Report

on

Advanced Surveying with Total Station

Eligible Students: B.Tech. 8th Semester

Date: 06-01-2020 to 20-04-2020

Duration of Course: 32 Hours

Course Code: CC_ASTS

No. of students Enrolled: 34

Timing: 02.35-04.00

Days: Monday & Thursday

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

Advanced Surveying with Total Station is a comprehensive course that focuses on the process of determining and measuring the location, size, and shape of physical features. This course covers the utilization of Total Station methodologies for conducting field surveys and provides an understanding of the various functionalities of the total station instrument. This report summarizes a course on surveying using Total Station, covering its fundamentals, theoretical aspects, practical aspects, and applications.

The course provided an excellent platform for students to gain hands-on skills and knowledge in the fields of surveying and total station instruments. Students found the course highly effective in practical learning, and the feedback received was overwhelmingly positive. It is worth mentioning that a total of 32 participants were awarded certificates upon successful completion of the program.

Teaching Pedagogy:

The course commenced by providing an overview of surveying methods and principles, encompassing key concepts such as functions for measuring distances and angles, various coordinate systems, and units of measurement. Subsequently, students were introduced to the Total Station, where they gained insights into its constituent components, operational mechanisms, and both the advantages and limitations associated with its usage. The course also delved into the practical aspects of employing a Total Station, encompassing essential skills

such as instrument handling, configuring the equipment, establishing job parameters, and executing traversing techniques.

Topics Covered:

The modules covered in this course are as follows:

Module 1: Fundamentals of Surveying

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

Module 2: Theoretical Aspects of Total Station

- Common concepts on Total Station (EDM)
- How Total Station works
- Machine components
- Advantages and limitations of Total Station

Module 3: Practical Aspects of Total Station

- Familiarizing with machine parts
- Instrument handling
- Machine setup (leveling, centering, and focusing)
- Job setup
- Station setup and orientation
- Traversing (Close and Open)
- Detail survey

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):

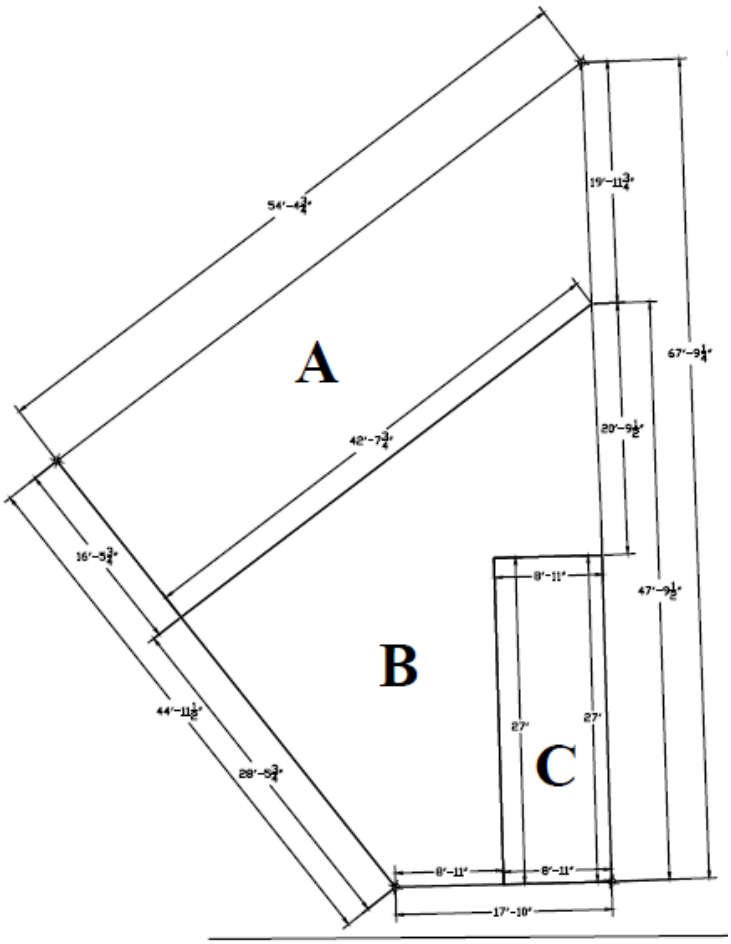
Attendance refers to the student's regular presence in the course. It emphasizes the importance of active participation and consistent engagement throughout the duration of the program.

Outcomes:

The course outcomes can be summarized as follows:

1. Students gained knowledge about the components of Total Station equipment and learned how to set up the entire station using centering, leveling, and focusing techniques.
2. Students were provided with comprehensive guidance to understand the theoretical aspects of surveying and Total Station operations.
3. Students were introduced to coordinate files compatible with AutoCAD software. This allowed them to create maps, calculate distances, and determine area measurements based on the survey data collected using Total Station instruments.
4. At the end of this course students were given a project for creating maps, calculating area, and performing other essential survey tasks using TS instrument.

SITE AREA SUMMARY		
	Sq.m	Sq. yard
A	73.98	88.47
B	73.98	88.47
C	22.38	26.76
Total (A+B)	147.96	176.95
Total (A+B+C)	170.34	203.72



Project on creating map of existing area using TS instrument

Report

on

Brick Laying

Eligible Students: B.Tech. 4th Semester

Date: 06-01-2020 to 27-04-2020

Duration of Course: 33 Hours

Course Code: CC_BL

No. of students Enrolled: 31

Timing: 01.50-03.20

Days: Monday & Thursday

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

The brick laying course focused on teaching students the process of constructing walls and structures using bricks as the primary building material. Students were introduced to various technical terms and learned about the dimensions, manufacturing, types, and strength characteristics of bricks. The course aimed to provide students with the necessary skills and knowledge to lay bricks accurately and efficiently, while adhering to safety standards and regulations.

The course successfully trained 29 students, who received certificates upon completion, and received positive feedback for its effectiveness in imparting bricklaying expertise.

Teaching Pedagogy:

The course followed a comprehensive teaching approach, incorporating both theoretical and practical components. Students were equipped with an understanding of bricklaying tools and brick cut shapes, including hand tools, power tools, measuring devices, and lifting equipment. They learned about different types of brick bonding techniques, such as stretcher bond, header bond, and Flemish bond. The course also covered setting out processes for both basic and complex wall designs, emphasizing the importance of plumbing, leveling, and gauging.

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

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

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:

Upon completion of the course:

1. Students acquired the necessary knowledge and skills in bricklaying.
2. Students learned about brick dimensions, manufacturing processes, and various types of bricks based on class and strength characteristics.
3. Students developed proficiency in constructing projects according to provided drawings, selecting bricks that were true to shape and angle, and rejecting chipped bricks.
4. Students learned to maintain accuracy in alignments and produce straight lines for sharp edges and a crisp appearance.
5. As part of the course, students were assigned the project "Brick Masterpiece." They were tasked with designing and constructing a unique structure using their acquired skills in bricklaying. The project aimed to encourage students to showcase their creativity and apply the techniques they learned throughout the course. The "Brick

Masterpiece" project provided an opportunity for students to demonstrate their proficiency in laying bricks, creating ornate features, and paying attention to detail.

Project on Brick Masterpiece

Report

on

.Net (Advance Level)

Eligible Students: B.Tech 4th Semester

Date : 22-01-2020 to 19-03-2020

Duration of Course: 32 Hours

Course Code- CC_.Net

No. of Students Enrolled in the course: 30

Timing 01:50 pm to 03:20 pm

Days: Wednesday & Thursday

Course Coordinator: Er. Ankit Sharma, Assistant Professor (CSE)

The Certificate Course on .Net (Advance Level) was a comprehensive program designed to provide students with an in-depth understanding of the .Net framework developed by Microsoft. Led by our experienced faculty expert, the course aimed to equip 30 enrolled students with the necessary skills to develop advanced applications using various .Net technologies. With a duration of 32 hours, the course covered core features of the .Net Framework, its compatibility with multiple programming languages, and its applications in form-based, web-based, and web services development. Throughout the course, students gained a comprehensive understanding of .Net concepts and were empowered to leverage its functionalities while adhering to industry standards. The course witnessed a remarkable achievement, with all 30 students successfully completing the program, demonstrating their proficiency in .Net development and paving the way for future career opportunities in the field.

Teaching Pedagogy:

The Course on .Net provided a comprehensive learning experience for students seeking to deepen their understanding of the .Net framework developed by Microsoft. Through a combination of engaging lectures and practical hands-on sessions, participants were guided by knowledgeable instructors to explore the diverse aspects of .Net development. The course covered topics such as form-based and web-based applications, web services, and the integration of .Net with various programming

languages. To assess their progress, students underwent evaluations based on technical knowledge, practical application, skill tests, and attendance. By the end of the course, students gained valuable skills to confidently develop advanced applications using .Net technologies, laying a strong foundation for their future growth and exploration in the field**.**

Topic Covered –

Module 1: Introduction to .net Framework, Introduction to Visual Basics, Introduction to .net libraries.

Module 2: Understanding Page cycle between User, Web Browser and Web server, Page Initialization

Module 3: Introduction to MVC architecture, UI logic, Input Logic, Business Logic

Module 4: Introduction to different API, Introduction to interfaces. Create single page application, service, layers, introduction to web API controller, controller wizard

Module 5: Introduction to XML, Introduction to ADO.Net, using XML in a data set.

Module 6: Understand multiple client and server-side component with AjaxIntroduction to AJAX, AJAX with Database

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.

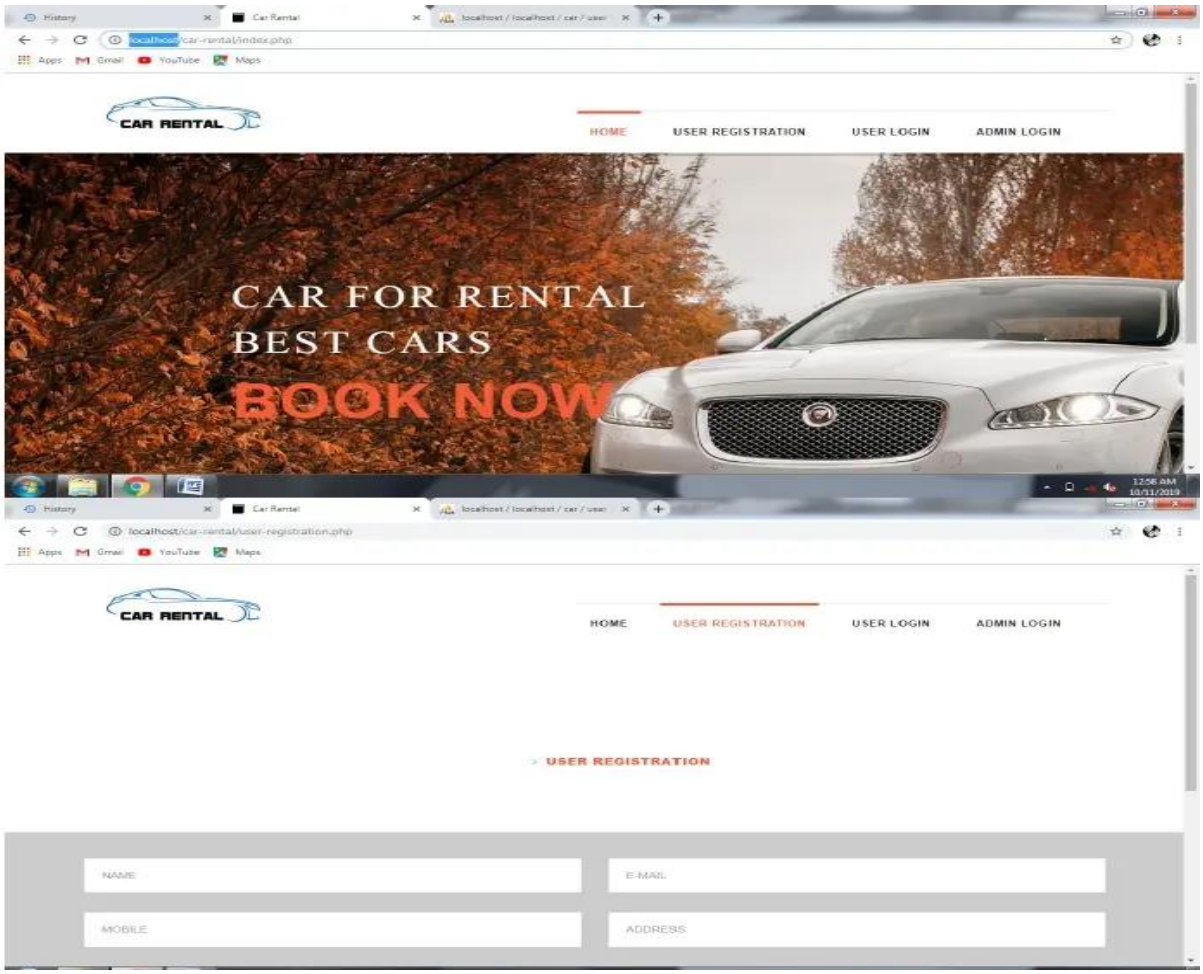
4. Attendance (10 marks):

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. Gained a comprehensive understanding of the .NET Framework and its core features.
2. Developed proficiency in Visual Basics programming language for .NET development.
3. Learned to create single-page applications and implement service layers using .NET technologies.
4. Understood XML integration with ADO.NET for data manipulation.
5. Acquired expertise in AJAX for developing interactive web applications and working with databases.



Screenshot of rental car booking system

Report

on

Website Development (Advance Level)

Eligible Students: B.Tech 6th Semester

Duration of Course: 32 Hours

Date: 21/01/2020 to 19/03/2020

Course Code- CC_WDA

No. of Students Enrolled in the course: 32

Timing: 11:30 am to 01:05 pm

Days: Wednesday & Thursday

Course Coordinator: Er. Ankit Sharma, Assistant Professor (CSE)

The Web Development course is specifically designed for B.Tech 6th-semester students, catering to their needs in understanding the intricacies of web development. Spanning a duration of 32 hours, the course attracts a total of 32 students who are eager to delve into the world of web development. The course curriculum focuses on imparting a comprehensive understanding of HTML/CSS fundamentals and delving into the programming aspects of PHP. Through a combination of theoretical knowledge and practical application, students learn to create dynamic web pages and effectively work with databases. With dedicated hands-on learning and engaging exercises, all 32 enrolled students successfully complete the course, acquiring the essential skills to develop professional websites and embark on a rewarding journey in web development.

Teaching Pedagogy:

Under the guidance of experienced instructors, the course follows a pedagogy that promotes active learning and practical skill development. Through a combination of lectures, discussions, and hands-on exercises, students are encouraged to actively participate, ask questions, and apply their knowledge in real-world scenarios. The course instructors provide step-by-step guidance, foster interactive discussions, and assess students' progress through quizzes and assignments.

Topic Covered:

Module 1: Introduction to PHP: Syntax, variables, data types, operators, and expressions.

Module 2: Decisions and Loops: Conditional statements, loops, and integrating HTML.

Module 3: Functions: Function definition, parameter passing, recursion, and string manipulation.

Module 4: Array: Creating and accessing arrays, looping, and library functions.

Module 5: Handling HTML Forms with PHP: Capturing form data, handling multi-value fields, and file uploads.

Module 6: Working with Files and Directories: File operations, directory handling, and file uploading/downloading.

Module 7: Session and Cookie: Session control, working with cookies, and managing session variables.

Module 8: Database Connectivity with MySQL: Introduction to RDBMS, connecting to MySQL database, performing database operations, and executing queries**.**

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.

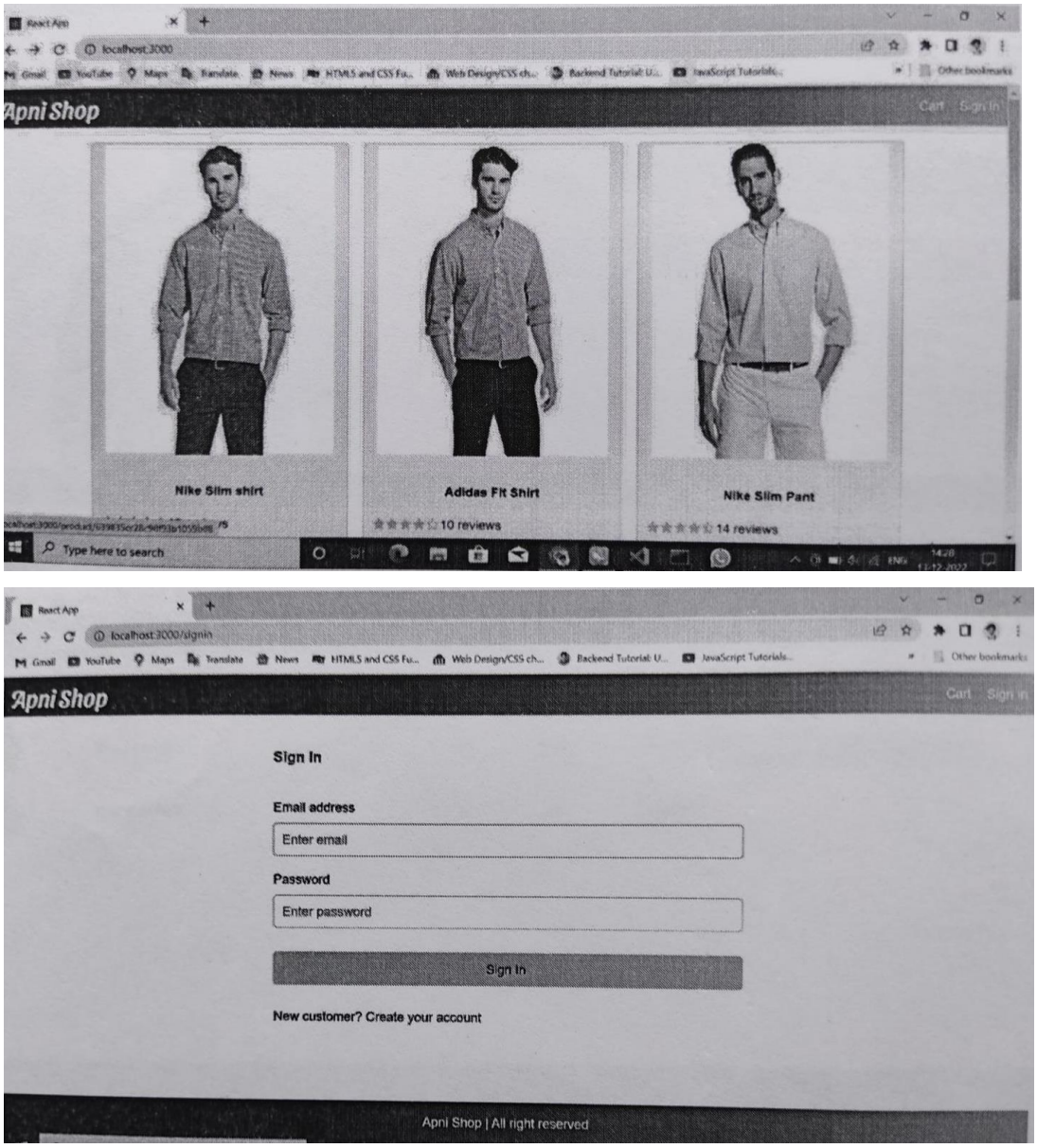
4. Attendance (10 marks):

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. Developed dynamic web pages using PHP/MySQL, incorporating HTML and CSS.
2. Created interactive forms, handled form data, and implemented file upload functionality.
3. Manipulated strings, arrays, and performed essential operations using PHP.

4. Understood session management and utilized cookies for web application functionality.
5. Connected and interacted with MySQL databases, performed basic database operations, and executed queries.
6. Gained the ability to create large-scale websites such as e-commerce platforms, discussion forums, and content management systems.



Screenshot of Shopping Website

Report

on

Mobile App Development

Eligible Students: B.Tech 6th Semester

Duration of Course: 32 Hours

Date: 21/01/2020 to 19/03/2020

Course Code- CC_MAD

No. of Students Enrolled in the course: 34

Timing: 11:30 am to 01:05 pm

Days: Tuesday & Thursday

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

This 32-hour Mobile Application Development (MAD) course, completed by all 34 enrolled students, aims to provide a basic understanding of Android language and app development. Students learn to create mobile applications with various forms, menus, and widgets, incorporate database connectivity, design user-friendly interfaces, and perform testing and debugging. The course covers modules such as Android development environment, application design essentials, user interface design, and publishing mobile applications. Through PowerPoint presentations, code snippets, and group discussions, students gain practical knowledge and problem-solving skills. By the end of the course, students are equipped to build window-based and application-based software frameworks for Android devices.

Topics Covered:

Module 1: Introduction to Android development environment: Android fundamentals, programming languages, components, structure, and lifecycle of Android applications.

Module 2: Factors in developing mobile applications: Installation of software, creating the first Android app, layouts, views, resources, activities, and intents.

Module 3: Android Application Design Essentials: Concept selection, functionality, services, activities.

Module 4: Android User Interface Design Essentials: User-interface components, layouts, screen densities.

Module 5: Testing and debugging mobile applications: Introduction to mobile app testing, manual and automated testing.

Module 6: Publishing Mobile Application: Application compatibility, size, pricing, finalizing application details**.**

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.

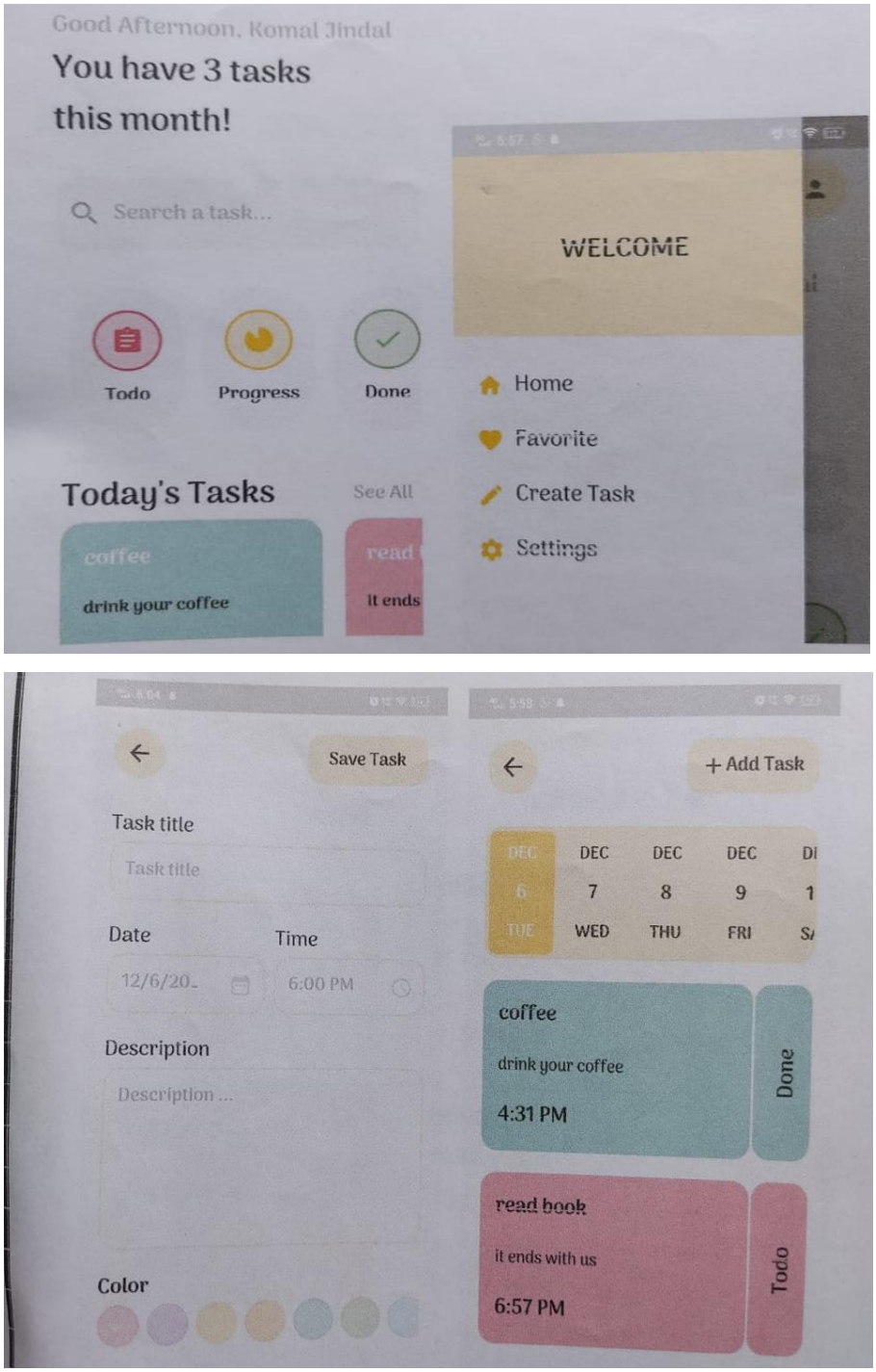
4. Attendance (10 marks):

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. Developed a comprehensive understanding of the Android development environment, including fundamentals, programming languages, components, and the structure and lifecycle of Android applications.
2. Created mobile applications by installing software, building Android apps, designing layouts, views, and resources, and working with activities and intents.
3. Designed user-friendly interfaces by utilizing various components, creating suitable layouts for different screen densities, and ensuring a seamless user experience.
4. Obtained the skills to test and debug mobile applications using both manual and automated testing techniques.
5. Familiarized oneself with the process of publishing mobile applications, including

considerations for compatibility, size optimization, pricing strategies, and finalizing application details.



Screenshot of To-Do List Application

Report

on

Automotive Systems & Controls using MATLAB/Simulink

Eligible Students: B.Tech 8th Semester

Date: 20-01-2020 to 30-03-2020

Duration of Course: 32 Hours

Course Code: EE_ASML

No. of students Enrolled: 20

Timing: 1:50 PM-3.20 PM

Days: Monday & Wednesday

Course Coordinator: Er. Dinesh Kumar, Assistant Professor (EE)

The Certificate Course on Automotive Systems and Controls using MATLAB/Simulink was conducted at Baba Farid College of Engineering Technology, Bathinda during the 2019-20 academic session. The course coordinator, Er. Dinesh Kumar, facilitated the learning process and ensured that the students received valuable knowledge and practical skills. Out of the enrolled students, 18 students had successfully completed the course.

The Automotive Systems and Controls using MATLAB/Simulink course focused on equipping students with the skills to analyze and simulate complex systems using MATLAB and Simulink software. MATLAB provides a platform for numeric computation and visualization, while Simulink allows for dynamic simulation and controller modeling using block diagrams. The course aimed to simplify the simulation of electrical engineering applications, particularly in power engineering, and provided an introduction to power systems, switchgear, control panels, and MATLAB basics.

Teaching Pedagogy:

The course followed a structured approach with six modules. Students introduced to power systems and switchgear, focusing on substation components and designing single-line diagrams, covered the overview and working of control panels, including relays, circuit breakers, and calculations related to recovery and restriking voltage, provided an introduction to MATLAB, covering basic concepts, applications, and the MATLAB tool bar.

Topics Covered:

The course was divided into six modules to cover the necessary topics comprehensively. The modules included:

Module 1: Introduction about power system and switchgear:

Students learned about substation components and their design, with a specific focus on single-line diagrams of substations.

Module 2: Overview and working of control panels:

The functioning of control panels, relays, and circuit breakers were discussed. The students also learned about cut set analysis, recovery calculations, and restriking voltage calculations.

Module 3: Introduction to MATLAB:

The basics of MATLAB were covered, including its applications and various tools available in the software. Students were familiarized with the MATLAB toolbars and learned about creating new scripts, importing data, and saving workspace.

Module 4: Introduction to MATLAB Simulink:

This module introduced students to Simulink, a MATLAB extension for dynamic system simulation and controller modeling. They learned about using simple blocks and connecting wires to create models.

Module 5: Simple mathematical codes, graphs, calculations:

Students were taught how to use MATLAB for coding and programming mathematical operations. They learned about formulas, data entry, and various graph plotting techniques.

Module 6: Plot Data-Sets:

This module focused on advanced plotting techniques using MATLAB, such as log-log, semilogx, semilogy, and fplot. Students gained expertise in visualizing and analyzing data sets.

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:

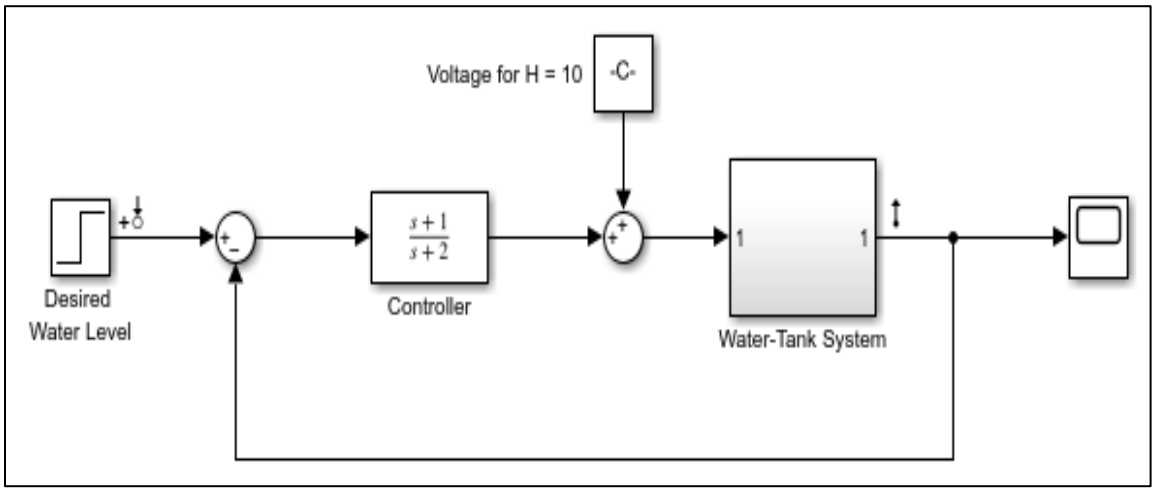
Upon completion of the course, the students achieved the following outcomes:

1. Attained proficiency in using MATLAB for interactive computations, including memory and file management.
2. Developed the ability to generate plots and export them for use in reports and presentations.
3. Gained competence in importing datasets, programming scripts, and creating functions using the MATLAB development environment.
4. Acquired proficiency in plotting various data sets using MATLAB.

The course received positive feedback from the students, and 18 out of 20 students successfully completed the course and received certificates for their achievement.

In conclusion, the Certificate Course on Automotive Systems and Controls using MATLAB/Simulink provided students with valuable insights into the application of MATLAB/Simulink in automotive engineering. The course enhanced their understanding of power systems, switchgear, and control panels while equipping them with practical skills in MATLAB programming and data analysis. The successful completion of the course signifies the students' proficiency in utilizing MATLAB for automotive systems and controls.

Screenshot of Passive Control of Water Tank Level - MATLAB Simulink



Report

on

Introduction to ETAP software

Eligible Students: B.Tech. 8th Semester

Date: 20-01-2020 to 30-03-2020

Duration of Course: 32 Hours

Course Code: EE_IES

No. of students Enrolled: 36

Timing: 1:50 PM-3:20 PM

Days: Monday & Wednesday

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

The Certificate Course on Power System Simulation by ETAP (BASIC LEVEL) was conducted at Baba Farid College of Engineering Technology in Bathinda during the 2019-20 academic session. The course aimed to provide students pursuing B.Tech. Electronics & Communication Engineering in their 6th semester with a comprehensive understanding of ETAP software and its applications in power system modeling and simulation. The course duration was 40 hours, and it was coordinated by Er. Satvir Singh. Out of the enrolled students, 34 students had successfully completed the course.

The Basics of ETAP for Power System Analysis course focused on providing students with the knowledge and skills to effectively use the Electrical Transient Analyzer Program (ETAP) software for modeling and simulating electrical power systems. ETAP is a powerful tool used by power systems engineers to create digital twins of electrical networks, analyze power system dynamics and transients, and evaluate protection systems. The software offers a wide range of capabilities, including load flow analysis, arc flash analysis, cable capacity study, and more. It is widely used in various sectors such as generation, transmission, distribution, industrial, transportation, and low voltage.

Teaching Pedagogy:

The course followed a structured approach with five modules. Each provided an overview of the ETAP software, its features, benefits, symbols used, and applications, focused on building power

systems and simulating their behavior, including analyzing power flow, current flow, and voltage flow, covered the concepts of short circuit analysis and arc flash analysis, highlighting their differences and importance.

Topics Covered:

The course covered the following modules:

Module 1: Overview of ETAP software and symbols used

Module 2: Build power systems and simulate

Module 3: Run and analyze AC power circuits

Module 4: Run short circuit analysis and arc-flash

Module 5: Overview of ETAP Design

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):

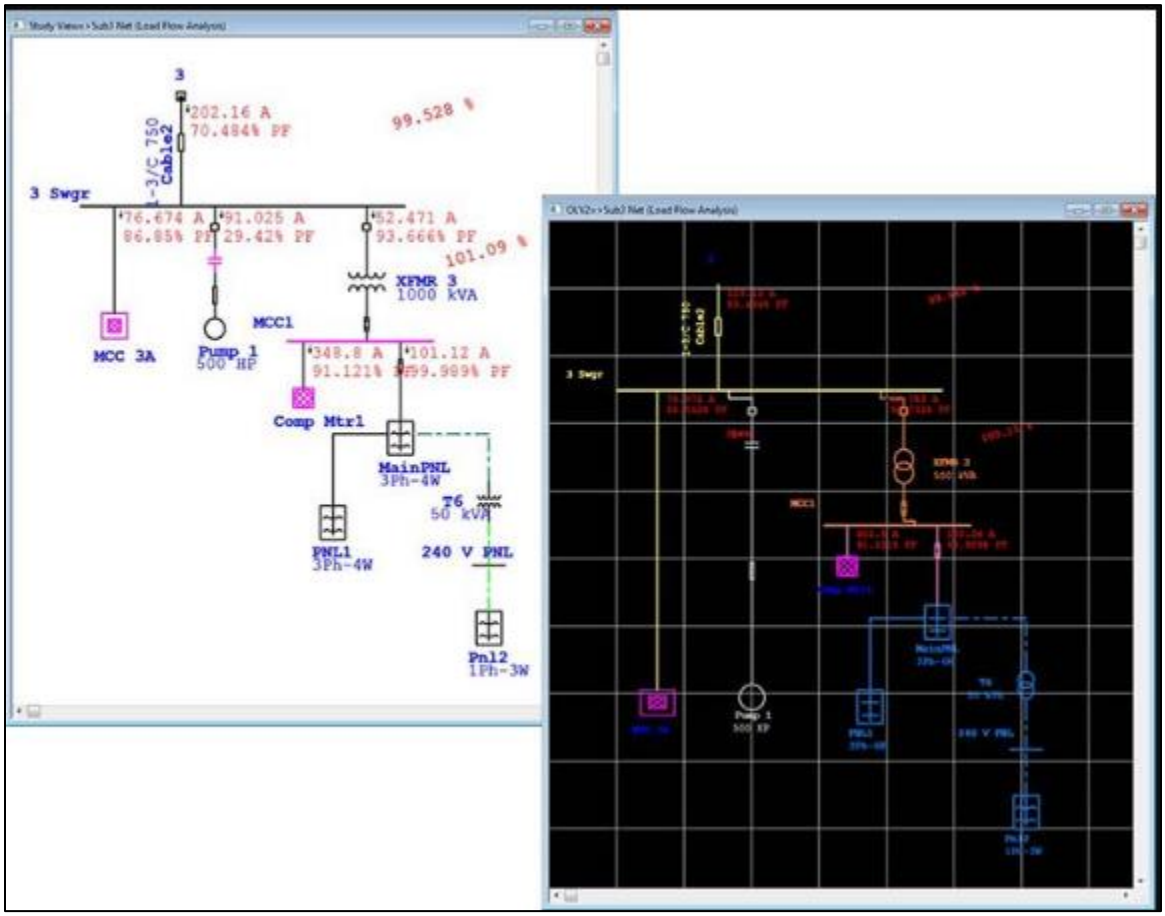
Attendance refers to the student's regular presence in the course. It emphasizes the importance of active participation and consistent engagement throughout the duration of the program.

Outcome:

Upon completion of the course, the participants achieved the following learning outcomes:

1. Attained Android Proficiency in drawing single line diagrams of substations.
2. Developed a fundamental understanding of power system studies.

3. Acquired the ability to calculate relay and circuit breaker parameters for appropriate component selection.
4. Gained competence in performing short circuit analysis.
5. Obtained knowledge of solar panel installation.
6. Developed an understanding of distributed generation (DG) synchronization processes.
7. Developed a basic understanding of ETAP software, its features, and applications.
8. These learning outcomes equipped students with essential skills and knowledge in substation design, power system analysis, protective relaying, renewable energy integration, and the use of ETAP software in electrical engineering practice.



Screenshot of Model in ETAP Software

Report

on

Wear in Engineering

Eligible Students: B.Tech. 4th Semester

Date: 15-01-2020 to 23-03-2020

Duration of Course: 32 Hours

Course Code: ME-EW

No. of Students Enrolled in the course: 27

Timing: 11:30 am to 01:05 pm

Days: Monday & Wednesday

Course Coordinator: Er. Indraj Kumar, Er Anoop Monga

Wear in Engineering course conducted during the session 2019-20 for B.Tech. students. This certificate course delves into the fascinating field of engineering materials and the critical role they play in various industries. This course explored the science behind wear, friction, and lubrication to ensure the efficient functioning and longevity of mechanical systems. The course duration was 32 hours, where 27 enrolled students successfully completed the course. Throughout this course, the students examined the fundamental concepts of wear, including the different types of wear mechanisms, such as adhesive, abrasive, erosive, and corrosive wear. Students determined the factors influencing wear, such as contact pressure, sliding velocity, temperature, and surface roughness, and learn how to mitigate wear through various engineering strategies.

Teaching Pedagogy:

The Wear in Engineering course employs a diverse range of teaching pedagogies to create an engaging and interactive learning experience. Through comprehensive lectures, real-world case studies, hands-on experiments, group discussions, multimedia resources, guest lectures, assignments, projects, and assessments, students will develop a solid understanding of the fundamental principles and practical applications of engineering wears. Online learning platforms will complement these methods, providing additional resources and facilitating collaborative learning. By combining theory, practical experimentation, and industry insights, this pedagogical approach aims to foster critical thinking, problem-solving skills, and the

ability to analyze and optimize the performance of engineering components in the face of wear-related challenges.

Topics Covered:

MODULE-1: Introduction to Engineering Wear

The module provides an overview of engineering wear and its significance in design and industrial applications. It covers topics such as viscosity, flow of fluids, and the nature of surfaces in contact. Participants will learn about the properties of surface layers, methods of studying surfaces, and the contact behavior of smooth and rough surfaces.

MODULE-2: Wear and its Potential Reasons

The module focuses on the causes and morphology of wear. It discusses design issues, friction in upper and lower pairs, and different types of friction. Participants will explore the definition, mechanisms, and measurement of wear, as well as the theories associated with wear phenomena. The module also covers wear of materials and the impact of friction on wear.

MODULE-3: Introduction to ASTM and Various Codes

The Module introduces the American Society for Testing and Materials (ASTM) and various codes related to wear. It presents case studies of wear occurring in fields such as agricultural tillage and industrial production, including the airline industry. The module explores remedial measures for mechanical wear through metallurgical processes. Participants will also learn about bearing selection, lubrication, maintenance, and diagnostic considerations in different tribological components.

MODULE-4: Lubrication and Lubricants

The module focuses on lubrication and lubricants. It covers the principles of lubrication and the general requirements of bearing materials. Participants will learn about different types of bearing materials and their applications. The module delves into hydrostatic step bearings, hydrodynamic theory of lubrication, friction in sliding bearings, and hydrodynamic thrust bearings. Additionally, participants will gain an understanding of lubricant functions, types, properties, and selection criteria, as well as the classification, recycling, and disposal of oils.

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. Knowledge of Surface Topography: Students acquired the ability to understand and model the surface topography of engineering materials, allowing them to analyze and predict wear behavior based on surface roughness and contact conditions.
2. Understanding of Tribology Basics: Students developed a comprehensive understanding of the fundamental principles of tribology and related sciences. They grasped the theoretical background of processes occurring in tribological systems and the various mechanisms and forms of interaction between friction surfaces.
3. Familiarity with Types of Wear: Students became familiar with different types of wear mechanisms, including adhesive, abrasive, erosive, and corrosive wear. They understood the underlying mechanisms of each type and recognized the factors that influence wear behavior in various engineering systems.
4. Methods to Reduce Friction: Students learned various methods to reduce friction in engineering systems, such as surface coatings, lubrication strategies, and surface treatments. They acquired the skills to identify friction-related problems and implemented effective solutions to enhance the efficiency and lifespan of mechanical components.

5. Students had hand-on practice on engine parts wear and many more. It was the major achievement of the certificate course.

Project on Worn out Piston Rings

Report

on

KK Methodology

Eligible Students: B.Tech. 8th Semester

Date: 15-01-2020 to 23-03-2020

Duration of Course: 32 Hours

Course Code: ME-KK

No. of Students Enrolled in the course: 36

Timing: 01:50 pm to 03:20 pm

Days: Monday & Wednesday

Course Coordinator: Er.Gaurav Garg

The Kobetsu Kaizen (KK) Methodology course conducted during the session 2017-18 for B.Tech. students. The KK approach is a crucial pillar of Total Productive Maintenance (TPM), aimed at unifying the kaizen effort across divisions and improving overall equipment effectiveness. TPM is a comprehensive maintenance approach that focuses on eliminating losses and optimizing production processes. The course duration was 32 hours, where 36 enrolled students successfully completed the course.

The faculty expert ensured that the KK pillar specifically targets waste reduction and loss control by analyzing losses through various quality control tools and proposing suggestions for their elimination. The KK approach is an integral part of achieving zero losses and enhancing the Overall Equipment Efficiency (OEE) of both processes and the entire plant.

Teaching Pedagogy

The teaching pedagogy for the Kobetsu Kaizen (KK) course focuses on a comprehensive and practical approach to Total Productive Maintenance (TPM). It includes lectures on theoretical concepts, case studies, and examples to illustrate the application of KK in waste reduction and loss control. Students learn to use quality control tools, engage in group discussions and brainstorming, and participate in practical implementation exercises. Emphasis is placed on cultivating a continuous improvement mindset, and regular assessments and feedback are provided. The pedagogy aims to equip students with the knowledge, skills, and mindset to effectively analyze losses, propose improvement suggestions, and contribute to operational

excellence through waste reduction and enhanced equipment effectiveness.

Topics Covered:

MODULE-1: Overview of Kaizen

The module provides an introduction to Kaizen, the philosophy of continuous improvement. It explains the concept of GEMBA, which focuses on improvement at the workplace where value is created. The module also clarifies what Kaizen is not and emphasizes the reasons why organizations should adopt Kaizen for their improvement efforts.

MODULE-2: Continuous Improvement

The module explores the application of continuous improvement in the PQCDEHSM framework. It covers the elimination or reduction of the 7+1 types of waste and highlights the importance of attitudinal change within organizations. The module introduces the 5W 1H principle to guide effective implementation of Kaizen projects.

MODULE-3: 1H of Kaizen

The module delves into the practical aspects of implementing Kaizen. It focuses on identifying and eliminating the three forms of waste: Muda, Mura, and Muri. The module also introduces the SCAMPER methodology for generating innovative ideas and solutions.

MODULE-4: Kaizen Sheet

The module showcases real-life examples of successful Kaizen projects in different industries. It covers the evaluation of Kaizen projects and emphasizes the importance of celebrating improvement through events like Kaizen Mela. This module serves as a course wrap-up, summarizing the key concepts and reinforcing the significance of continuous improvement in organizations.

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):**

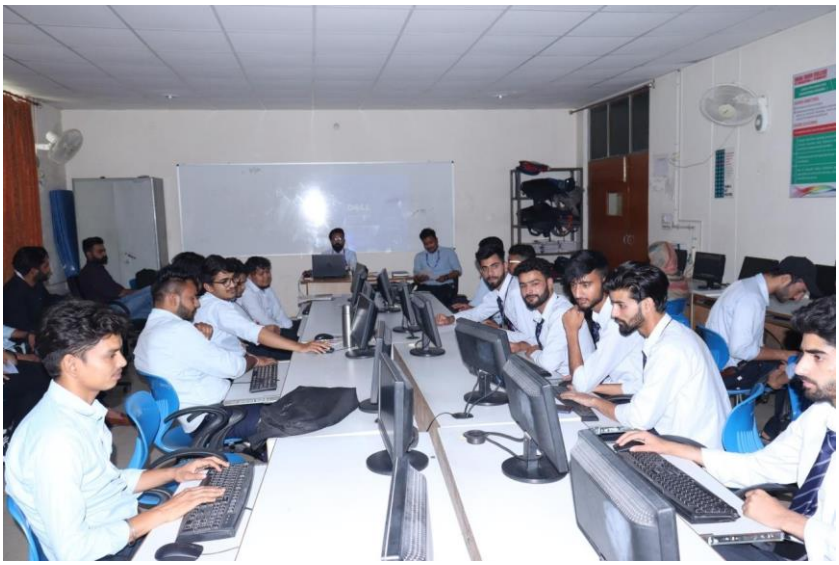
   The skill test assessed the student's competency and proficiency in specific skills related to the course. It focused on practical skills that were essential for the field of study.

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. Acquired a comprehensive understanding of the fundamentals of kaizen, including its purpose and its relationship to lean manufacturing principles.
2. Developed knowledge about the benefits associated with kaizen improvements in various industries.
3. Gained the ability to describe the phases involved in a kaizen event, including planning, implementation, evaluation, and follow-up.
4. Explored practical examples and case studies to understand the application of kaizen principles in real-world scenarios.
5. Developed a deep understanding of the importance of continuous improvement and the role of kaizen in driving organizational efficiency and effectiveness.
6. Students learned the Optimizing Efficiency Through Kobetsu Kaizen Methodology and many more. It was the major achievement of the certificate course.



Session on Optimizing Techniques to Increase Efficiency Through KK Methodology

Report

on

Basic concept of Surveying by Total Station

Eligible Students: B.Tech. 5th Semester

Date: 23-07-2019 to 31-10-2019

Duration of Course: 32 Hours

Course Code: CC_BCTS

No. of students Enrolled: 43

Timing: 02.35-04.00

Days: Tuesday & Thursday

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

The Basic Concept of Surveying by Total Station course provided students with a comprehensive understanding of surveying techniques using Total Station instruments. The course aimed to equip students with essential skills and knowledge required in the surveying industry. Students learned about the functions and applications of Total Station instruments, as well as the theoretical aspects and practical operation of these devices.

Students found the course highly effective in practical learning, and the feedback received was overwhelmingly positive. It is worth mentioning that a total of 41 participants were awarded certificates upon successful completion of the program.

Teaching Pedagogy:

The course starts with an introduction to surveying fundamentals and the basics of Total Station instruments. Students were introduced about the theoretical aspects of Total Stations, including adjustments, methods, and principles of surveying. The course also covered Electronic Distance Measuring (EDM) techniques and orientation and station set up. Practical exposure given with Total Station instrument and surveying software to the students.

Topics Covered:

The modules covered in this course are as follows:

Module-1: Fundamentals of Surveying

- Definition of Surveying

- Basic concept of Total Station
- Setting up of Total Station - Instrument handling and machine setup

Module-2: Theoretical Aspects of Total Station

- Adjustment of Total Station (centering, focusing, and leveling)
- Methods and Principles of surveying by Total Station
- Working of Total Station

Module-3: Electronic Distance Measuring (EDM)

- Trigonometric functions for distance and angular measurements
- Unit measurements
- Orientation and station set up

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.

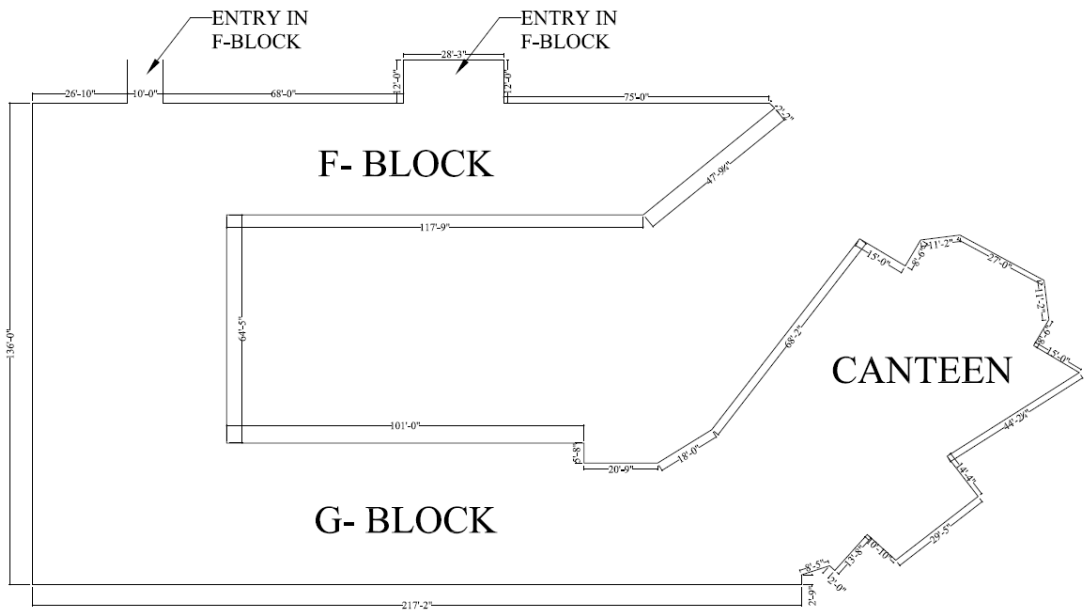
4. Attendance (10 marks):

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:

Upon completion of the course:-

1. Students gained an understanding of the various functions and applications of Total Station instruments.
2. They acquired knowledge of surveying techniques using Total Station instruments and their real-world applications.
3. Students developed proficiency in using surveying software for data downloading and interpretation.
4. Students were able to generate outputs and present survey results, accurate and precise measurements of distances, angles, and elevations using Total Station instruments.
5. As part of the course, students undertook a project to apply their knowledge and skills in surveying using Total Station instruments



Project on Preparing map of existing area using TS instrument

Report

on

Practical Applications of Civil Engineering & Construction Practices

Eligible Students: B.Tech. 7th Semester

Date: 23-07-2019 to 07-11-2019

Duration of Course: 33 Hours

Course Code: CC_ECP

No. of students Enrolled: 34

Timing: 01.50-03.20

Days: Tuesday & Thursday

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

The Practical Applications of Civil Engineering & Construction Practices course provided students with comprehensive knowledge and practical skills in the field of civil engineering and construction. The course covered various aspects, including infrastructure development, building design and construction, water and wastewater treatment, transportation systems, environmental protection, geotechnical engineering, disaster response, and urban planning.

Throughout the course, students' feedback was overwhelmingly positive, indicating a high level of satisfaction with the course. At the end of the program, 32 out of 34 students received certificates after successfully completing the course.

Teaching Pedagogy:

The course was structured into three modules, each focused on roles and responsibilities of project managers and construction supervisors, along with the fundamentals of project management, delved into estimation techniques in civil construction, particularly in earthmoving, compaction, soil stabilization, and best workmanship practices, addressed safety risk management, emphasizing problem-solving, good documentation practices, and professional ethics.

Topics Covered:

The modules covered in this course are as follows:

Module-1: Roles and Responsibilities of the Project Manager

- Introduction to project manager roles and responsibilities
- Responsibilities of a construction supervisor
- Fundamentals of project management

Module-2: Estimation in Civil Construction

- Definition and importance of estimation
- Estimation practices in earthmoving, compaction, and soil stabilization
- Best workmanship practices in construction

Module-3: Safety Risk Management

- Definition and significance of safety risk management
- Problem-solving techniques in safety risk management
- Good documentation practices in construction
- Professional ethics in the construction industry

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 covered the following outcomes:

1. Students gained knowledge about civil site work, materials, and methods/techniques, including civil site preparation, construction practices, and project management.
2. Students learned how to effectively work in teams to perform experimental tasks.
3. Students applied different methods to determine earthwork quantities, estimate civil construction costs, assess site work components, and consider safety implications.
4. Students expanded their knowledge and understanding of the 4M's concept (Materials, Money, Manpower, and Machinery), construction processes, project management, and professional ethics commonly encountered in the workplace and made different type of brick with two frog on the top and increased shear strength by providing frog on sides.

Project on making grooved brick mould and samples

Report

on

Website Development using HTML/CSS

Eligible Students: B.Tech. 5h Semester

Date: 20/08/2019 to 10/10/2019

Duration of Course: 32 Hours

Course Code: CC_WDHC

No. of Students Enrolled in the course: 35

Timing: 1:50 to 3:20

Days: Tuesday & Thursday

Course Coordinator: Er. Ankit Sharma, Assistant Professor (CSE)

The Web Designing Fundamentals Programme offered during the B.Tech. 5th Semester focused on providing students with a comprehensive understanding of HTML (Hyper Text Markup Language) and CSS (Cascading Style Sheets). These two technologies are essential for designing visually appealing and user-friendly websites. The course duration was 32 hours, where 35 enrolled students successfully completed the course.

The course focused on equipping students with the skills necessary for designing and developing websites using HTML and CSS. The syllabus covered the basics of HTML structure and syntax, including tags for headings, paragraphs, lists, images, and hyperlinks. Additionally, CSS was taught to enhance the presentation of web pages through styling properties, such as background colors, fonts, layouts, and responsive design.

Teaching Pedagogy:

The teaching pedagogy for the Web Designing Fundamentals Programme involves a combination of theoretical concepts and practical application. It includes interactive lectures, live coding demonstrations, hands-on activities, group discussions, and peer learning. Real-world examples and case studies are used to illustrate effective web design principles. Regular assessments and feedback help evaluate students' progress. Project-based learning is encouraged, culminating in the creation of a fully functional website. Additional resources are provided for continuous learning. The pedagogy aims to engage students, foster collaboration, and develop practical skills in web design using HTML and CSS.

Topic Covered:

Module 1: Introduction to Web Programming - Provides an overview of web programming and its importance. Covers HTML and CSS fundamentals in website development.

Module 2: Introduction to HTML - Introduces HTML's structure and syntax. Covers basic tags for headings, paragraphs, and line breaks.

Module 3: HTML basic formatting tags - Focuses on text formatting in HTML, including bold, italic, and lists.

Module 4: HTML grouping using DIV span - Teaches how to group and manipulate HTML content using and tags, along with CSS classes and IDs.

Module 5: HTML - Lists, Images, Hyperlink, Table frame, form, Headers, Miscellaneous - Covers various HTML elements, such as lists, images, hyperlinks, tables, forms, headers, and other miscellaneous tags.

Module 6: CSS - Introduction, Syntax, Selector, Color background, Cursor, Text Fonts, List Tables - Introduces CSS and its syntax, selectors, and styling properties for backgrounds, fonts, cursors, and lists.

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.

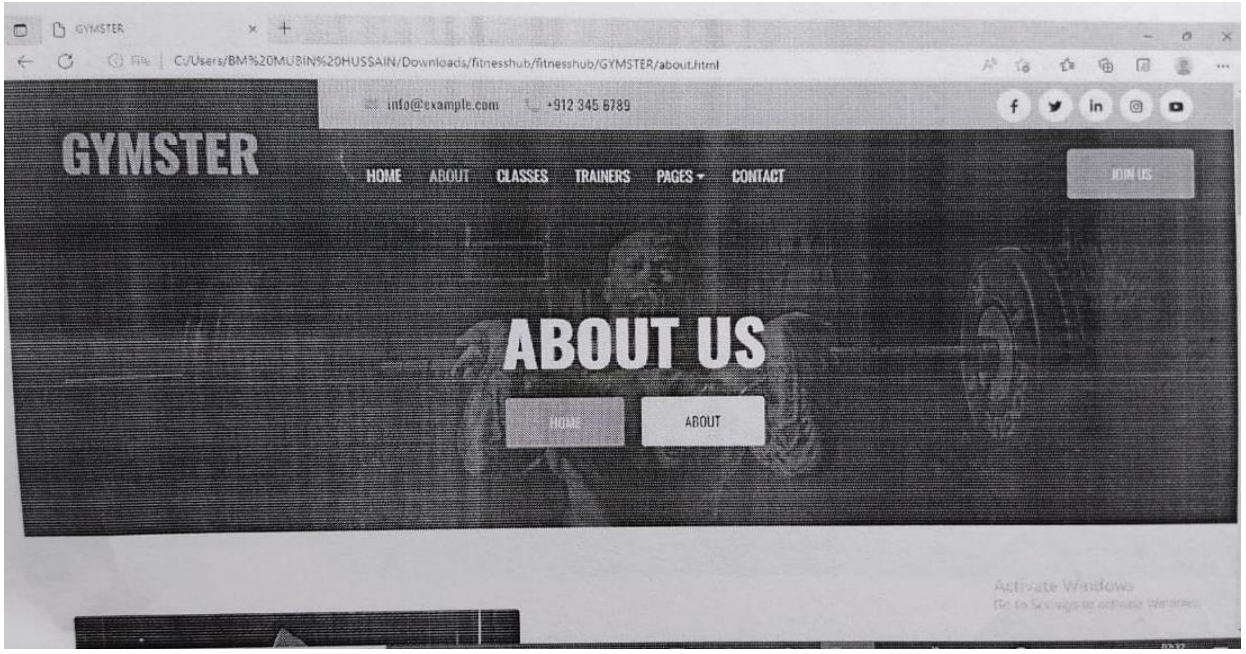
4. Attendance (10 marks):

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 a comprehensive understanding of web programming concepts and their significance in website development.
2. Students developed proficiency in HTML and CSS, including syntax, tags, attributes, selectors, and styling properties.
3. Students learned to create well-structured web pages using HTML, organizing content effectively with headings, paragraphs, lists, images, and hyperlinks.
4. Students acquired skills in CSS to enhance the presentation of web pages, including background colors, fonts, layouts, and responsive design for multiple devices.
5. As part of the course, students undertook a project named " Gymster (Gym website)."

Photograph:



Screenshot of Gymster (GYM Website)

Report

on

Artificial Intelligence/Machine Learning

(Advance Level)

Eligible Students: B.Tech. 7th Semester

Date : 21-08-2019 to 18-10-2019

Duration of Course: 32 Hours

Course Code- CC_AI/ML

No. of Students Enrolled in the course: 39

Timing: 11:30 am to 01:05 pm

Days: Wednesday & Friday

Course Coordinator: Er. Ankit Sharma, Assistant Professor (CSE)

The Certificate Course on Artificial Intelligence and Machine Learning, led by our expert faculty, aims to provide a comprehensive understanding of AI and ML concepts. With a duration of 32 hours, the course attracts a diverse group of 39 enrolled students who are eager to explore the fascinating field of AI and ML. Throughout the course, students delve into topics such as decision trees, regression, classification, bootstrapping, cross-validation, clustering, ensemble methods, and neural networks. The course not only equips students with essential knowledge but also focuses on practical applications and hands-on experience. By the end of the course, all 39 students successfully complete the program, gaining valuable skills and expertise in AI and ML. With the guidance of our dedicated faculty, students are prepared to embark on their journey into the world of artificial intelligence and machine learning, ready to contribute to this rapidly advancing field.

Teaching Pedagogy:

The Certificate Course on Artificial Intelligence and Machine Learning employs a comprehensive teaching approach that combines theoretical exploration, dynamic group activities, and immersive practical exercises. The course encourages active participation and engagement from students, fostering an interactive learning environment. Real-world case studies and relevant examples are utilized to enhance comprehension and demonstrate

the practical applications of AI and ML concepts. Students have access to a range of comprehensive study materials, including reference books, online resources, and coding assignments, enabling them to deepen their knowledge and reinforce their learning. Regular assessments and quizzes are conducted to evaluate students' progress and understanding. Our experienced faculty expert provides guidance and mentorship to students, ensuring a supportive learning experience. The teaching methodology promotes critical thinking, problem-solving skills, and a strong foundation in AI and ML principles.

Topic covered: -

Module 1: Introduction to Machine Learning and Artificial Intelligence

Introduction to Machine Learning, Introduction to artificial Intelligence, Applications of Machine Learning & Artificial Intelligence, Machine Learning Steps, Python libraries suitable for Machine Learning, Types of Machine Learning

Module 2: Decision trees, Regression and Classification

Introduction to Decision Tree, Application of decision Tree, Random Forest, Introduction to Regression, Types of Regression (Logistic Regression, Linear Regression), Introduction to classification techniques, Support vector machine for classification.

Module 3: Bootstrapping and cross validation

Introduction to Bootstrapping, Bootstrapping with Scikit-Learn, Introduction to Cross-Validation, Cross-validation with Scikit-Learn, comparison of Bootstrapping and Cross-Validation

Module 4: Understanding Clustering and Ensemble Methods

Introduction to Clustering, Clustering methods, Clustering Algorithms (K-Means algorithm),Introduction to Ensemble methods, Bagging, Boosting, Stacking

Module 5: Neural Network Handling

Introduction to Neural network, Neural Network Libraries(TenserFlow, NeuroLab, ffnet)

Module 6: Recent Trends in Machine Learning and Artificial intelligence.

Transparency Trends in AI, Augmented Intelligence, Computer vision, Hyper Vision

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):

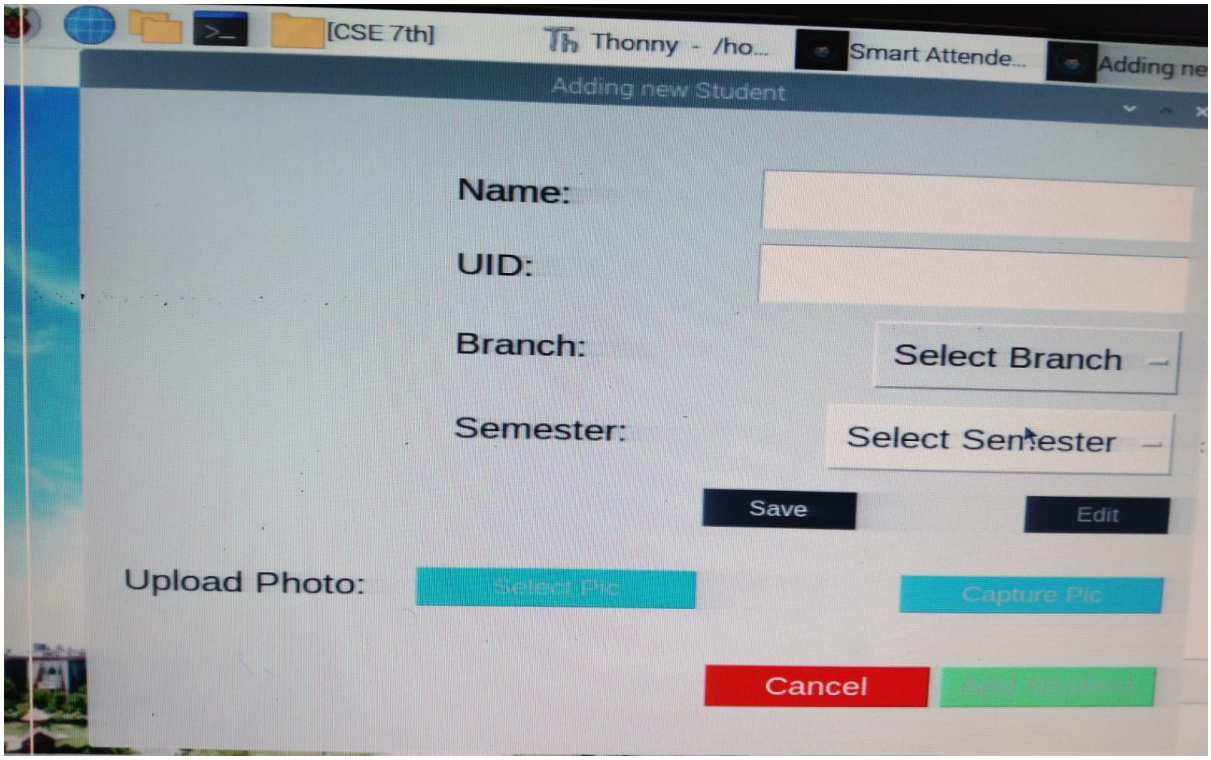
Attendance refers to the student's regular presence in the course. It emphasizes the importance of active participation and consistent engagement throughout the duration of the program.

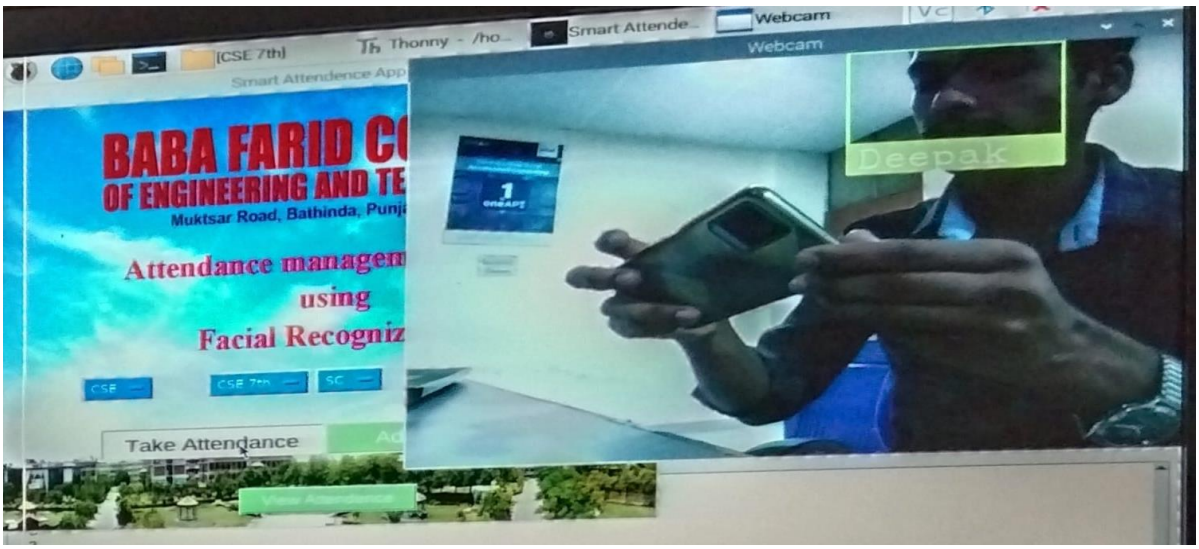
Outcome:

1. Gained a solid understanding of the fundamental concepts of AI and ML.
2. Developed proficiency in using Python libraries for machine learning tasks.
3. Applied decision tree, regression, and classification techniques in real-world scenarios.
4. Implemented bootstrapping and cross-validation methods for model evaluation.
5. Utilized clustering and ensemble methods for data analysis and prediction.
6. Explored neural networks and their applications in various domains.
7. Stayed updated with recent trends and advancements in AI and ML.

By successfully completing the course, the students were well-equipped to pursue further studies or careers in the field of AI and ML. They leveraged their knowledge and skills to contribute to the rapidly evolving world of technology.

Photographs:





Screenshot of Attendance Management System Using Facial Recognization

Report

on

Search Engine Optimization

&

Search Engine Marketing

Eligible Student: B.Tech. 3rd Semester

Duration of Course: 32 Hours

Date: 19/08/2019 to 14/10/2019

Course Code- CC_SEO_SEM

No. of Students Enrolled in the course: 32

Timing: 11:30 am to 01:05 pm

Days: Monday & Wednesday

Course Coordinator: Er. Sahil Charaya, Assistant Professor (CSE)

The SEO & SEM course aimed to provide B.Tech. 3rd-semester students with expertise in search engine optimization (SEO) and search engine marketing (SEM) to enhance website visibility and run effective ad campaigns. Spanning 32 hours, the course was successfully completed by all 32 enrolled students. With a focus on preparing students for Google certifications, the comprehensive curriculum covered modules on keyword research, link building, and understanding search engine marketing. SEO plays a crucial role in improving website visibility by employing strategies that align search queries with user intent. It involves analyzing keywords, optimizing content, and utilizing indexing methods. These factors, along with titles, headings, and links, influence search engine rankings, driving organic traffic and establishing a strong online presence for businesses.

Teaching Pedagogy:

The teaching pedagogy of the SEO & SEM course encompassed a variety of effective methods to ensure a comprehensive understanding of the subject matter. Through engaging lectures, interactive discussions, and practical exercises, students actively participated and applied their knowledge in real-world scenarios. The pedagogy aimed to provide a solid foundation in SEO and SEM concepts, tools, and strategies. By utilizing this approach, students acquired the necessary skills to navigate the complexities of search engine optimization and marketing effectively.

Topic Covered: -

Module 1: Introduction to concepts of Search Engine Optimization

Understanding Search Engine Optimization, Search Engine Marketing

Module 2: Keyword research & Tools

Keywords research and tools for keywords for keyword research

Module 3: Link building and Back List

Understanding link building, link building tools, Understanding Backlinks

Module 4: Understanding Search Engine Marketing

Introduction to Search Engine Marketing, SERP overview, Campaign Types, Understanding consumer journey

Module 5: Pay Per Clicks and types

Ad Extension, Bidding Strategies, Budget & scheduling

Module 6: Overview of Google certifications

Ad formats, Types of Targeting, Ad formats & Placements,

Module 7: Understanding Google Ads display certifications

Introduction to google Ads, Google Search Network(GSN), Google Display Network(GDN)

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.

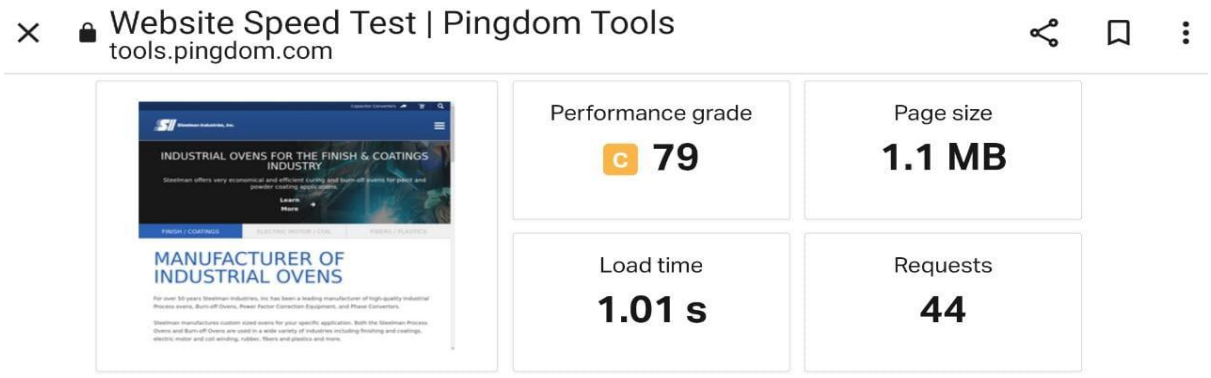
4. Attendance (10 marks):

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. Understood the concepts and importance of Search Engine Optimization (SEO) and Search Engine Marketing (SEM).
2. Conducted keyword research using relevant tools to optimize website content.
3. Implemented effective link building strategies and understood the significance of backlinks.
4. Grasped the fundamentals of search engine marketing, including campaign types and consumer journey.
5. Utilized pay-per-click (PPC) advertising techniques, such as ad extensions, bidding strategies, budgeting, and scheduling.
6. Familiarized themselves with Google certifications, including ad formats, types of targeting, and ad placements.
7. Prepared for Google Ads certifications, such as Google Ads Fundamentals, Search Advertising, Display Certification, Mobile Certification, and Video Certification.

Phtographs:



Sr. No	Website Url	Submitted URL	Status
1	http://www.steelmans.com/	https://www.submit.biz/index.php?go=success	Done
2	http://www.steelmans.com/	http://www.intelseek.com/add_url_form.asp	Done

Sr. No	Website Url	Submitted URL	Status
1	http://www.steelmans.com/	tml?url=http%3A%2F%2Fwww.steelmans.com%2F&email=	Done
2	http://www.steelmans.com/	http://www.illumirate.com/index.php?a=0	Done

Sr. No	Website Url	Submitted URL	Status
1	http://www.steelmans.com/	http://www.247webdirectory.com/submit.aspx	Done
2	http://www.steelmans.com/	http://polypat.org/submit.php	Done

SCREENSHOT OF PROJECT ON SOCIAL MEDIA AND DIGITAL MARKETING

Report

on

Latest trends of PLC in Automation

Eligible Students: B.Tech.5th Semester

Date: 13-08-2019 to 25-10-2019

Duration of Course: 32 Hours

Course Code: EE_LTPLCA

No. of students Enrolled: 10

Timing: 1:50 PM to 3:20 PM

Days: Tuesday & Friday

Course Coordinator: Er. Dinesh Kumar, Assistant Professor (EE)

The Certificate Course on PLC Programming was conducted during the 2019-20 academic session at Baba Farid College of Engineering Technology in Bathinda. The course was aimed at B.Tech. Electronics & Communication Engineering students in their 5th semester. The duration of the course was 32 hours. Out of the enrolled students, 9 students had successfully completed the course.

The Latest Trends of PLC in Automation course aimed to familiarize students with the use of Programmable Logic Controllers (PLC) in industrial automation. PLCs are physical hardware devices used to monitor and control equipment in various industries, such as telecommunications, energy, transportation, and more. On the other hand, SCADA (Supervisory Control and Data Acquisition) is a software-based system that operates on a computer and is used for automated control processes. SCADA systems consist of two components: PLCs and RTUs (Remote Terminal Units). The course highlighted the importance of PLCs and SCADA in supervising and controlling industrial processes, acquiring and processing data, and interacting with machinery through HMIs (Human Machine Interfaces).

Teaching Pedagogy:

The course followed a structured approach with four modules. Each provided an introduction to PLCs, covering their operation, differences from hardwired systems and computers, focused on the overview and working of PLC logics, including relay logic and ladder logic, ladder commands,

and examples of PLC ladder diagram realization, involved hands-on practice and concepts, covering PLC timers, PLC counters, applications of PLCs, interfacing with HMI/SCADA systems, and relays, delved into the basic programming of PLCs, introducing ladder logic, basic icons, and logic gate programming using PLCs.

Topics Covered:

The course was divided into four modules, covering different aspects of PLC programming.

Module 1: Introduction to Programmable Logic Controllers

- Introduces Programmable Logic Controllers (PLCs) and their role in industrial automation.
- Covers the basic components and architecture of a PLC.
- Discusses the advantages and applications of PLCs in different industries.

Module 2: Overview and Working of PLC Logics

- Provides an overview of PLC logics and how they function.
- Explores different programming languages used in PLCs, such as ladder logic, function block diagrams, and structured text.
- Covers the concept of input/output devices, sensors, and actuators connected to the PLC.

Module 3: Hands-on Practice and Concept

- Focuses on practical exercises to develop hands-on skills with PLCs.
- Covers wiring of input and output devices and establishing communication with the PLC.
- Includes using programming software to create and edit ladder logic programs.
- Covers basic instructions and configuration of digital and analog inputs/outputs.

Module 4: Basic Programming of PLC (Automation System)

- Covers essential programming techniques for automating systems using PLCs.
- Includes logical operations, arithmetic calculations, timers, counters, comparison instructions, and data manipulation.
- Introduces advanced topics such as program control instructions, subroutines, and data communication between PLCs.

These modules collectively provide a comprehensive understanding of PLCs, their working principles, and practical skills required for programming and implementing basic automation systems.

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):

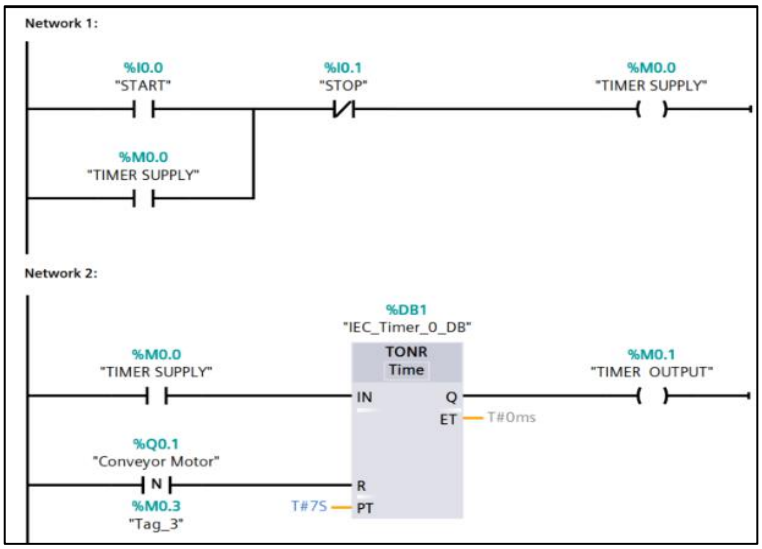
Attendance refers to the student's regular presence in the course. It emphasizes the importance of active participation and consistent engagement throughout the duration of the program.

Outcome:

The outcomes of the course can be summarized as follows:

1. Attained an understanding of PLC Components: Students gained knowledge about the typical components of a PLC and their respective functions.
2. Grasped Basic PLC Concepts: Students developed a solid understanding of fundamental concepts related to PLCs, such as their operation and their role in process automation.
3. Became familiar with PLC Terminology: Students acquired the ability to state and explain basic terminology associated with PLCs, including ladder logic, relay logic, timers, counters, logic gates, and HMI/SCADA systems.
4. Applied Electrical Ladder Logic: Students learned how to apply electrical ladder logic in practical scenarios, effectively utilizing ladder diagrams for controlling industrial processes.
5. Implemented PLC Instructions: Students demonstrated proficiency in understanding and applying different types of instructions, such as timers, counters, and logic gates, to develop functional PLC programs.

6. Overall, the course equipped students with a comprehensive understanding of PLCs, enabling them to describe PLC components, explain core concepts, use appropriate terminology, apply electrical ladder logic, and effectively utilize instructions in real-world applications.



Screenshot of Ladder Logic Implementation for Bottle Filling

Report

on

Basics of ETAP for Power system Analysis

Eligible Students: B.Tech.7th Semester

Date: 13-08-2019 to 25-10-2019

Duration of Course: 32 Hours

Course Code: EE_EPSA

No. of students Enrolled: 36

Timing: 1:50 PM to 3:20 PM

Days: Tuesday & Friday

Course Coordinator: Er. Sabina, Assistant Professor (EE)

The Certificate Course on ETAP Programming was conducted at Baba Farid College of Engineering Technology in Bathinda during the 2019-20 academic session. The course aimed to equip B.Tech. Electronics & Communication Engineering students with the knowledge and skills required for power system analysis using ETAP (Electrical Transient and Analysis Program) software. The course duration was 32 hours, and it received a positive response from the participants. Out of the enrolled students, 33 students had successfully completed the course.

The Basics of ETAP for Power System Analysis course focused on providing students with the knowledge and skills to effectively use the Electrical Transient Analyzer Program (ETAP) software for modeling and simulating electrical power systems. ETAP is a powerful tool used by power systems engineers to create digital twins of electrical networks, analyze power system dynamics and transients, and evaluate protection systems. The software offers a wide range of capabilities, including load flow analysis, arc flash analysis, cable capacity study, and more. It is widely used in various sectors such as generation, transmission, distribution, industrial, transportation, and low voltage.

Teaching Pedagogy:

The course followed a structured approach with five modules. Each provided an overview of the ETAP software, its features, benefits, symbols used, and applications, focused on building power systems and simulating their behavior, including analyzing power flow, current flow, and voltage

flow, covered the concepts of short circuit analysis and arc flash analysis, highlighting their differences and importance.

Topics Covered:

The course comprised four modules that covered various aspects of power system analysis using ETAP software:

Module 1: Overview about Insulators & ETAP Software

- Introduction to overhead line insulators
- Understanding voltage distribution in a string of suspended insulators
- Exploring the features, benefits, symbols, and applications of ETAP software

Module 2: Designing of Single Line Diagram

- Circuit design of substations and fault calculation using ETAP
- Load flow analysis and corona designing
- Creating the single line diagram of substations and fault calculations using ETAP

Module 3: Short Circuit Analysis in Power System

- Differentiating between short circuit and arc-flash
- Performing arc-flash analysis
- Conducting short circuit analysis

Module 4: Distribution System Load Flow and Voltage Stability

- Approximate methods for distribution system analysis
- Analyzing DC 2-wire, 3-wire, AC single phase, three phase, and 4-wire systems
- Comparing copper efficiency

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.

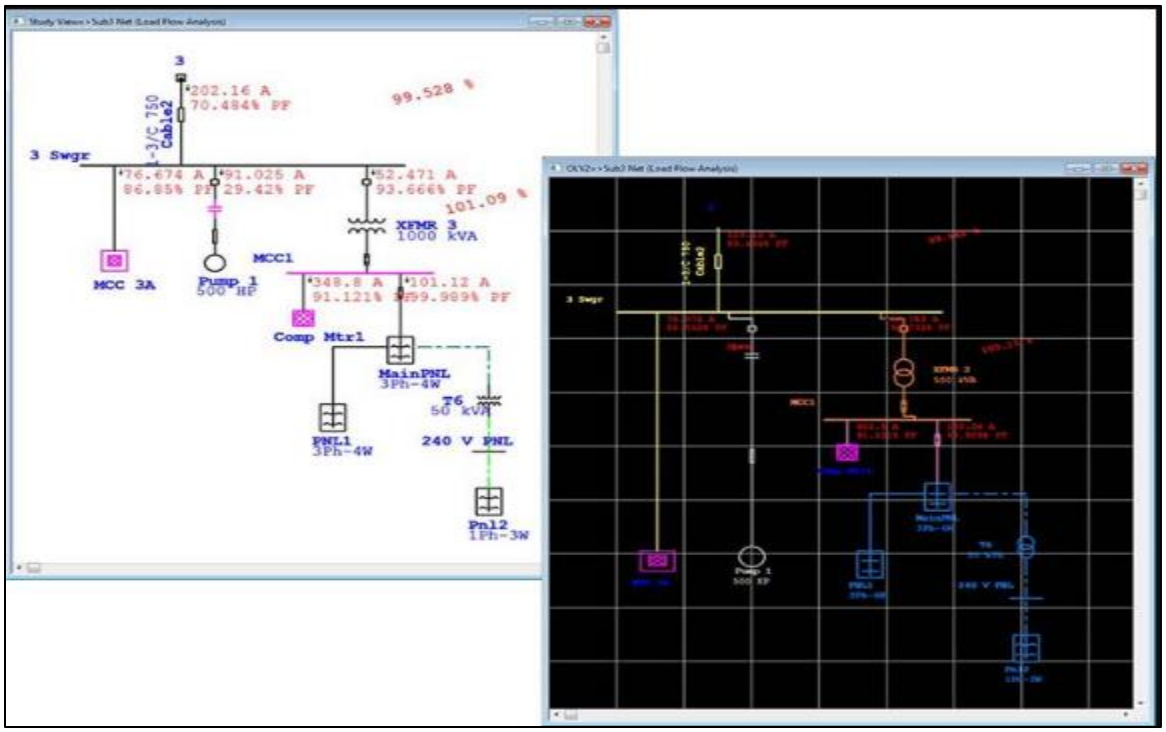
4. Attendance (10 marks):

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:

Upon completion of the course, the participants achieved the following learning outcomes:

1. Attained proficiency in high-level programming languages and software tools used for power system studies.
2. Developed the ability to develop computer programs for load flow analysis.
3. Gained competence in conducting short circuit analysis and stability studies of power systems.
4. Acquired an understanding of load frequency control in a single area system.



Screenshot of Model in ETAP Software

Report

on

Basics of AutoCAD

Eligible Students: B.Tech. 3rd Semester

Date: 15/07/2019 to 19/09/2019

Duration of Course: 32 Hours

Course Code: ME-AC

No. of Students Enrolled in the course: 31

Timing: 01:50 pm to 03:20 pm

Days: Monday & Thursday

Course Coordinator: Er. Ashish

The AutoCAD course conducted during the session 2017-18 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 31 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.

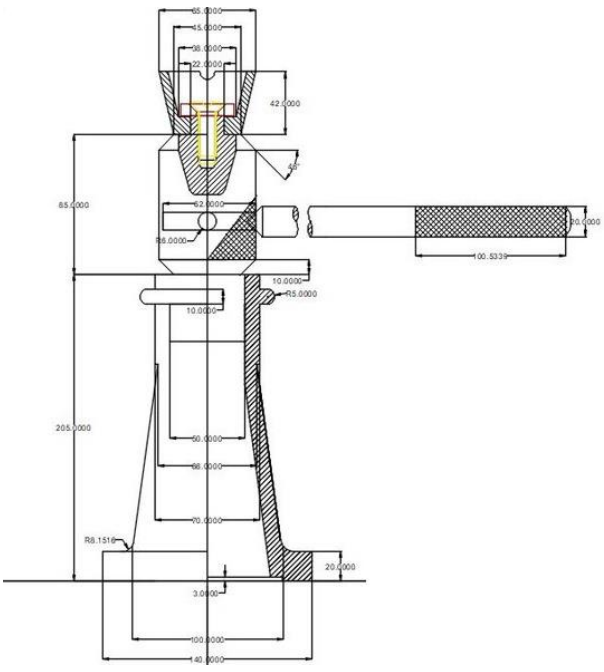
3. **Skill Test (10 marks):**
   The skill test assessed the student's competency and proficiency in specific skills related to the course. It focused on practical skills that were essential for the field of study.

4. **Attendance (10 marks):**

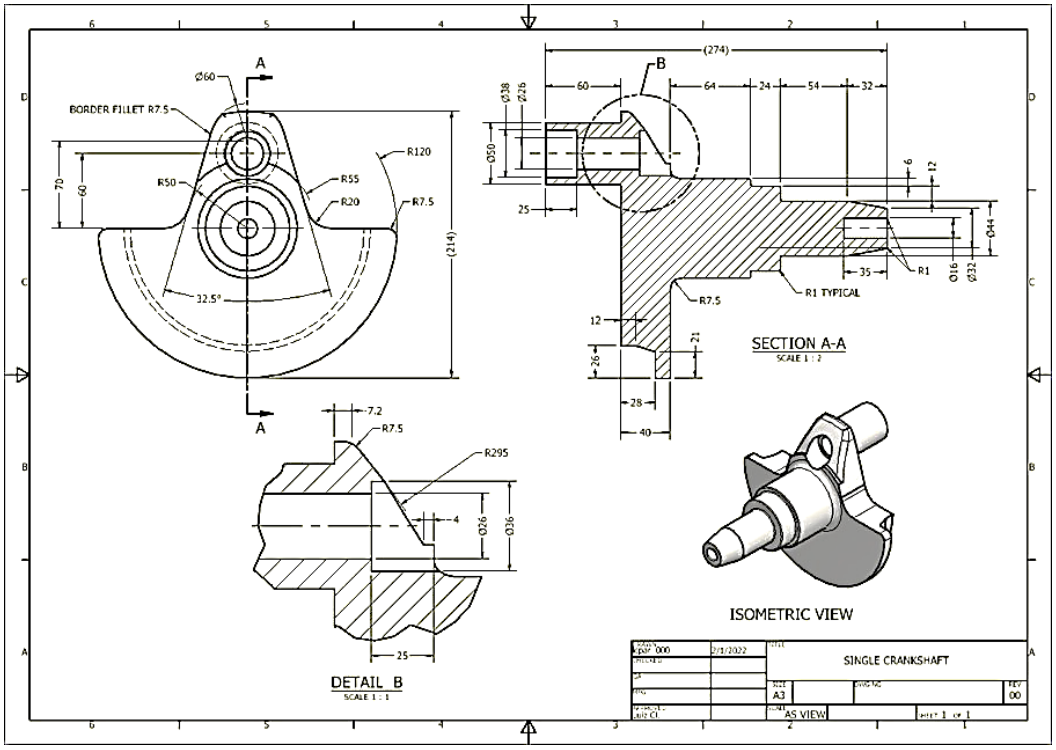
   Attendance refers to the student's regular presence in the course. It emphasizes the importance of active participation and consistent engagement throughout the duration of the program.

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 screw Jack, design of single crankshaft and many more. It was the major achievement of the certificate course.



Design of Screw Jack using AUTOCAD software



Design of a single crankshaft