AMR/CE/BOS/2024-25/MOM/1 Date: 26-09-2024

DEPARTMENT OF CIVIL ENGINEERING

MINUTES OF MEETING - BOARD OF STUDIES (BOS)

The Meeting of the Board of Studies of CE was held on 25th September 2024 at 10.00 AM through online (Zoom Meeting Platform). The following members were attended the online meeting.

S.No	Name of the Member	Designation/occupation	category	Signature
1	Dr.K.Sreekar Chand	Head of the Department	Chairman	
2	Dr. V.Lakshmi	Professor, CSE Department, UCEK, JNTUK Kakinada	University Nominee	
3	Dr. D.Srinivas	Assoc. Prof & HoD. Dept of Architecture, School of planning and Architecture, Vijayawada	Subject experts outside parent university	
4	Dr. T.Chandra Sekhar Rao	Professor & HoD, Bapatla Engineering College-ANU		
5	Mr. Navuru. Dilip Kumar	Deputy project manager in projects, DEC infra india private limited	Industrialist	
6	Mrs.T.Pavani	Asst. Professor	Faculty Member	
7	Mr.N.Hanumantha Rao	Asst. Professor	Faculty Member	
8	Mrs.Sk.Dilshad	Asst. Professor	Faculty Member	
9	Mr.A.Nagaiah	Asst. Professor	Faculty Member	
10	Mr.Sk.Mahaboob Subhani	Asst. Professor	Faculty Member	
11	Mrs.P.Madhuri Swaraj	Associate Engineer, Cognizant, Hyderabad	Alumni Member	

The Meeting began with chairman, Board of studies extending a warm welcome to all the members of participating in the meeting.

The following points were discussed and approved during the meeting

1. The following proposed AMR 24 Course Structure and the detailed syllabi of I-I, I-II were presented, discussed and approved.

1. For Group – A

GROUP –A – COURSES (CSE ,EEE)					
I Year – I SEM					
S.No.	**Title**	**Credits**	**S. No.**	**Title**	**Credits**
1	Communicative English	2	6	Communicative English Lab	1
2	Engineering Chemistry/Chemistry/Fundamental Chemistry	3	7	Engineering Chemistry/ Chemistry/Fundamental Chemistry Lab	1
3	Linear Algebra & Calculus	3	8	Engineering Workshop	1.5
4	**Basic Civil & Mechanical Engineering**	3	9	Computer Programming Lab	1.5
5	Basic Civil & Mechanical Engineering	3	10	Health and wellness, Yoga and Sports	0.5
					20.5

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GROUP –B – COURSES (CE,AG,CS ,ECE)					
I Year – II SEM					
1	Communicative English	2	6	Communicative English Lab	1
2	Engineering Chemistry / Chemistry / Fundamental Chemistry	3	7	Engineering Chemistry / Chemistry /Fundamental Chemistry Lab	1
3	Differential Equations & Vector Calculus	3	8	Engineering Workshop	1.5
4	**Basic Civil & Mechanical Engineering**	3	9	**Engineering Mechanics & Building Practices Lab** Engineering Mechanics Lab / Network Analysis and Simulation Lab / Data structures Lab	1.5
5	**Engineering Mechanics & Building Practice** / Network Analysis/ Data structures (Branch specific)	3	10	Health and wellness, Yoga and Sports	0.5
II SEM - TOTAL CREDITS					**19.5**

2. The syllabus for Basic Civil & Mechanical Engineering for both I-I and I-II semesters, has been approved by the Board of Studies.

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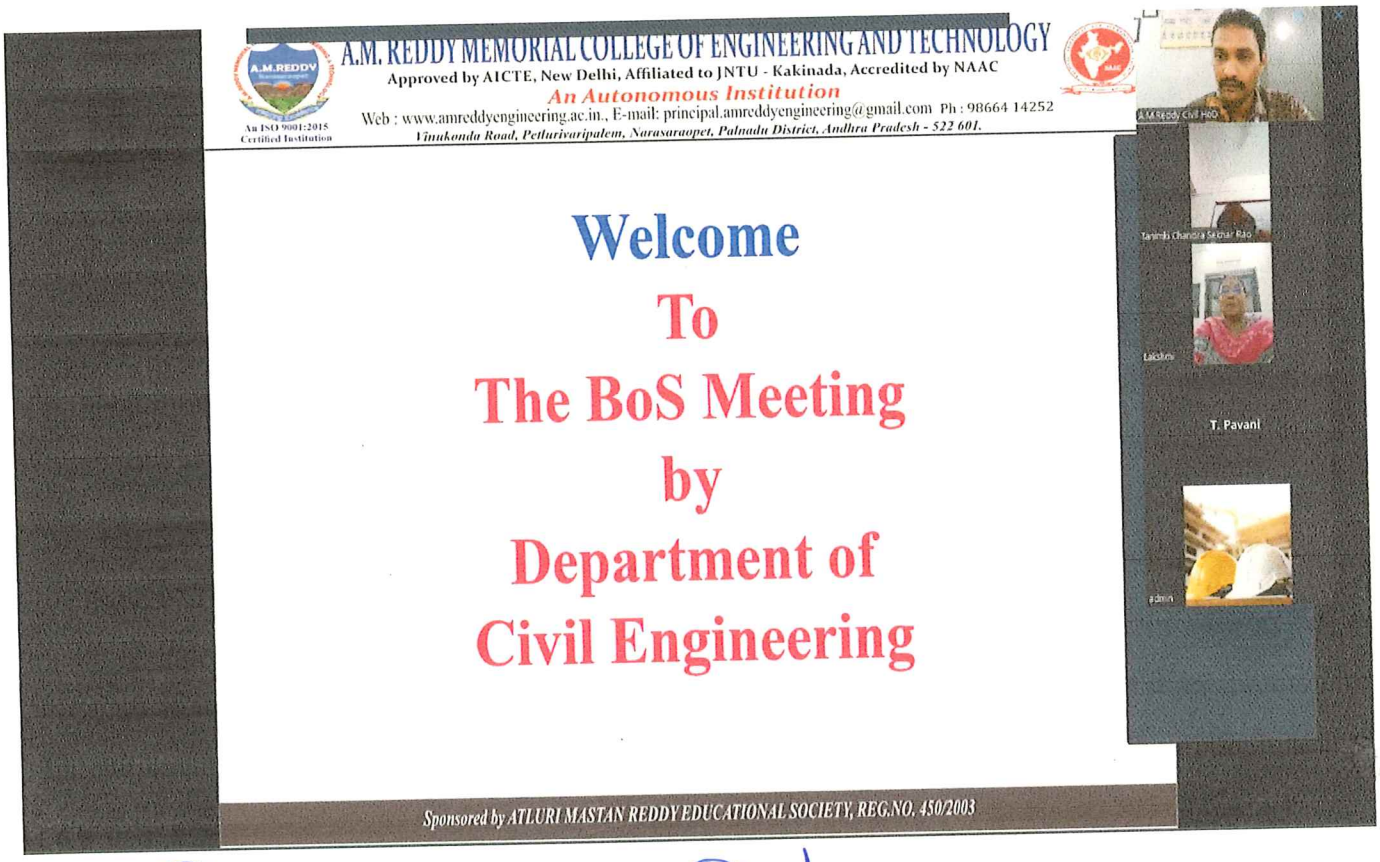
The following points were suggested for future possible implementations:

1. The Board of Studies has recommended incorporating **Building Practice** alongside **Engineering Mechanics**. This addition will benefit students in the **Engineering Mechanics and Building Practice Laboratory** in I-II Semester for Group-B Branches especially for CE.

2. **Prescribed Textbooks**: Advised to add recent prescribed textbooks or updated editions for the course.

3. **Information Sharing**: All the updated information should be shared at least 15 days before the next Board of Studies (BOS) meeting.

The BOS chairman concluded the session and informed that the suggested points will be implemented and mail the same for approval and requested the experts to approve and ended with Vote of Thanks.



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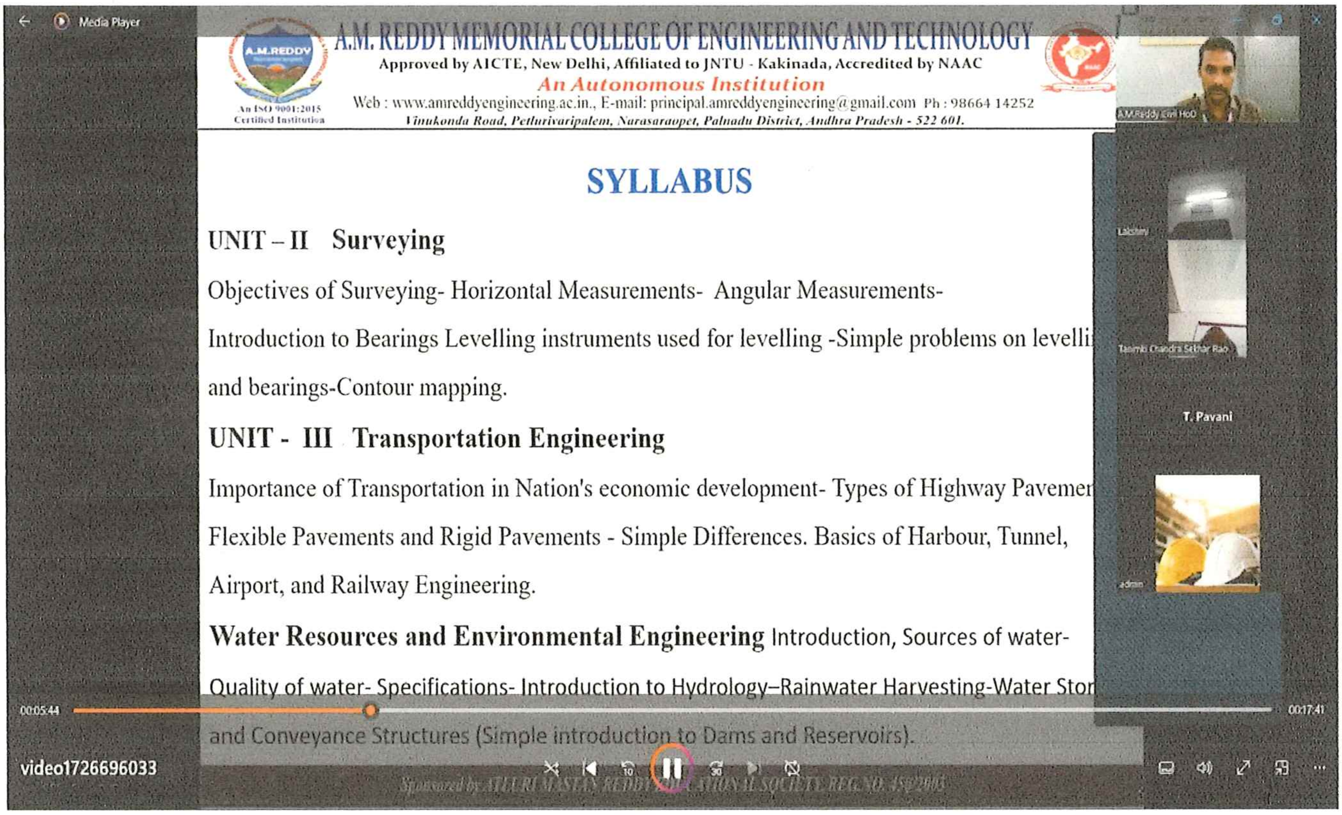
11. Madhuri Savaraj

A.M. REDDY MEMORIAL COLLEGE OF ENGINEERING AND TECHNOLOGY
Approved by AICTE, New Delhi, Affiliated to JNTU - Kakinada, Accredited by NAAC
An Autonomous Institution
An ISO 9001:2015 Certified Institution
Web : www.amreddyengineering.ac.in., E-mail: principal.amreddyengineering@gmail.com Ph : 98664 14252
Vinukonda Road, Petlurivaripalem, Narasaraopet, Palnadu District, Andhra Pradesh - 522 601.



Chairman

BoS – Dept. of CE

HEAD OF THE DEPARTMENT
CIVIL ENGINEERING
A.M. REDDY MEMORIAL COLLEGE OF ENGG & TECH
PETLURIVARIPALEM
Narasaraopet (Md.), Guntur (Dt.).

Copy to:

1. Principal
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ANNEXURE-I

AMR- 24

BASIC CIVIL & MECHANICAL ENGINEERING

(Common to All branches of Engineering) for I-I & I-II

Course Objectives:

- Get familiarized with the scope and importance of Civil Engineering sub-divisions.
- Introduce the preliminary concepts of surveying.
- Acquire preliminary knowledge on Transportation and its importance in nation's economy.
- Get familiarized with the importance of quality, conveyance and storage of water.
- Introduction to basic civil engineering materials and construction techniques.

Course Outcomes: On completion of the course, the student should be able to:

CO1: Understand various sub-divisions of Civil Engineering and to appreciate their role in ensuring better society.

CO2: Know the concepts of surveying and to understand the measurement of distances, angles and levels through surveying.

CO3: Realize the importance of Transportation in nation's economy and the engineering measures related to Transportation.

CO4: Understand the importance of Water Storage and Conveyance Structures so that the social responsibilities of water conservation will be appreciated.

CO5: Understand the basic characteristics of Civil Engineering Materials and attain knowledge on prefabricated technology.

UNIT I

Basics of Civil Engineering: Role of Civil Engineers in Society- Various Disciplines of Civil Engineering- Structural Engineering- Geo-technical Engineering- Transportation Engineering - Hydraulics and Water Resources Engineering - Environmental Engineering-Scope of each discipline - Building Construction and Planning- Construction Materials-Cement - Aggregate - Bricks- Cement concrete- Steel. Introduction to Prefabricated construction Techniques.

UNIT II

Surveying: Objectives of Surveying- Horizontal Measurements- Angular Measurements Introduction to Bearings Levelling instruments used for levelling -Simple problems on levelling and bearings-Contour mapping.

UNIT III

Transportation Engineering Importance of Transportation in Nation's economic development- Types of Highway Pavements- Flexible Pavements and Rigid Pavements -Simple Differences. Basics of Harbour, Tunnel, Airport, and Railway Engineering.Water Resources and Environmental Engineering: Introduction, Sources of water- Quality of water- Specifications- Introduction to Hydrology–Rainwater Harvesting-Water Storage and Conveyance Structures (Simple introduction to Dams and Reservoirs).

Textbooks:

1. Basic Civil Engineering, M.S.Palanisamy, , Tata Mcgraw Hill publications (India) Pvt. Ltd. Fourth Edition.

2. Introduction to Civil Engineering, S.S. Bhavikatti, New Age International Publishers. 2022. First Edition.

3. Basic Civil Engineering, Satheesh Gopi, Pearson Publications, 2009, First Edition.

Reference Books:

1. Surveying, Vol- I and Vol-II, S.K. Duggal, Tata McGraw Hill Publishers 2019. Fifth Edition.

2. Hydrology and Water Resources Engineering, Santosh Kumar Garg, Khanna Publishers, Delhi. 2016

3. Irrigation Engineering and Hydraulic Structures - Santosh Kumar Garg, Khanna Publishers, Delhi 2023. 38th Edition.

4. Highway Engineering, S.K.Khanna, C.E.G. Justo and Veeraraghavan, Nemchand and Brothers Publications 2019. 10th Edition.

5. Indian Standard DRINKING WATER — SPECIFICATION IS 10500-2012.

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ANNEXURE-II

AMR- 24

ENGINEERING MECHANICS & BUILDING PRACTICE*

I-II (CE)

Course Objectives:

1. **Grasp Fundamental Principles**: Equip students with a robust understanding of the core concepts and scope of Engineering Mechanics, highlighting its relevance in construction and mechanical fields.
2. **Analyze Force Systems**: Enhance students skills in analyzing and solving problems related to various force systems, including coplanar, concurrent, and spatial forces.
3. **Master Friction and Equilibrium**: Introduce students to the principles of friction, equilibrium, and centroid, enabling practical application in engineering scenarios.
4. **Understand Moment of Inertia and Body Motion**: Educate students on the significance of moments of inertia and the motion of particles and rigid bodies through kinematic and kinetic approaches.
5. **Explore Construction Tools and Materials**: Instruct students on the use and maintenance of construction tools, alternative materials, and assess the sustainability and cost-effectiveness of construction materials.
6. **Implement Safety and Testing Practices**: Ensure students are proficient in safety practices and quality testing methods, including non-destructive testing and plumbing system implementation in construction.

Course Outcomes:

Upon completing the course, students will be able to:

1. **CO1**: Exhibit a comprehensive understanding of Engineering Mechanics' basic concepts and scope, applying these principles in diverse engineering contexts.
2. **CO2**: Analyze force systems, determine resultant forces, and solve engineering problems involving force systems, friction, and equilibrium.
3. **CO3**: Apply the principles of centroid, center of gravity, and moment of inertia to address engineering challenges in mechanics and construction.
4. **CO4**: Effectively utilize construction tools and alternative materials, conducting comparative analyses based on sustainability and cost-effectiveness.
5. **CO5**: Conduct quality testing of construction materials through field visits, preparing detailed reports based on findings and testing standards.
6. **CO6**: Implement construction safety practices, demonstrate proficiency in non-destructive testing techniques, and understand the installation and maintenance of plumbing systems in buildings.

UNIT I: Introduction and Systems of Forces

- **Introduction to Engineering Mechanics**: Basic Concepts, Scope, and Applications.
- **Systems of Forces**: Coplanar Concurrent Forces, Components in Space, Resultant, Moment of Force and its Application, Couples and Resultant of Force Systems.
- **Friction**: Introduction, Limiting Friction and Impending Motion, Coulomb's Laws of Dry Friction, Coefficient of Friction, Cone of Static Friction.

UNIT II: Equilibrium and Centroid

- **Equilibrium of Systems of Forces**: Free Body Diagrams, Lami's Theorem, Equations of Equilibrium of Coplanar Systems, Graphical Method for Equilibrium, Triangle Law of Forces, Converse of the Law of Polygon of Forces, Condition of Equilibrium, Equations of Equilibrium for Spatial System of Forces, Numerical Examples on Spatial System of Forces using Vector Approach, Analysis of Plane Trusses.
- **Principle of Virtual Work**: Simple Examples.
- **Centroid and Centre of Gravity**: Centroids of Simple Figures (from basic principles), Centroids of Composite Figures, Centre of Gravity of Simple Body (from basic principles), Centre of Gravity of Composite Bodies, Pappus Theorems.

UNIT III: Moments of Inertia and Motion

- **Area Moments of Inertia**: Definition, Polar Moment of Inertia, Transfer Theorem, Moments of Inertia of Composite Figures, Products of Inertia, Transfer Formula for Product of Inertia.
- **Mass Moment of Inertia**: Moment of Inertia of Masses, Transfer Formula for Mass Moments of Inertia, Mass Moment of Inertia of Composite Bodies.
- **Particle and Rigid Body Motion**: Rectilinear and Curvilinear Motion of a Particle, Kinematics and Kinetics, D'Alembert's Principle, Work Energy Method and Applications to Particle Motion, Impulse Momentum Method, Kinematics and Kinetics of Translation, Rotation about Fixed Axis and Plane Motion, Work Energy Method, Impulse Momentum Method.

UNIT IV: Construction Tools, Materials, and Quality Testing

1. Study of Various Types of Tools Used in Construction

- **Introduction to Construction Tools**:
  - Hand tools: Hammers, screwdrivers, wrenches, pliers.
  - Power tools: Drills, saws, grinders, sanders.
  - Heavy machinery: Excavators, bulldozers, cranes, loaders.
- **Usage and Maintenance**:
  - Proper handling and safety measures.
  - Routine maintenance and troubleshooting.

2. Study of Alternative Materials

- **Introduction to Alternative Materials**:
  - M-sand: Properties, advantages, and applications.
  - Fly Ash: Composition, benefits, and usage in concrete.
  - Sea Sand: Characteristics, treatment methods, and uses.
- **Comparative Analysis**:
  - Environmental impact and sustainability.
  - Cost-effectiveness and performance.

3. Field Visit for Quality Testing

- **Organizing a Field Visit**:
  - Planning and coordination with construction sites or testing laboratories.
- **Quality Testing Procedures**:
  - Sampling methods and testing standards.
  - Preparing a detailed report on observations and findings.

UNIT V: Safety Practices, Non-Destructive Testing, and Plumbing

1. Safety Practices in the Construction Industry

- **Overview of Safety Regulations**:
  - National and international safety standards.
  - Occupational Safety and Health Administration (OSHA) guidelines.
- **Implementation of Safety Practices**:
  - Personal protective equipment (PPE).
  - Safety protocols for different construction activities.
  - Emergency response and first aid.

2. Demonstration of Non-Destructive Testing (NDT)

- **Introduction to NDT Methods**:
  - Importance and applications in construction.
- **Practical Demonstration**:
  - Rebound Hammer Test: Procedure, interpretation of results.
  - Ultrasonic Pulse Velocity (UPV) Test: Methodology, data analysis.

3. Study of Plumbing in Buildings

- **Basics of Plumbing Systems**:
  - Types of plumbing systems: Residential, commercial, industrial.
  - Components: Pipes, fittings, valves, fixtures.
- **Installation and Maintenance**:
  - Installation techniques for different plumbing systems.
  - Common issues and troubleshooting methods.
  - Preventive maintenance practices.

Textbooks:

1. **Engineering Mechanics** by S.S. Bhavikatti
   - **Edition**: 4th Edition
   - **Year**: 2019
2. **Engineering Mechanics: Dynamics and Statics** by J.L. Meriam & L.G. Kraige
   - **Edition**: 8th Edition
   - **Year**: 2016
3. **Building Materials** by S.K. Duggal
   - **Edition**: 4th Edition
   - **Year**: 2017
4. **A Textbook of Engineering Mechanics** by R.S. Khurmi & N. Khurmi
   - **Edition**: Revised Edition
   - **Year**: 2018

Reference Books:

1. **Mechanics for Engineers: Statics and Dynamics** by F.P. Beer & E.R. Johnston
   - **Edition**: 10th Edition
   - **Year**: 2012
2. **Engineering Mechanics** by A.K. Tayal
   - **Edition**: 13th Edition
   - **Year**: 2016
3. **Building Construction Illustrated** by Francis D.K. Ching
   - **Edition**: 5th Edition
   - **Year**: 2014
4. **Non-Destructive Testing of Materials** by Jayamangal Prasad
   - **Edition**: 2nd Edition
   - **Year**: 2015

Note: Awaiting for the Approval from university Nominee Dr.V.Lakshmi madam

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ANNEXURE-III

AMR- 24

ENGINEERING MECHANICS & BUILDING PRACTICE LAB

I-II (CE)

Course Objectives: The students completing the course are expected to

- Verify the Law of Parallelogram of Forces and Lami's theorem.
- Determine the coefficients of friction of Static and Rolling friction and Centre of gravity of different plane Lamina.
- Understand the layout of a building, concepts of Non-Destructive Testing and different Alternative Materials.

Course Outcomes: On completion of the course, the student should be able to:

CO1: Evaluate the coefficient of friction between two different surfaces and between the inclined plane and the roller.

CO2: Verify Law of Parallelogram of forces and Law of Moment using force polygon and bell crank lever.

CO3: Determine the Centre of gravity different configurations and

CO4: Understand the Quality Testing and Assessment Procedures and principles of Non-Destructive Testing.

CO5: Exposure to safety practices in the construction industry.

Students have to perform any 10 of the following Experiments:

List of Experiments

1. To study various types of tools used in construction.
2. Forces in Pin Jointed Trusses
3. Experimental Proof of Lami's Theorem
4. Verification of Law of Parallelogram of Forces.
5. Determination of Center of Gravity of different shaped Plane Lamina.
6. Determination of coefficient of Static and Rolling Friction.
7. Verification of Law of Moment using Rotation Disc Apparatus and Bell Crank Lever
8. Study of Alternative Materials like M-sand, Fly ash, Sea Sand etc.
9. Field-Visit to understand the Quality Testing - report.
10. Safety Practices in Construction industry
11. Demonstration of Non-Destructive Testing - using Rebound Hammer & UPV
12. Study of Plumbing in buildings