MAHENDRA ENGINEERING COLLEGE

(An Autonomous Institution, affiliated to Anna University Chennai and Accredited by NAAC with 'A' Grade & NBA Tier-I (WA) UG : CSE, ECE, EEE)

Namakkal-637503, Tamilnadu

10th Board of Studies Meeting

Minutes of the Meeting

DEPARTMENT OF CIVIL ENGINEERING

19.04.2023

MAHENDRA ENGINEERING COLLEGE
(Autonomous)
Accredited by NAAC 'A' Grade & NBA Tier-I (WA) UG: CSE,ECE,EEE
Mahendhirapuri, Mallasamudram, Namakkal Dt. - 637 503.

DEPARTMENT OF CIVIL ENGINEERING

MINUTES OF MEETING OF BOARD OF STUDIES

Date: 19.04.2023

The **10th Board of Studies meeting** for B.E. Civil Engineering, M.E. Structural Engineering and M.E. Construction Engineering and Management was held on 19.04.2023 at 10:00 a.m. in Board Room.

Agenda of the Meeting:

i) To review the minutes of 9th BoS Meeting and action taken report.

ii) To discuss and approve the changes in Curriculum Structure in Regulations 2022 for B.E. Civil Engineering.

iii) To discuss and approve the Syllabi (5-8 Semesters) of Regulations 2022 for B.E. Civil Engineering keeping in view of the PEOs, POs and interest of the stakeholders and national requirement.

iv) To discuss and approve the courses for Honors degree in Civil Engineering.

v) To discuss and approve the changes in Curriculum Structure in Regulations 2022 for M.E.Structural Engineering and M.E. Construction Engineering and Management.

vi) To discuss and finalize the Value added Courses.

vii) To discuss and approve the panel members identified for appointment of various examination activities.

ix) To review and approve the Department Vision, Mission, PEOs and PSOs.

x) Any other point with the permission of the Chairperson.

The following Board of Studies members were present :

1. **Dr.K.Vidhya,** Head of the Department, Civil Engineering, Mahendra Engineering College - **BoS Chairman**

2. **Dr.C.Meiaraj,** Professor, Department of Civil Engineering, Government College of Technology, Coimbatore - **Anna University Nominee**

3. **Dr. J.M.Chandra Kishen**, Professor, Department of Civil Engineering, Indian Institute of Science, Bangalore, India – **Subject Expert**

4. **Er.T.Jagannath,** Deputy General Manager, COE- Formwork Engineering, L&T Construction , Chennai – **Subject Expert**

5. **Dr. A. Sudhahar**, Proprietor/Chief Consultant, Dimension Structural Design, Coimbatore - **Industry Expert**

6. **Er.Pandian Kalaimani,** Regional Head, RMC Division, Ultratech Cement –South TamilNadu, Coimbatore - **Industry Expert**.

7. **Dr. V.Rajkumar**, Principal Incharge, Professor and Head, Department of Civil Engineering, Government College of Engineering, Dharmapuri - **Academic Expert**

8. **Dr.M.P.Muthuraj,** Associate Professor, Department of Civil Engineering, Coimbatore Institute of Technology, Coimbatore- **Academic Expert**

9. **Dr.V.Shanmugam,** Dean- School of Mechanical Sciences, Mahendra Engineering College, Namakkal **– Member (Allied Department)**

10. **Dr.KR. Kalphana**, Professor and Head, Department of Agricultural Engineering, Mahendra Engineering College, Namakkal **– Member (Allied Department)**

11. **Er.Thamaraiselvan**, Senior Engineer, Formwork Engineering, L & T Construction, Uttarpradesh- **PG Alumnus.**

12. **Er.V.Nagendran,** Founder & CEO**,** Allivilla Group of Engineers, Salem - **UG Alumnus**

13. **Selvi. Soumya Jose, Student,** M.E.-Strcutural Engineering, Mahendra Engineering College, Namakkal - **Member (PG Student)**

14. **Selvi.M.Varsha, Student,** B.E. UG Student, Department of Civil Engineering, Mahendra Engineering College, Namakkal - **(UG Student)**

15. **Mr.S.Manishankar, Mr.S.Mohan, Ms.B.Nithya**, Assistant Professor, Department of Civil Engineering, Mahendra Engineering College **– Coordinators.**

16. All Faculty Members of Civil Engineering Department.

The following points were discussed and approved:

1. The BOS Chairman welcomed all the members of Board of Studies for the meeting.

2. Reviewed and confirmed the Minutes of the previous Board of Studies meeting.

3. Discussed and approved the modification made in the fifth semester to eighth semester UG programme Curriculum under Regulations 2022. Further it was decided to include the following core courses in the Curriculum: (i) Formwork systems, components and practicals, (ii) Formwork design and drawings, (iii) Structural Design Studio, (iv)Advanced Surveying and Camp.

4. Discussed and approved the curriculum and syllabus of PG programme M.E.Structural Engineering under Regulations 2022. Further it was decided to include the following core courses in the Curriculum: (i) Optimization Techniques, (ii) Earth Pressure and Earth Retaining Structures, (iii) Soil Structure Interaction, (iv) Dynamics of Soils and Foundations, (v) Fracture Mechanics of Concrete Structures.

5. Discussed and approved the curriculum and syllabus of PG programme M.E.Construction Engineering and Management under Regulations 2022. Further it was decided to include the following core courses in the Curriculum: (i) Intelligent Transportation System, (iii) Remote Sensing techniques and Geographic Information System, (iii) Energy Conservation in Buildings, (iv) Pavement Material.

6. Discussed and approved the Syllabi for Fifth semester to Eighth semester UG programme under Regulations 2022, keeping in view of the AICTE model Curriculum and Syllabi, interest of the stakeholders, College, Department Vision and Mission and national requirement.

7. Discussed and approved the Program Elective courses to be offered to UG programme under Regulations 2022. Further the Board recommended including the following courses as Program Elective courses.

    - Bridge Structures
    - Health Monitoring of Structures
    - Industrial Structures
    - Energy Efficient building
    - Soil Dynamics and Machine foundation
    - Groundwater Engineering
    - Industrial Wastewater Management
    - Rock Mechanics
    - Renewable Energy Engineering
    - Geo-environmental Engineering
    - Construction Management and Safety
    - Environmental health and Safety
    - Coastal Engineering

8. Discussed and approved the revised content of the courses “Construction Materials, Techniques and Practices”, “Computer Aided Drafting and Building Drawing”, “Mechanics of Solids”, “Surveying”, “Advanced Surveying and Camp”, “Design of Reinforced Concrete Elements”, “Foundation Engineering”, “Structural Analysis – I’’, “Concrete Technology”, “Construction Engineering and Management”, “Smart materials and smart structures” under Regulations 2022 according to the present needs and current trends of industries.

9. The Value added courses to be offered to UG Programme under Regulations 2022 were discussed and approved.
    - Building Information Modelling
    - Accounting and Economics for civil Engineers
    - Scientific aspects of Vaasthu
    - Climatic response in Architecture.
    - Design Studio and Rebar Detailing
    - Valuation
10. The Honors Degree in Civil Engineering to be offered to UG Programme under Regulations 2022 in domain of Construction Materials and Technology, Transportation Engineering, Environmental Engineering and Structural Engineering were discussed and approved.
11. The Board recommended that Project Phase I is renamed as Mini-project.
12. The members made the following suggestions to revise the contents of the syllabi:

B.E.CIVIL ENGINEERING

Engineering Mechanics

- Dr.C.Meiaraj suggested to shift the Unit IV to Unit – V friction and vice versa.

Construction Materials, Techniques and Practices

- Dr.M.P.Muthuraj advised to shift the Unit II to Unit III and vice versa.
- Dr.A.Sudhahar recommended to remove types of bridges and dams in Unit – II and advised to add Lintels and Stairs.

Computer Aided Drafting And Building Drawing

- Dr.A.Sudhahar recommended to revise the topic name of building with sloping roof and perspective view for small buildings as building with sloped roof and perspective view for residential building.
- Er.Pandian Kalaimani advised to remove sketching, constraints and parameters in 7^{th} experiment.

Mechanics of Solids

- Dr. V.Rajkumar suggested to merge the Shear and Bending in Beams with Bending and Shear stresses in beams.
- Dr.C.Meiaraj proposed to include new unit titled as Plane truss.
- Dr.M.P.Muthuraj recommended to remove the area moment method.

Strength of Materials

- Dr.C.Meiaraj recommended that the topics analysis of Plane truss by using method of joints to be added in Mechanics of Solids.
- Dr.M.P.Muthuraj advised to include method of sections in Plane truss.

Structural Analysis – I

- Dr.J.M.Chandra Kishen suggested Moving Loads and Influence Lines to split as two units.

Design of Reinforced Concrete Elements

- Dr.M.P.Muthuraj advised to include the topic cracked and un-cracked section.
- Dr.C.Meiaraj recommended to include the rectangular slab and design procedure for flat slab.

Concrete Technology

- Dr.A.Sudhahar suggested to rename the Sustainable Concrete as Durability of Concrete

Design of Steel structures

- Dr.J.M.Chandra Kishen advised to remove the topic Introduction about Light gauge structures.
- Dr.M.P.Muthuraj recommended to include the topic introduction of industrial building.

Concrete and Highway Laboratory

- Dr.A.Sudhahar recommended the test on cement as study experiment and advised to include the non-destructive testing test.

Formwork Components and Laboratory

- Er.T.Jagannath suggested to rename the course as Formwork systems, components and hands on.
- Er.T.Jagannath recommended to include the topic formwork planning and monitoring.

Advanced Structural Design

- Dr.V.Rajkumar suggested to include the Ground water tank and Over head water tank design.

Formwork Design and Fabrication

- Er.T.Jagannath suggested to rename the title as Formwork design and drawings.
- Er.T.Jagannath advised to include the topic formwork for special structures.

Smart Materials and Smart Structures

- Dr.C.Meiaraj suggested to combine the Sensors and Acutators as same unit and advised to introduce Smart Structures as one unit.

Repair and Rehabilitation of structures

- Dr.M.P.Muthuraj recommended to rename the Repairs and Rehabilitation of Structures as Health Monitoring of Structures.

Post Graduate

Advanced Structural Design

- Dr.C.Meiaraj suggested to rename the Unit-III as Element Stiffness Matrix Method.

Theory of Elasticity

- Dr.M.P.Muthuraj recommended to include topic Principle of stress and strain.
- Dr.M.P.Muthuraj suggested to remove membrane analogy and torsion of thin wall.

Advanced Concrete Technology

- Dr.V.Rajkumar advised to rename the unit as Constituent material for concrete.
- Dr.V.Rajkumar suggested to replace the Test on Concrete as Properties of concrete.

Finite Element Analysis

- Dr.J.M.Chandra Kishen advised to remove

Stability of Structures

- Dr.C.Meiaraj suggested to include the Introduction to Stability.
- Dr.M.P.Muthuraj suggested to remove the inelastic behavior.

Advanced Concrete Technology Laboratory

- Dr.A.Sudhahar advised to remove the compaction factor test.

13. Board members suggested to introduce 4 Verticles that comprise of following courses.

Verticle – I - Construction Materials and Technology

- Advance Construction Techniques
- Building Services
- Chemistry of Cement and admixture in Concrete
- Foundation Technologies
- Green Materials and Technologies
- Non Destructive Techniques
- Construction methodology including Logistics
- Composite Materials

Verticle – II - Transportation Engineering

- Pavement Material and Design
- Drone Surveying and Transportation Management
- Offshore structures
- Highway and railway Design
- Bridge Engineering
- Tunneling
- Intelligent Transportation System
- Urban Transportation Planning

Verticle – III- Environmental Engineering

- Solid Waste Management
- Global warming and Climate change
- Integrated Waste Management for a City
- Plastic Waste Management and Disposal
- E-Waste Management and Disposal
- Air and Noise Pollution Control Engineering
- Industrial Waste Management

Verticle – IV – Structural Engineering

- Design of Sub-structures
- Sustainable Materials and Practices
- Wind and Cyclone Analysis of Structures
- Mechanics of Composite Materials
- Precast technology
- Design of Masonry Structures
- Special Concretes

14. Discussed and approved the panel members to be appointed as Examiners for various examination activities.

15. **Changes/Revision in Curriculum and Syllabus**
The changes/revision in curriculum and syllabi are provided in Annexure I.

16. New Courses introduced

The list of new courses introduced is provided in Annexure II.

17. The meeting was concluded with Vote of Thanks by **Dr.C.T.Sivakumar, Professor**, who thanked all the members for their valuable suggestions and support for the successful conduction of the BOS meeting.
18. The above discussed matters were recommended to the Academic Council for approval.

25/4/2023
Convener

26/4/23
Chairperson

Principal 09/05/23

Annexure -I

DEPARTMENT OF CIVIL ENGINEERING

Percentage of Changes/Revision in Syllabi-Regulations-2022 as compared to R-2019

Academic Year -2022-2023

S.No.	Semester	Course Code	Course Name	Lecture	Tutorial	Practical	Credits	Category	Course Type	Changes in Contents (No. of Hrs) (X)	Total No. of Hrs (Y)	Changes/ Revision (%) = (X*100/Y)
1	I	22MA12101	Engineering Mathematics – I	3	1	0	4	BS	T	18	45	40
2	I	22EN11001	Communicative English	3	0	0	3	HS	T	13.5	45	30
3	I	22CY12001	Chemistry For Engineering	3	0	0	3	BS	T	18	45	40
4	I	22ME33102	Engineering Graphics and Design	3	2	0	4	ES	T		45	-
5	I	22ME33101	Basics of Civil and Mechanical Engineering	3	0	0	3	ES	T	15	15	100
				0	0	2	1	ES	L	10	10	
6	I		Induction Program	-	-	-	-	MC	T		-	-

7	I	22CY22001	Chemistry Laboratory	0	0	3	1.5	BS	L		30	-
8	I	22EN21001	Personality Development ProgrammeLaboratory	0	0	2	1	EEC	L		30	-
9	II	22MA12201	Engineering Mathematics – II	3	1	0	4	BS	L	13.5	45	30
10	II	22PY12101	Engineering Physics	3	0	0	3	BS	T	18	45	40
11	II	22CE14201	Engineering Mechanics	3	0	0	3	HS	T		45	-
12	II	22CE14202	Construction Materials, Techniques and Practices	3	0	0	3	BS	T	18	45	40
13	II	22CS13001	Problem Solving Techniques In C	3	0	0	3	ES	T		45	-
14	II	22PY22001	Physics Laboratory	0	0	3	1.5	BS	T		30	-
15	II	22CS23001	Problem solving Techniques using C lab	0	0	3	1.5	ES	L		30	-
16	II	22CE23201	Computer Aided Drafting and Building Drawing	0	0	4	2	PC	L	10	45	22
17	III		Differential Equations and Numerical Methods	3	1	0	4	BS	L	45	45	100
18	III	22CE13301	Engineering Geology	3	0	0	3	PC	T		45	-
19	III	22CE14301	Mechanics of Solids	3	0	0	3	PC	T	9	45	20
20	III	22CE14302	**S**urveying	3	0	0	3	PC	T	9	45	20
21	III		Open Elective – 1	3	0	0	3	OE	T	45	45	100
22	III	22SH11006	Universal Human Values - II	3	0	0	3	HS	T		45	-
23	III	22CE24301	Strength of Materials Laboratory	0	0	3	1.5	PC	L		30	-
24	III	22CE24302	Surveying Laboratory	0	0	3	1.5	PC	L		30	-

25	IV	22CE14401	Strength of Materials	3	0	0	3	PC	T		45	-
26	IV	22CE14402	Fluid Mechanics and Machinery	3	0	0	3	MC	T		45	-
27	IV	22CE14403	Soil Mechanics	3	0	0	3	PC	T		45	-
28	IV	22CE14404	Water Supply Engineering	3	0	0	3	PC	T		45	-
29	IV		Open Elective –2	3	0	0	3	OE	T	45	45	100
30	IV		Open Elective – 3	3	0	0	3	OE	T	45	45	100
31	IV	22CY11001	Environmental Science and Engineering	3	0	0	0	MC	T		45	-
32	IV	22CE24401	Hydraulics Engineering Laboratory	0	0	3	1.5	PC	T		45	-
33	IV	22CE26401	Advanced Surveying and Camp	1	0	0	1	PC	T	45	45	100
				0	0	4	2		L			
34	IV	22EN60001	Professional Communication Skills	0	1	2	2	EEC	L	-	45	-
35	V	22CE14501	Structural Analysis - I	3	0	0	3	PC	T	-	45	-
36	V	22CE14502	Design of Reinforced Concrete Elements	3	0	0	3	PC	T	16	45	36
37	V	22CE14503	Foundation Engineering	3	0	0	3	PC	T	10	45	22
38	V		Professional Elective - I	3	0	0	3	PE	T		45	-
39	V		Open Elective-4	3	0	0	3	OE	T	45	45	100
40	V		Open Elective-5	3	0	0	3	OE	T	45	45	100
41	V	22CE24501	Environmental Engineering Laboratory	0	0	3	1.5	PC	L		30	-

42	V	22CE24502	Soil Mechanics Laboratory	0	0	3	1.5	PC	L		30	-
43	V	22EN60002	Interview Skill & Soft Skill	0	1	2	2	EEC	L		45	-
44	VI	22CE14601	Structural Analysis – II	3	0	0	3	HS	T		45	-
45	VI	22CE14602	Concrete Technology	3	0	0	3	PC	T	14	45	31
46	VI	22CE14603	Design of Steel Structures	3	0	0	3	PC	T		45	-
47	VI	22CE14604	Highway Engineering	3	0	0	3	PC	T		45	-
48	VI		Managerial Skills, Project and Quality Management	3	0	0	3	EEC	T		45	-
49	VI	22MC60001	Constitution of India	3	0	0	0	MC	T		45	-
50	VI	22CE24601	Concrete and Highway Materials Laboratory	0	0	4	2	PC	L	9	45	20
51	VI	22CE24602	Formwork Component and Laboratory	1	0	0	1	PC	T	45	45	100
				0	0	2	1		L			
52	VI	22CE56601	Internship and Evaluation	0	0	4	2	EEC	P		45	-
53	VII	22CE14701	Advanced Structural Design	3	0	0	3	PC	T		45	-
54	VII	22CE14702	Construction Engineering and Management	3	0	0	3	PC	T	9	45	20
55	VII	22CE14703	Estimation and Quantity Surveying	3	0	0	3	PC	T		45	-
56	VII		Professional Elective - II	3	0	0	3	PE	T		45	-
57	VII		Professional Elective - III	3	0	0	3	PE	T		45	-
58	VII	22CE24701	Formwork Design and Fabrication	1	0	0	1	PC	T	45	45	-100
				0	0	2	1		L			

59	VII	22CE24702	Structural Design Studio	1	0	0	1	PC	T	45	45	100
				0	0	2	1		L			
60	VII	22CE36701	Mini Project	0	0	6	3	EEC	P	60	60	100
61	VIII		Professional Elective – IV	3	0	0	3	PE	T	-	45	-
62	VIII		Professional Elective – V	3	0	0	3	PE	T	-	45	-
63	VIII	22CE36801	Project Work	0	0	12	6	EEC	P	-	180	-
Total No. of credits							**166**					
Changes/Revision in Theory course (%)												
Changes/Revision in Laboratory course (%)												

Semester	I	II	III	IV	V	VI	VII	VIII	Total
Change/Revision in Contents (No. of Hours) (X)	94.5	59.5	108	135	116	68	159	-	740
Total No. of Hours (Y)	285	330	350	450	375	405	375	270	2840
Changes/Revision (%) = (X*100/Y)	33	18	31	30	31	17	42	-	**26%**

'T'- Theory Course, ' L' - Laboratory Course, 'P' - Internship/Project work

25/4/23
Convener

20/04/2023
Chairperson

Principal
29/05/2023

Annexure -II

DEPARTMENT OF CIVIL ENGINEERING

List of New Courses

Academic Year -2022-2023

S.No.	Semester	Course Code	Course Name	Lecture	Tutorial	Practical	Credits	Category
1	I	22ME33101	Basics of Civil and Mechanical Engineering (Integrated Course)	3	0	0	3	ES
				0	0	2	1	
2	III	22MA12303	Differential Equations and Numerical Methods	3	1	0	4	BS
3	IV	22CE26401	Advanced Surveying and Camp	1	0	0	1	PC
				0	0	4	2	
4	VI	22CE24602	Formwork Component and Laboratory	3	0	0	3	PC
				0	0	2	1	
5	VII	22CE24701	Formwork Design and Fabrication	3	0	0	3	PC

6	VII	22CE24702	Structural Design Studio	3	0	0	3	PC
7	V	22CE15505	Renewable Energy Engineering	3	0	0	3	PE
8	V	22CE15506	Geo-environmental Engineering	3	0	0	3	PE
9	V	22CE15507	Industrial Wastewater Management	3	0	0	3	PE
10	VII	22CE15705	Soil Dynamics and Machine foundation	3	0	0	3	PE
11	VII	22CE15706	Groundwater Engineering	3	0	0	3	PE
12	VII	22CE15711	Energy Efficient building	3	0	0	3	PE
13	VII	22CE15712	Coastal Engineering	3	0	0	3	PE
14	VIII	22CE15804	Bridge Structures	3	0	0	3	PE
15	VIII	22CE15805	Industrial Structures	3	0	0	3	PE
16	VIII	22CE15806	Rock Mechanics	3	0	0	3	PE
17	VIII	22CE15809	Health Monitoring of Structures	3	0	0	3	PE
18	VIII	22CE15811	Construction Management and Safety	3	0	0	3	PE
19	VIII	22CE15812	Environmental health and Safety	3	0	0	3	PE

25/4/2023
Convener

25/4/2023
Chairperson

Principal
09/05/23