

1.2 Academic Flexibility

1.2.1 Percentage of new courses introduced of the total number of courses across all programs offered during the last five years

Name of the Course	Course Code	Year of Introduction
Fluid Mechanics	14ME45	2014-15
Fluid Machinery	14ME54	2014-15
Automotive Engineering-I	14MEE570	2014-15
Simulation Lab	14MEL64	2014-15
Tool Design	14MEE651	2014-15
Alternate Fuels	14MEE655	2014-15
Automotive Engineering-II	14MEE659	2014-15
Automotive Technology	14ME0665	2014-15
Innovative Product Design & Development	14ME0670	2014-15
Hydraulics & Pneumatics	14ME72	2014-15
Heat Transfer	14ME73	2014-15
Design Drawing Technology	14MEE751	2014-15
Gas Turbines and Propulsion	14MEE755	2014-15
Innovative Product Design & Development	14MEE760	2014-15
Maintenance & Reliability Engineering	14ME0763	2014-15
Marketing Management	14ME0764	2014-15
Foundry Technology	14MEE823	2014-15
Materials selection in mechanical design	14MEE826	2014-15
Marketing Management	14MEE829	2014-15

DEPARTMENT OF MECHANICAL ENGINEERING
Accredited by NBA (Tier-I)

Date: 18/07/2014

Proceedings of the 6th BOS meeting:

The 6th Board of Studies (BOS) meeting held on 15th July 2014 at 10.30 AM in the Dept. of Mechanical Engineering.

Agenda of the meeting:

- 1) *Review of first year mechanical engineering subjects: Elements of mechanical engineering, Computer Aided Engineering Drafting (CAED) and work shop practice for 2014 scheme.*
- 2) *Any other matter regarding modification and alteration of the syllabus and scheme for 2010.*

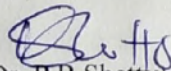
The BOS meeting started with the welcome address by HOD, Dr. P B Shetty. He welcomes and thanked all the members for their presence. Dr. PB Shetty read and recorded the minutes of previous BOS meeting and got approved. He requested the members present to give their valuable suggestions for modifying the drafted syllabus of subjects mentioned in the agenda.

The following are the points suggested by the members:

- 1) To include the topic Fasteners in metal joining process.
- 2) To reduce some portions of turbo machinery as syllabus found heavy.
- 3) To include the applications of materials and composites in the chapter engineering materials.
- 4) To include the topic Geometrical construction in subject CAED.
- 5) To remove the repetitive terms appeared in some part of the syllabus like classification, unit of refrigeration.

The BOS committee has approved the first year subjects of 2014 scheme.

The BOS meeting was concluded with vote of thanks by Dr. Sekhar Majumdar.


(Dr. P B Shetty)

Professor and Head,
Department of Mechanical Engineering

CC to: 1. Principal, NMIT
2. Autonomous office

Proceedings of the 7th BOS meeting:

The 7th Board of Studies (BOS) meeting held on 13th June 2015 at 10.30 AM in the Dept. of Mechanical Engineering.

Agenda of the meeting:

1. Approval of 2014 scheme from 3rd to 8th semester
2. Approval of syllabus for 3rd and 4th semester subjects of 2014 scheme
3. Approval of adding new subject: Fluid Mechanics
4. Approval of 2 new electives introduced to higher semester
5. Approval of self study subjects
6. Approval of BOE Panel (Board Of Examiners)
7. Any other matter with permission from chair

The BOS meeting started with the welcome address by the Principal.

Dr. Kiran Aithal, Professor & HOD, Mechanical Dept. thanked all the members for their presence. He read and recorded the minutes of previous BOS meeting and got approved. He briefed the major changes proposed in the topics of agenda and requested them to give their valuable suggestions.

The points suggested by the members are as follows:

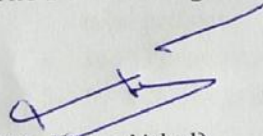
- 1) To shift Finite Element Analysis lab (FEA) from 5th semester to 6th semester as the students gain knowledge in all the relevant fields so that they can understand better.
- 2) To add thick and thin cylinder for the course Mechanics of Materials
- 3) The year of publication and edition of text books has to be mentioned in syllabus
- 4) The subject, Computational Fluid Dynamics (CFD) to be made as core subject instead of elective, as it is gaining importance in the industrial field or to introduce the topics on basics of CFD in Fluid Mechanics subject under unit III.
- 5) To include general equations of motion representing conservation of mass, momentum and energy for a viscous fluid flow in the subject Fluid mechanics
- 6) To add Flow through pipes: Major loss due to friction in flow through pipes - using Darcy's and Chezy's equation for head loss due to friction in pipes in the subject Fluid mechanics
- 7) To add Reynolds Number and its physical importance, concept of boundary layer, expression for lift and drag coefficients, Mach number its significance in the subject fluid mechanics.

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- 8) To increase the credits of Manufacturing Process subject from 3 to 4 as the subject found importance for mechanical engineers and reduce the credits of Material Science subject from 4 to 3 .
- 9) To include advance welding technologies
- 10) To revise the Solar Energy Utilization subject as it contains some topics non related to solar and rename it as 'Energy Utilization'.
- 11) Add subject or topics on electronic actuation system .
- 12) Add topic of Friction-stir welding (FSW) topic in Manufacturing Process subject.
- 13) To include new elective topics like Carbon Nano Tubes, Fracture Mechanics, Advanced materials.
- 14) To include topic on Sustainability of entrepreneurship in subject Entrepreneurship Development & Intellectual Property rights.
- 15) To introduce a new subject 'Fluid mechanics' to cover up the latest technology in the field, in addition to the existing subject, that covers the basic information.
- 16) To revise the syllabus of Gas turbine and Propulsion subject.
- 17) To include the topic of Nano Measurement Technology in the subject Metrology and Measurements syllabus.
- 18) To include the subjects Advance Engineering Mechanics, Design Drawing Technology.
- 19) In Computer Aided Machine Drawing (CAMD) subject the blue print drawing must be renamed as Production Drawing.
- 20) To include GD&T its merits, applications in the course CAMD.
- 21) To include Riveted and Welded Joints, classifications, symbols, dimensioning.

The BOS meeting was concluded with vote of thanks from Dr. P B Shetty.


(Dr. Kiran Aithal),
Prof & Head, Mechanical Engg .Dept.

CC to: 1. Principal, NMIT
2. Autonomous office

Proceedings of the 8th BOS meeting:

The 8th Board of Studies (BOS) meeting was held on 30th January 2016 at 10.30 AM in the Dept. of Mechanical Engineering.

Agenda of the meeting:

1. Approval of 5th and 6th semester scheme and syllabus for 2014 Batch
2. Implementation of PEOs, POs, PSOs, COs and vision and mission
3. Approval of M.Tech schemes (Thermal and Design)
4. Approval of BOE Panel (Board Of Examiners)
5. Approval of adding new subjects: Fluid Machinery, Automotive Engineering-I, Simulation Lab, Tool Design, Alternate Fuels, Automotive Engineering-II, Automotive Technology, Innovative Product Design & Development
6. Any other matter with permission from chair

The BOS meeting started with the welcome address by the Dr. Kiran Aithal, Professor & HOD, Mechanical Dept. He thanked all the members for their presence. Dr. Kiran Aithal read and recorded the minutes of previous BOS meeting and got approved. He briefed the topics of the agenda and requested all to give their valuable suggestions.

The points suggested by the members are as follows:

1. Rename the subjects, 'Fluid Machinery' to 'Turbo-machinery' and 'Renewable Energy Resources' to 'Renewable energy sources'.
2. Some topics of the subjects 'Solar energy' and 'Renewable Energy resources' are found repeated, and hence suggested to retain only under one subject
3. In PG programme, first and second semester to include technical seminars in place of mini project.
4. In PG programme, add one more lab. for every semester
5. In PG programme, to include the subject 'Research Methodology' in second semester
6. In subject 'Design of machine Elements-I' for V Sem., to include six types of theories of failures in place of three theories and to delete topic 'Impact of torsion load' of unit V, chapter Impact Load as syllabus becomes heavy.
7. The subject DME-II of VI Sem. Topic of internal and external pressure of cylinders to be introduced
8. The subject CAD/CAM/CIM of VII Sem. to be made as core elective instead of programme core in the scheme.



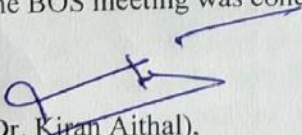
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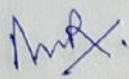
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9. In the subject 'Finite Element and C programming lab', part C, 4 exercises to be reduced to 2.
10. Subject 'Tool design' of 8th Sem to shift to under program elective B
11. The subject 'Theory of plasticity', topic on thermal stresses to be removed as syllabus found heavy
12. To include topic 'Microstructure lamina' in the subject 'Composite materials'
13. For the subject 'C' graphics, suggested a text book, FEA analysis and 'C' graphics lab by V Bharath
14. The points of Prime Minister vision on Make in India to be included as headings of some topics which are related to the subjects like 'Entrepreneurship and Intellectual property Rights', 'Manufacturing technology'.
15. To rename the subject Tool Design as Machine Tool Design
16. Matlab to be made core elective instead of program core
17. To introduce common rail diesel injection topic in subject IC engine under injection system
18. Suggested to introduce safety and speed sensors in the subject of Mechatronics
19. Topic HVAC to be introduce in subject automotive engineering
20. Emission norms in automotive Engg to be reviewed with the latest standard
21. To introduce a new subjects like Fluid Machinery, Automotive Engineering-I, Simulation Lab, Tool Design, Alternate Fuels, Automotive Engineering-II, Automotive Technology, Innovative Product Design & Development to cover up the latest technology in the field, in addition to the existing subjects.
22. To add risk management topic to engineering economics.

The BOS committee has approved the PEOs, POs, PSOs and COs and proposal mentioned in the agenda.

The BOS meeting was concluded with vote of thanks by Dr. Sekhar Majumdar


(Dr. Kiran Aithal),
Prof & Head, Mechanical Engg .Dept.


(Mr. Raviprakash.M)
Member Secretary

CC to: 1. Principal, NMIT
2. Autonomous office

Date: 17/09/2016

Proceedings of the 9th BOS meeting:

The 9th Board of Studies (BOS) meeting was held on **14th September 2016** at 11.0 AM in the Dept. of Mechanical Engineering.

Agenda of the meeting:

1. Approval of schemes of M. Tech programme (Thermal and Design)
2. Approval of syllabus of first year M. Tech (Thermal and Design)
3. Approval of vision, mission, PEOs, POs, PSOs and COs
4. Any other matter with permission from chair

The BOS meeting started with the welcome address by the Dr. Kiran Aithal, Professor & HOD, Mechanical Dept. Dr. Kiran Aithal read and recorded the minutes of previous BOS meeting and got approved. He thanked all the members for their presence. He briefed the topics of the agenda and requested all to give their valuable suggestions. The draft copies of the documents mentioned in the agenda were handed over to each member for their reference.

The points suggested by the members are as follows:

1. Suggested to rearrange the contents of syllabus of subject Applied mathematics as follows: Linear algebra, ODE, PDE, Numerical methods, Vectors and suggested to include the lab components to solve in Mat Lab.
2. Suggested to offer Compute Aided Engg as one of the core subject replacing the Composite Materials subject
3. Expressed 6 subjects in first semester seems to be heavy and it may be reduced to subjects
4. Suggested to consider the internal marks of 20 for lab activities.
5. Suggested to rename the following subjects:
 - a) 'theory of Elasticity' as 'Advance Solid mechanics',
 - b) 'Experimental stress analysis' as 'Advance Experiments in solid mechanics',
 - c) 'Tool Design' as 'Tool and Fixture Design',
 - d) 'Industrial Robotics and applications' as 'Robotics and applications'
6. Suggested to modify or rearrange the contents of the syllabus of subject Experimental stress analysis as unit 2,4 & 5 are found similar
7. Suggested to change the scheme of the subject experimental stress Analysis from and 2 to 3 and 3
8. Suggested to add some nontraditional machining tool design in the subject Tool design (like dyes of EDM, ECM,USM,AJM)
9. Suggested to add following subjects in Machine Design: Experimental Stress Analysis, Tool Design, Nano Materials And Technology, Rapid Prototyping, Hydraulics and Pneumatics, Fracture Mechanics, Computer Aided Engineering, Smart Materials, Advanced Control Systems, Optimization Techniques in Design, Tribology-Lubrication And Bearing Design.

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10. Suggested to modify the syllabus for the subjects: Mechanical vibrations and system control, Design for manufacture and assembly, FEM.
11. Suggested to introduce mini project, Seminar, Field Work, Professional Training and Self Study in the curriculum
12. Suggested to restrict the text books in syllabus to one or maximum two books and reference books may be any numbers.
13. Case study and Seminars to be emphasized more in the theory subjects like Nano materials etc
14. Suggested to re organize the syllabus and include the lab components for the subject Applied mathematics and advised to include text books 'Linear algebra' by G.Brag and ODE's and PDE's by Duffy
15. Suggested to include wind tunnel experiments in the subject 'Advance Fluid Mechanics'
16. To include direct energy conversion like Fuel Cells, Thermoelectric Energy, Thermoionic Power Generation, Thermodynamic devices, Magneto hydrodynamic Generations, Photovoltaic Cells.
17. Suggested to Maple and Mat Lab to be made compulsory for master degree students.
18. Suggested to rename the subject 'Finite Element Analysis' as 'Finite Element Analysis of Fluid flow and Heat transfer'
19. Suggested to modify the syllabus for the subjects thermodynamics and combustion engineering, FEM, Advance fluid mechanics, Computational Methods in Heat Transfer & Fluid Flow, Design of Heat Transfer Equipments for Thermal Power Plant.
20. Suggested to include the some case studies in the subject 'Energy Auditing'.
21. Suggested to include optical techniques like high speed camera, laser gas concentration, gas pressure as one unit in the subject 'Experimental techniques and methods'.
22. Suggested the subject 'Experimental techniques' to be made as core subject and the subject 'Energy Auditing' as elective.

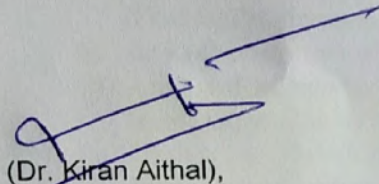
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23. Suggested to include topics on applications of Solar Refrigeration like in metro systems, living space, aerospace, automobiles etc
24. To add following new subjects for thermal engineering: Thermal measurements and process control, solar energy technology, Fuels combustion and environment, Gas turbine and jet propulsion technology

The BOS committee has approved the schemes of M. Tech programme (Thermal and Design), syllabus of first year M. Tech (Thermal and Design) and vision, mission, PEOs, POs, PSOs and COs.

The BOS meeting was concluded with vote of thanks by Dr. Sekhar Majumdar.



(Dr. Kiran Aithal),
Prof & Head, Mechanical Engg .Dept.

CC to: 1. Principal, NMIT
2. Autonomous office

Date: 17/03/2017

Proceedings of the 10th BOS meeting:

The 10th Board of Studies (BOS) meeting was held on 18th March, 2017 at 10.30 AM in the Dept. of Mechanical Engineering.

Agenda of the meeting:

- 1) Approval of subjects for 7th and 8th semester of 2014 scheme
- 2) Ratification of any other subjects of 2014 scheme
- 3) Approval of M.Tech. syllabus (Thermal and Design)
- 4) Approval of panel of Board of Examiners (B O E)
- 5) Department Vision and Mission statements, Programme Educational objectives (PEOs), Programme Specific Outcomes(PSOs)
- 6) Any other matters with permission of chair
- 7) Approval of newly added subjects: Hydraulics and Pneumatics, Design drawing technology, Gas turbine and propulsion systems, Heat Transfer, Innovative Product Design & Development, Maintenance & Reliability Engineering, Marketing Management, Foundry Technology, Materials selection in mechanical design, Marketing Management

The BOS meeting started with the welcome address by the Dr. Kiran Aithal, Professor & Head, Mechanical Dept. He welcome all the members for their presence. Dr. Kiran Aithal read and recorded the minutes of previous BOS meeting and got approved. He thanked Dr. Jaywant Arakeri and Dr. Ashitava for their contribution in preparing the M.Tech syllabus for both Design and Thermal stream. He also thanked our college Director and mentor Dr. NR Shetty for his suggestion to introduce whole second year of M.Tech programme for project work. He briefed the topics of the agenda and requested all to give their valuable suggestions.

Dr. HC Nagaraj, Principal of our college and Dr. Ranganath Setty, Dean (Academics) were also present in the BOS meeting for a brief time and gave valuable suggestions towards labs, projects and internship.

The points suggested by the members are as follows:

- 1) Six sigma and related concepts to be introduce as a core elective for 7th semester and also offer as open elective
- 2) In the subject 'Tribology' under unit 5, the topic wear measurements is repeated needs to be corrected
- 3) Both PG courses maximum credits to be sum up to 100 credits.
- 4) In the subject 'EIPR', in unit 2, the topics Venture capitalists, series investors, need to be included.

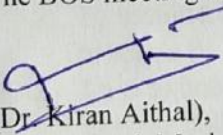
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- 5) Finance concepts, marketing, Balance sheets , profits and loss accounts concepts to be included in the subject 'EIPR' and the subject 'Engineering Economics' to be made as core subject instead of elective.
- 6) Rename the subject 'Design for manufacture ' as 'Design for manufacturing'.
- 7) Suggested to introduce the latest topic 'Lean Management'.
- 8) To include one new subject 'Smart Factory' contains the latest concepts of 'Industry 4.0' as elective in 8thsem.
- 9) Suggested to introduce smart manufacturing concepts, Internet of Things (IoT) for both PG courses and tie up with some industry for better knowledge sharing.
- 10) Suggested to add mathematical models for the subject control engineering
- 11) In the subject 'composite Materials', modelling, software analysis of some applications using ANSYS to be included and the subject required to be re modifications.
- 12) To add following new subjects: Hydraulics and Pneumatics, Design drawing technology, Gas turbine and propulsion systems, Heat Transfer, Innovative Product Design & Development, Maintenance & Reliability Engineering, Marketing Management, Foundry Technology, Materials selection in mechanical design, Marketing Management
- 13) In the subject 'Tribology', suggested to introduce the topics of classification of wear, behavior of wear.

The BOS committee has approved the PEOs, POs, PSOs of the department, the panel of Board of Examiners (B O E) and also recommendations from the equivalence committee for 2014 scheme-5th and 6th semester. The committee also approved the newly added subjects mentioned in the agenda.

The BOS meeting was concluded with vote of thanks by Dr. P G Mukunda.


(Dr. Kiran Aithal),
Prof & Head, Mechanical Engg .Dept.

CC to: 1. Principal, NMIT
2. Autonomous office

Date: 02/07/2018

Proceedings of the 11th BOS meeting:

The 11th Board of Studies (BOS) meeting was held on 30th June, 2018 at 11.00 AM in the Dept. of Mechanical Engineering.

Agenda of the meeting:

- 1) Approval of 2017 and 2018 schemes of UG and PG
- 2) Approval of 3rd and 4th semester syllabus of 2017 scheme
- 3) Approval of various committees of department (BOE, DAC, PAC, DUGC)
- 4) Any other matters with permission of chair

The BOS meeting started with the welcome address by the Dr. Sudheer reddy, Professor & Head, Mechanical Dept. He welcomes and introduced the new members to the committee. He thanked all the members for their presence. He also thanked the previous members of BOS for their contribution and continuous support in preparing the scheme and syllabus. He briefed the highlights of the trust, college and the department before the committee. He briefed the topics of the agenda and requested all to give their valuable suggestions.

The points suggested by the members are as follows:

- 1) To include Practice on Plagiarism, prepare live data of laboratories reports in excel formats, Practice on reproducing the journal papers for the course professional practice I
- 2) To include Bicycle, printer and safety aspects of above in professional practice II
- 3) To practice use of commonly used mechanical measuring instruments like Vernier calliper, micro meter, gauges
- 4) Reports writing of lab experiments need to contain applications along with inference on results analysis
- 5) To conduct exit interview for all the students
- 6) To arrange invited lectures on some topics of the syllabus
- 7) To arrange application oriented course at the end of each semester
- 8) To include advance materials and processes like for electric/hybrid vehicles
- 9) To include IOT for automobiles
- 10) To arrange training for faculty for handling syllabus of newly added electives
- 11) To obtain the help of industries for arranging internship training for students
- 12) To add activity based subject for EIPR syllabus
- 13) To conduct mock interview to test the soft skills for students to help them during placement.

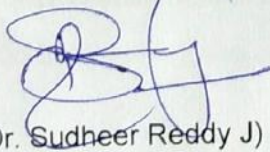
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- 14) To introduce Thermal Management subject as an elective
- 15) To make provision in timetable for R&D activities
- 16) To invite industry experts as one of the examiner for conducting practical examinations
- 17) Some more experiments on Strength of Material to be added in MOM subject
- 18) To add IPDD subject to M.Tech. Design programme
- 19) To add Plastic Technology subject to M.Tech. Design programme with the assistance of Central Institute of Plastics Engineering and Technology (CIPET).
- 20) To add topics on one dimensional analysis to CFD
- 21) To add the topic on Meshing to FE analysis subject
- 22) To incorporate the applications as one of the COs
- 23) Presentation/ report on case studies to be made compulsory
- 24) To include self study topic/ component in every subject and the students to present it in the class
- 25) Include the demonstration of advanced tools
- 26) Suggest include Battery technology as one complete course in M.Tech thermal programme
- 27) In the subject MOM the experiment on bending of beam to include
- 28) Advised to invite industrial experts to teach the fundamentals of automobile engg
- 29) Every member concerned about why the students forgets the basic fundamentals of engg core subjects
- 30) Encourage the bright students to take their own choice of subjects as elective

The BOS committee has approved the 2017 and 2018 scheme of UG and PG programme, the 3rd and 4th semester's syllabus of 2017 scheme and the various committees of the department.

The BOS meeting was concluded with vote of thanks by Dr. Kiran Aithal.



(Dr. Sudheer Reddy J)
Prof & Head, Mechanical Engg. Dept.

CC to:

1. Principal, NMIT
2. Autonomous office