementation of Neural Networks course was conducted during the 2021-22 session for B.Tech students. This course aimed to provide a comprehensive understanding of neural networks and their implementation. The duration of the course was 32 hours, and all 33 enrolled students successfully completed the course.

Teaching Pedagogy:

The teaching pedagogy for the Introduction and Implementation of Neural Networks course focused on providing a conceptual understanding of neural networks and practical implementation techniques. The course employed a combination of theoretical lectures, hands-on programming sessions, and real-world case studies. The lectures covered the basics of neural networks, their architecture, activation functions, and training algorithms. Hands-on programming sessions allowed students to implement neural networks using popular frameworks and libraries. Real-world case studies provided practical insights into the applications of neural networks in various domains such as image recognition, natural language processing, and predictive modeling. Regular assessments and feedback sessions were conducted to track the progress of students and address any queries or difficulties they encountered during the course.

Topics Covered:

Module 1: Introduction to Neural Networks

Overview of Neural Network structure, learning process, and visualization techniques.

Module 2: Applications of Neural Networks

Exploration of Neural Network applications in facial recognition, stock market prediction, social media analysis, aerospace and defense, and healthcare.

Module 3: Theory of Neural Networks

Foundations of Neural Networks, importance of Neural Networks, classification techniques using Neural Networks, implementation in MATLAB and neural tools.

Module 4: Neural Network Demo

Demonstration of Neural Networks in artificial intelligence, machine learning, language translation, and face identification.

Assessment Procedure:

The students were evaluated throughout the course based on four parameters: Technical Knowledge, Hands-on Practice, Skill Test, and Attendance. Each parameter carried a certain weightage in the overall evaluation.

1. Technical Knowledge in Concerned Field (20 marks):

This parameter measured their theoretical knowledge, conceptual understanding, and ability to apply that knowledge to practical scenarios.

2. Hands-on Practice (10 marks):

Hands-on practice evaluated the student's ability to apply their knowledge in practical situations. It measured their proficiency in utilizing tools, techniques, or software relevant to the course.

3. Skill Test (10 marks):

The skill test assessed the student's competency and proficiency in specific skills related to Arduino programming and hardware fundamentals. It focused on practical skills essential for the field of study.

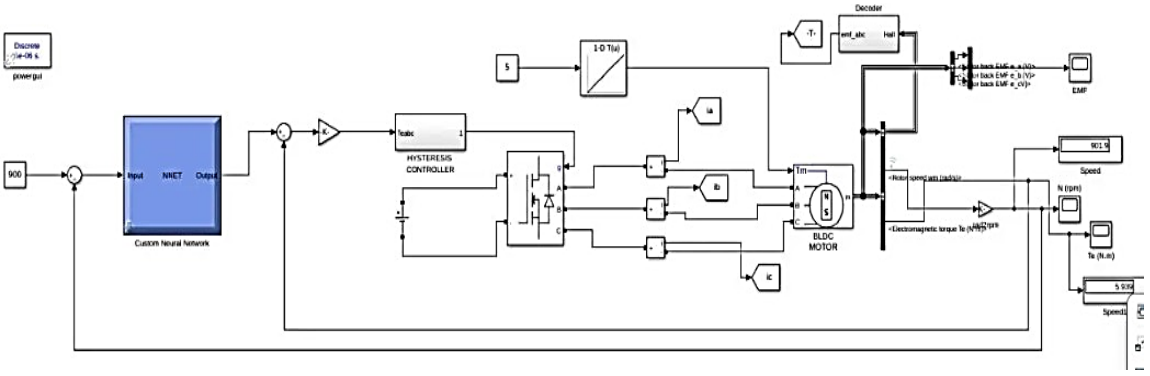
4. Attendance (10 marks):

Attendance referred to the student's regular presence in the course. It emphasized the importance of active participation and consistent engagement throughout the duration of the program.

Outcomes:

Upon completion of the Introduction and Implementation of Neural Networks course, students achieved the following outcomes:

1. Acquired a solid understanding of neural networks, their architecture, and working principles.
2. Developed proficiency in implementing neural networks using popular frameworks and libraries.
3. Explored various activation functions and training algorithms to optimize the performance of neural networks.
4. Successfully completed the project "Speed Control of BLDC Motor using Neural Network in MATLAB Simulink," demonstrating their ability to apply neural network concepts in practical applications.



Project: Speed Control of BLDC Motor using Neural Network in MATLABSimulink

Report

on

Basic MATLAB and Simulation of Electrical System

Eligible Students: B.Tech.5th Semester

Date: 09/09/2021 to 18/11/2021

Duration of Course: 32 Hours

Course Code: CC_ML&S

No. of students Enrolled: 21

Timing: 9:50 to 11:30

Days: Monday & Thursday

Course Coordinator: Er. Shilpy Goyal, Assistant Professor (EE)

The Basic MATLAB and Simulation course was conducted during the 2021-22 session for B.Tech. students. It aimed to provide a strong foundation in MATLAB programming and simulation techniques. The course duration was 32 hours, 19 out of 21 enrolled students successfully completing the course.

Teaching Pedagogy:

The course utilized a comprehensive teaching methodology to enhance learning. Theoretical concepts were explained through presentations, focusing on the basics of MATLAB, its applications, and the toolbars. Practical demonstrations and hands-on practice were provided to enable students to write and execute MATLAB codes for mathematical calculations and plot graphs. Simulink, a graphical programming environment, was introduced for system modeling and simulation. Students were guided to design electrical systems using Simulink and gained exposure to concepts like ladder logic programming, control systems, transmission lines, and distribution systems. The course encouraged active participation, group discussions, and practical exercises to reinforce learning and promote critical thinking.

Topics Covered:

Module 1: Introduction to MATLAB and basic functionalities.

Module 2: Introduction to MATLAB Simulink and block connections.

Module 3: Coding for mathematical calculations and graph plotting.

Module 4: Selecting and using electrical components in Simulink models.

Module 5: Designing electrical systems with ladder logic and load calculations.

Module 6: Designing transmission lines.

Module 7: Designing distribution systems and testing equipment.

Assessment Procedure:

The students were evaluated throughout the course based on four parameters: Technical Knowledge, Hands-on Practice, Skill Test, and Attendance. Each parameter carried a certain weightage in the overall evaluation.

1. Technical Knowledge in Concerned Field (20 marks):

This parameter measured their theoretical knowledge, conceptual understanding, andability to apply that knowledge to practical scenarios.

2. Hands-on Practice (10 marks):

Hands-on practice evaluated the student's ability to apply their knowledge in practical situations. It measured their proficiency in utilizing tools, techniques, or software relevant to the course.

3. Skill Test (10 marks):

The skill test assessed the student's competency and proficiency in specific skills related to the course. It focused on practical skills that were essential for the field of study.

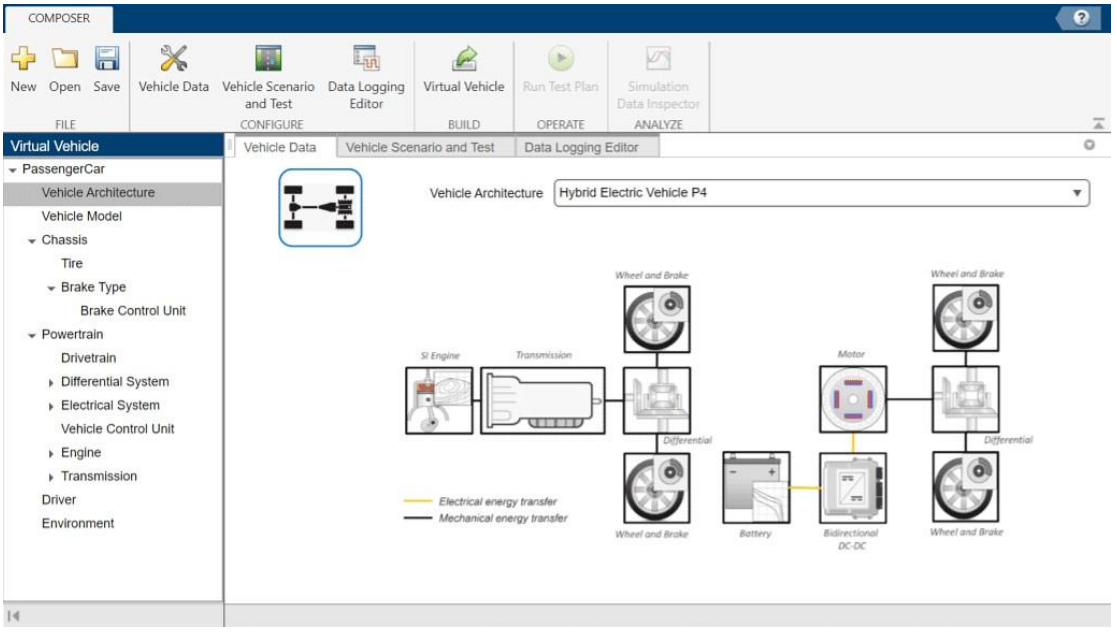
4. Attendance (10 marks):

Attendance refers to the student's regular presence in the course. It emphasizes the importance of active participation and consistent engagement throughout the duration of the program.

Outcomes:

1. Students gained a comprehensive understanding of MATLAB programming and simulation techniques.
2. Proficiency was developed in writing MATLAB codes for mathematical calculations and graph plotting.
3. Students learned to design electrical systems using Simulink, including ladder logic programming and control system design.
4. The course enabled students to model and simulate transmission and distribution systems using Simulink.

5. Project: System Modeling and Simulation in MatLab Simulink, students successfully completed a project involving the modeling and simulation of a system using MATLAB and Simulink. The project showcased their ability to apply their learning to real-world scenarios.



Project on System Modeling and Simulation in MatLab Simulink

Report

on

Robotics: Estimation and Learning

Eligible Students: B.Tech 3rd Semester

Date: 09-09-2021 to 18-11-2021

Duration of Course: 32 Hours

Course Code: CC_REL

No. of students Enrolled: 45

Timing: 1:50 PM to 3:20 PM

Days: Monday & Thursday

Course Coordinator: Er. Pushpinder Sharma, Assistant Professor (EE)

The Robotics: Estimation and Learning course was conducted during the 2021-22 session for B.Tech. students. It focused on providing knowledge and skills in robotics concepts, estimation techniques, and learning algorithms. The course duration was 32 hours, Out 45 enrolled students 43 successfully completed the certificate course.

Teaching Pedagogy:

The course employed an effective teaching methodology to facilitate learning. Theoretical concepts related to robotics, automated systems, and robotic controls were explained through presentations. Practical implementation and hands-on practice were emphasized, enabling students to understand and apply Bayesian estimation techniques for target tracking and localization. Mapping methods and sensor integration for creating maps were also covered. The course encouraged active participation, group discussions, and autonomy in learning to enhance critical thinking and problem-solving abilities**.**

Topics Covered:

Module 1: Robotics Concepts & Gaussian Model Learning

Introduction to robotics and automated systems, understanding basic components, setup and implementation of robotic controls.

Module 2: Bayesian Estimation - Target Tracking

Exploration of Bayesian estimation methods for target tracking, including theory, Gaussian densities, and the application of Kalman filter methods**.**

Module 3: Mapping

Various methods for mapping, including sensor detection, integrating measurements to produce maps, and assumptions of perfect position knowledge.

Module 4: Bayesian Estimation - Localization

Focus on sensor processing, position estimation, control and exploration schemes, cycle closure, autonomy, and tractability.

Assessment Procedure:

The students' performance was evaluated based on the following parameters: Technical Knowledge, Hands-on Practice, Skill Test, and Attendance. Each parameter held a specific weightage in the overall evaluation.

1. Technical Knowledge in Concerned Field (20 marks):

Assessment of theoretical knowledge, conceptual understanding, and the ability to apply knowledge to practical scenarios in the field of robotics and estimation.

2. Hands-on Practice (10 marks):

Evaluation of students' proficiency in applying theoretical concepts through practical exercises, utilizing relevant tools, techniques, and software.

3. Skill Test (10 marks):

Assessment of students' competency and proficiency in specific skills related to robotics, estimation, and learning algorithms.

4. Attendance (10 marks):

Recognition of students' regular presence and active participation throughout the course duration, emphasizing the importance of consistent engagement.

Outcomes:

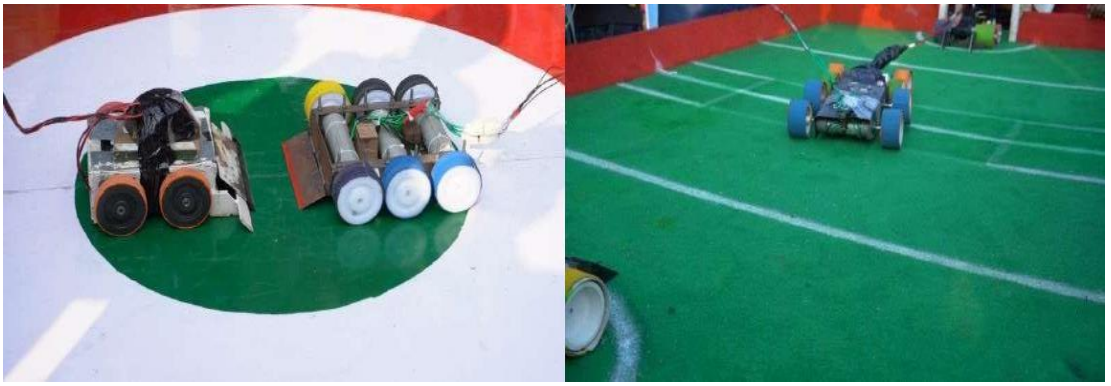
1. Students developed a comprehensive understanding of robotics concepts, estimation techniques, and learning algorithms.

2. Proficiency was gained in implementing Gaussian model learning and Bayesian estimation for target tracking and localization.

3. Students learned mapping methods and sensor integration for creating maps in robotic applications.

4. The course provided practical experience and knowledge to work on working projects using bots models.

5. Students successfully completed Bots Model as Working Projects, involving the implementation and demonstration of bots models in practical scenarios. The project showcased their ability to apply estimation and learning techniques to real-world robotics applications.



Working Project on the implementation and demonstration of Bot Model

Report

on

Building Material Testing

Eligible Students: B.Tech. 3rd, 5th Semester

Date: 19-08-2021 to 11-11-2021

Duration of Course: 32 Hours

Course Code: CC_BMT

No. of students Enrolled: 49

Timing: 02.35-04.00

Days: Monday & Thursday

Course Coordinator: Er. Sandeep Maan, Assistant Professor (CE)

Building material testing is a crucial process in construction, aimed at evaluating the physical and mechanical properties of materials used to ensure they meet specific standards and requirements. This ensures the safety, durability, and performance of building structures. The course covers the understanding of how various ingredients, such as cement, water, sand, aggregates, and admixtures, interact and influence the properties of concrete, a widely used construction material.

Throughout the course, students were evaluated based on skill tests, hands-on practice, attendance, and technical knowledge. The feedback from students was overwhelmingly positive, indicating their successful acquisition of knowledge and skills. 49 students received certificates upon completing the course.

Teaching Pedagogy:

The course is designed to provide students with a comprehensive understanding of material testing in construction. It covers modules on testing bricks, sand, aggregates, cement, and concrete. Each module focuses on specific tests to assess the properties of the respective materials, such as shape and size tests, water absorption tests, grading tests, consistency and setting time tests, and compressive strength tests. The course emphasizes hands-on practice, skill tests, and theoretical knowledge to ensure students gain practical experience and expertise.

Topics Covered:

The modules covered in this course are as follows:

Module-1: Test on Bricks

- Shape & Size Test
- Water Absorption Test
- Crushing Strength Test
- Presence of Soluble Salts Test

Module-2: Test on Sand and Aggregates

- Grading Test
- Specific Gravity Test
- Water Absorption Test

Module-3: Test on Cement

- Consistency and Setting Time Test
- Specific Gravity Test
- Soundness Test
- Compressive Strength Test

Module-4: Test on Concrete

- Workability Test
- Compressive Strength Test

Assessment Procedure:

The students were evaluated throughout the course based on four parameters: Technical Knowledge, Hands-on Practice, Skill Test, and Attendance. Each parameter carried a certain weightage in the overall evaluation.

1. Technical Knowledge in Concerned Field (20 marks):

This parameter measured their theoretical knowledge, conceptual understanding, and ability to apply that knowledge to practical scenarios.

2. Hands-on Practice (10 marks):

Hands-on practice evaluated the student's ability to apply their knowledge in practical situations. It measured their proficiency in utilizing tools, techniques, or software relevant to the course.

3. Skill Test (10 marks):

The skill test assessed the student's competency and proficiency in specific skills related to the course. It focused on practical skills that were essential for the field of study.

4. Attendance (10 marks):

Attendance refers to the student's regular presence in the course. It emphasizes the importance of active participation and consistent engagement throughout the duration of the program.

Outcomes:

1. Students learned the necessary knowledge and understanding of testing procedures for bricks, cement, concrete, sand, and aggregates.
2. Students developed the ability to work effectively in teams to perform experimental tasks related to material testing, fostering collaboration and efficient task completion.
3. Students gained the skills to verify assumptions made in the study of building materials through practical experimentation, ensuring accuracy and reliability in material analysis.
4. Students learned how to effectively utilize the test results obtained from laboratory testing in the construction process, enabling informed decision-making and ensuring the use of appropriate materials.
5. Overall, students gained necessary knowledge, skills, and understanding to conduct material testing, work collaboratively in teams, verify assumptions and apply test results in the construction field by doing a project entitled "Recycling and Reuse of Building Waste in Construction".

Project on Recycling and Reuse of Building Waste in Construction

Report

on

Digital Land Surveying and Mapping

Eligible Students: B.Tech. 5th, 7th Semester

Date: 19-08-2021 to 15-11-2021

Duration of Course: 32 Hours

Course Code: CC_DLS&M

No. of students Enrolled: 42

Timing: 02.35-04.00

Days: Monday & Thursday

Course Coordinator: Er. Rajan Vinayak, Assistant Professor (CE)

Digital Land Surveying and Mapping involves the use of modern technologies such as GPS, GIS, remote sensing, and computer-aided design software to measure, analyze, and map land features. It offers accurate and up-to-date information, benefiting various industries such as land management, engineering, construction, and urban planning. In contrast, Land Surveying with Total Station is a traditional method that uses a theodolite and electronic distance meter to measure angles and distances, providing accurate results but requiring more time.

This course proved to be an effective platform for students to acquire practical skills and knowledge related to surveying, total station instruments, bar bending schedules, and quantity surveying of building materials. Overall, the course received positive feedback from students, and 42 participants received certificates for successfully completing the program.

Teaching Pedagogy:

The course commenced by providing students with an introductory overview of surveying methods, principles, and essential trigonometry functions for accurate distance and angular measurements. They gained a solid understanding of coordinate systems, various units of measurement, and the significance of establishing survey control points. The theoretical aspects of total station instruments were comprehensively covered, encompassing detailed discussions on their constituent components, operational principles, advantages, and limitations. To complement the theoretical knowledge, practical sessions were conducted to familiarize students with the different parts of the total station instrument, enabling them to confidently

handle and operate the equipment. Additionally, the practical sessions encompassed essential skills such as machine setup, job and station setup, traversing techniques, and conducting detailed surveys.

Topics Covered:

The modules covered in this course are as follows:

Module-1: Fundamentals of Surveying (Theoretical Aspects)

- Introduction to surveying methods and principles
- Basic trigonometry functions for distance and angular measurements
- Basics of coordinate systems and units of measurement
- Establishing survey control points

Module-2: Total Station (Theoretical Aspects)

- Common concepts related to Total Station
- Understanding how Total Station works
- Overview of machine components
- Advantages and limitations of using Total Station

Module-3: Total Station (Practical Aspects)

- Familiarization with the various parts of the Total Station machine
- Instrument handling techniques
- Machine setup procedures, including leveling, centering, and focusing
- Job setup, station setup, and orientation methods
- Traversing techniques (close and open)
- Conducting detailed surveys

These modules were designed to provide students with a comprehensive understanding of surveying fundamentals, theoretical knowledge about Total Station instruments, and hands-on experience in utilizing Total Station for practical surveying tasks.

Assessment Procedure:

The students were evaluated throughout the course based on four parameters: Technical Knowledge, Hands-on Practice, Skill Test, and Attendance. Each parameter carried a certain weightage in the overall evaluation.

1. Technical Knowledge in Concerned Field (20 marks):

This parameter measured their theoretical knowledge, conceptual understanding, and ability to apply that knowledge to practical scenarios.

2. Hands-on Practice (10 marks):

Hands-on practice evaluated the student's ability to apply their knowledge in practical situations. It measured their proficiency in utilizing tools, techniques, or software relevant to the course.

3. Skill Test (10 marks):

The skill test assessed the student's competency and proficiency in specific skills related to the course. It focused on practical skills that were essential for the field of study.

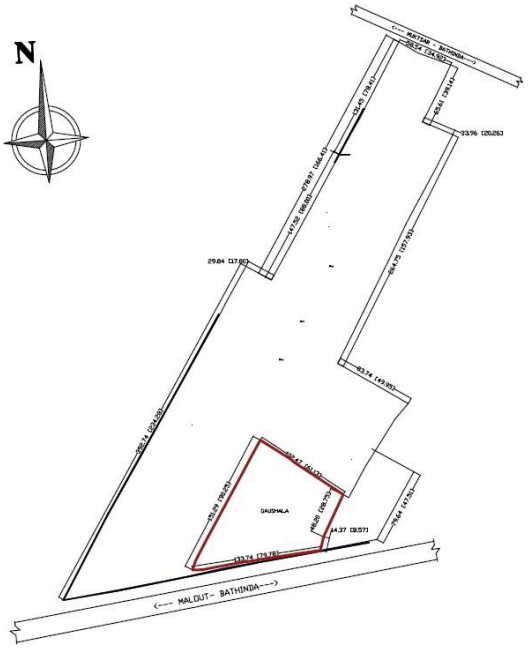
4. Attendance (10 marks):

Attendance refers to the student's regular presence in the course. It emphasizes the importance of active participation and consistent engagement throughout the duration of the program.

Outcomes:

The course outcomes can be summarized as follows:

1. Students acquired knowledge of total station applications and field surveying techniques.
2. They developed an understanding of total station functions and equipment components.
3. Students gained proficiency in setting up the total station and employing centering,leveling, and focusing techniques.
4. They obtained accurate coordinates for mapping purposes.
5. Students demonstrated skill in using coordinate data collected with the help of Total Station instrument and made map, calculated distance and area in software like AutoCAD of existing area.



Project on Measurement of existing area using Total station Instrument

Report

on

AUTOCAD

Eligible Students: B.Tech. 3rd Semester

Date: 06-09-2021 to 22-11-21

Duration of Course: 32 Hours

Course Code: CC_CAD

No. of Students Enrolled in the course: 8

Timing: 11: 30 am to 01:05 pm

Days: Tuesday and Friday

Course Coordinator: Dr. Manpreet Singh and Er. Indraj Kumar

The AutoCAD course conducted during the session 2021-22 for B.Tech. students. This certificate course offers a comprehensive learning experience for individuals seeking to develop proficiency in computer-aided design (CAD). AutoCAD is a powerful software widely used in various industries, including architecture, engineering, and construction. The course duration was 32 hours, where 08 enrolled students successfully completed the course.

The faculty expert ensured to equip students with the necessary knowledge and skills to effectively utilize AutoCAD for creating precise 2D and 3D digital designs. Through hands-on practice and interactive sessions, students will learn the fundamental tools and techniques of AutoCAD, enabling them to produce professional drawings, models, and layouts.

Teaching Pedagogy:

The teaching pedagogy for the AutoCAD course focuses on hands-on learning and interactive methods. Students will receive live demonstrations to understand AutoCAD functionalities, followed by ample opportunities for hands-on practice. Individual guidance and collaborative learning activities will enhance the learning experience. Regular assessments will provide feedback, and real-world applications will highlight the practical relevance of AutoCAD. A project-based approach will allow students to apply their skills, and additional resources will encourage continuous learning beyond the classroom. Through these methods, the course aims to

provide a comprehensive and practical understanding of AutoCAD for 2D and 3D design purposes.

Topics Covered:

Module 1: Introduction to Auto CAD

Introduction of AutoCAD, AutoCAD versions, Interface, Control the Drawing, Function keys, AutoCAD basics, Coordinate system, Cartesian, coordinate system,

Module 2: Draw and Modify commands

Draw Commands-Line, Poly line command, Rectangle command, Modify commands-Move, Rotate, Scale, copy, Mirror, erase, trim, extend, Annotate-Dimension Style, Manager Linear, Aligned, Radius, Angular, Arc length

Module 3: Text command, Layers, blocks

Text command-Single line text, Multiline text Layers, Layer properties, Blocks, Insert blocks, Parametric Geometric, Dimensional Manage

Module 4: Isometric views

Isometric views-Isometric top, left, right Isometric diagrams, Isometric drawings, Isometric diagrams, exercise, 2D Fundamentals, Drawing units, Sheet settings, Mechanical diagrams

Module 5: Project

Mechanical Projects

Assessment Procedure:

The students were evaluated throughout the course based on four parameters: Technical Knowledge, Hands-on Practice, Skill Test, and Attendance. Each parameter carried a certain weightage in the overall evaluation.

1. **Technical Knowledge in Concerned Field (20 marks):**
   This parameter measured their theoretical knowledge, conceptual understanding, and ability to apply that knowledge to practical scenarios.

2. **Hands-on Practice (10 marks):**
   Hands-on practice evaluated the student's ability to apply their knowledge in practical situations. It measured their proficiency in utilizing tools, techniques, or software relevant to the course.

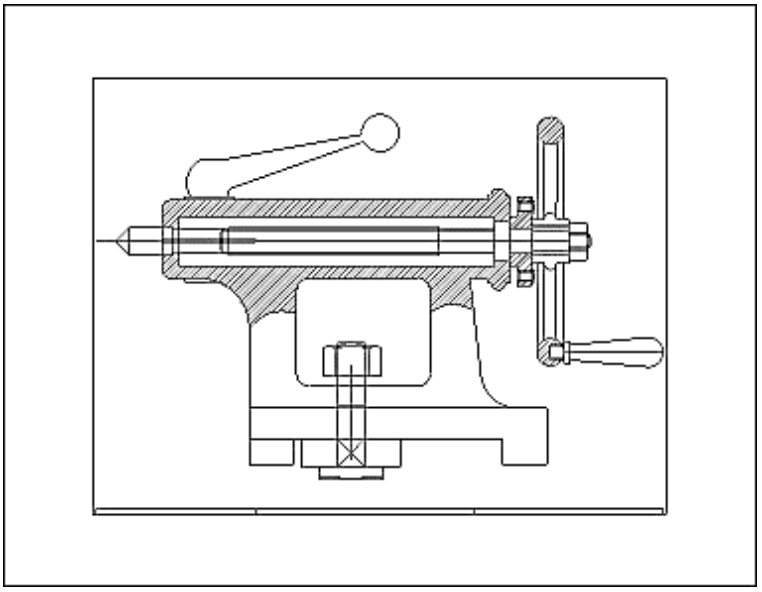
3. **Skill Test (10 marks):**
   The skill test assessed the student's competency and proficiency in specific skills related to

the course. It focused on practical skills that were essential for the field of study.

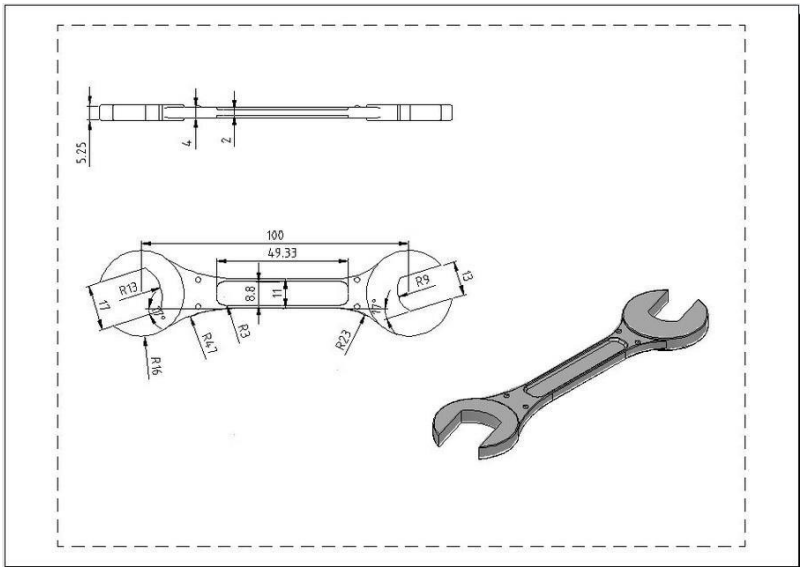
4. **Attendance (10 marks):**
   Attendance refers to the student's regular presence in the course. It emphasizes the importance of active participation and consistent engagement throughout the duration of the program.

Outcome:

1. They have gained a comprehensive understanding of CAD concepts and CAD tools, allowing them to navigate and utilize CAD software effectively.
2. The students now possess a solid understanding of Concepts, Wireframe, and Surface modeling techniques, enabling them to create complex and detailed 3D models.
3. They have acquired the ability to create precise engineering drawings using CAD software, utilizing the Part modeling feature to develop accurate representations of engineering components.
4. Students made a design of tailstock, spanner and many more. It was the major achievement of the certificate course.



Design of Tailstock using CAD software



Design of Spanner using AUTOCAD software

Report

on

Engineering Design using Solid works

Eligible Students: B.Tech. 5th Semester

Date: 06-09-2021 to 25-11-2021

Duration of Course: 32 Hours

Course Code: CC_EDSW

No. of Students Enrolled in the course: 21

Timing: 01:50 pm to 03:20 pm

Days: Tuesday and Friday

Course Coordinator: Dr. Sunil Kumar Paswan

SOLIDWORKS course conducted during the session 2017-18 for B.Tech. students. The CAD SolidWorks course offers a comprehensive learning experience for individuals aspiring to develop proficiency in computer-aided design (CAD) using the SolidWorks software. SolidWorks is a powerful and widely-used 3D CAD software that enables users to create precise and detailed models for various industries, including engineering, product design, and manufacturing. The course duration was 32 hours, where 21 enrolled students successfully completed the course.

This course aims to equip students with the necessary knowledge and skills to effectively utilize SolidWorks in designing and modeling 3D objects. Through a combination of theoretical concepts, hands-on practice, and interactive sessions, students will learn to navigate the SolidWorks interface, apply design principles, and create complex 3D models.

Teaching Pedagogy

The teaching pedagogy for the CAD SolidWorks course involves a comprehensive and interactive approach. Through lectures, demonstrations, and hands-on practice, students gain practical skills in utilizing SolidWorks for computer-aided design. Individual

guidance and collaborative learning activities foster a supportive environment for students to overcome challenges and enhance their understanding. Regular assessments and feedback ensure progress and reinforcement of learning. Real-world applications and project-based learning provide practical relevance, while resources for continuous learning enable students to explore advanced features of SolidWorks. This pedagogy aims to equip students with the necessary skills to effectively use SolidWorks for designing and modeling 3D objects.

Topics Covered:

Module-1: Getting started with SolidWorks introduces the software, its interface, screen layout, icons, and online help for troubleshooting.

Module-2: Opening a new working space covers setting up the working directory, customization, file saving, addressing redundancy, and familiarizing with SolidWorksicons.

Module-3: Sketch focuses on sketching techniques, including modification, constraints, dimensioning, and inspection.

Module-4: Part modeling covers generating planes, sketching within part modeling, and using tools like extrude, revolve, sweep, and editing functions for refining part models.

Module-5: Assembly of components includes techniques for component dragging, pattern creation, model display management, and generating a bill of materials.

Module-6: Layout covers table creation, annotation, sketching, and unit modification to enhance the presentation and documentation aspects of SolidWorks projects.

Assessment Procedure:

The students were evaluated throughout the course based on four parameters: Technical Knowledge, Hands-on Practice, Skill Test, and Attendance. Each parameter carried a certain weightage in the overall evaluation.

1. **Technical Knowledge in Concerned Field (20 marks):**
   This parameter measured their theoretical knowledge, conceptual understanding, and ability to apply that knowledge to practical scenarios.

2. **Hands-on Practice (10 marks):**
   Hands-on practice evaluated the student's ability to apply their knowledge in practical

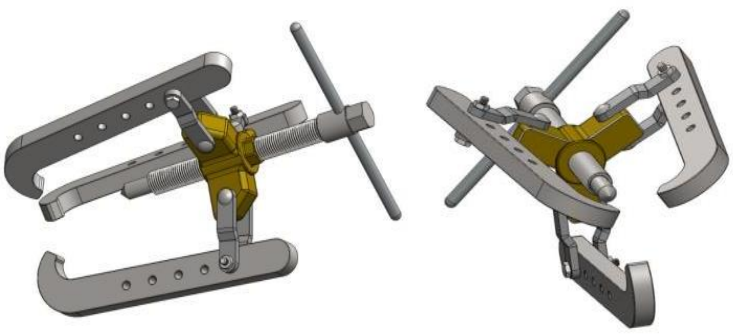
situations. It measured their proficiency in utilizing tools, techniques, or software relevant to the course.

3. **Skill Test (10 marks):**
   The skill test assessed the student's competency and proficiency in specific skills related to the course. It focused on practical skills that were essential for the field of study.

4. **Attendance (10 marks):**
   Attendance refers to the student's regular presence in the course. It emphasizes the importance of active participation and consistent engagement throughout the duration of the program.

Outcome:

1. Demonstrated competency with multiple drawing and modification commands in SolidWorks.
2. Proficiently created three-dimensional solid models using SolidWorks.
3. Assembled multiple solid models to create complex three-dimensional assemblies.
4. Applied industry standards in the preparation of technical mechanical drawings, ensuring adherence to established guidelines.
5. Analyzed fits and tolerances in mechanical assembled systems, enabling evaluation and optimization of design functionality.
6. Developed skills in analyzing the motion mechanisms of mechanical systems, gaining a comprehensive understanding of component interactions and system functioning.
7. Students learned the techniques of using SOLIDWORKS to design bearing puller and many more. It was the major achievement of the certificate course.



Design of Bearing Puller using Solid Works