VASAVI COLLEGE OF ENGINEERING (Autonomous)

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DEPARTMENT OF MECHANICAL ENGINEERING

Date: 12.06.2025

Minutes of the Sixteenth meeting of Board of Studies, Mechanical Engineering Department, held at 10.30 AM on 31.05.2025 (Saturday).

Members Present:

Name of the Member	Designation
Dr. T. Ramamohan Rao	Chairman & HOD
Prof. R. Rajendra	OU nominee
Dr. B. Venkatesham	Subject Expert
Dr. Jeevan Jaidi	Subject expert
Dr. A.V.S.S. Kumara Swamy Gupta	Subject expert
Dr. Srinivasa Rao Perla	Industry Representative
Mrs. S. Kirthana	UG-Alumus
Mr. Rahul Sai	PG-Alumus
Dr. K.Kishore	Faculty Member
Mr. K. Srinivasa Rao	Faculty Member
Dr. S.Venkataiah	Faculty Member
Dr. P. Venkateswara Rao	Faculty Member
Dr. P.V.Gopal Krishna	Faculty Member
Mr. K.Veladri	Faculty Member
Dr. V.B.S. Rajendra Prasad	Faculty Member
Dr. J. Anjaneyulu	Faculty Member
Mr. S. Sreekrishna	Faculty Member
Dr. P.V.S. Subhashini	Faculty Member
Mr. K.I. Spurgeon	Faculty Member
Mr. B. Sandeep	Faculty Member
Mr. M. Venugopal Reddy	Faculty Member
Dr. M.V. Gayatri	Faculty Member
Mr. J. Kantha Rao	Faculty Member

The meeting started with the welcoming address by Dr. T. Ramamohan Rao, Chairman – BOS to all the invitees and the faculty of the Department of Mechanical Engineering, VCE. The following items on the agenda were taken up for consideration.

1. Confirmation of the minutes of 15th BOS meeting held on 18.05.2024.
   The Chairman and members reviewed the minutes of 15th BOS meeting held on 18.05.2024 and then confirmed.

2. Action taken report on the items of 15th BOS held on 18.05.2024.
   The Chairman presented the action taken report for the suggestions given by the members of 15th BOS.

3. Review of Institute Vision & Mission, Department Vision& Mission, PEOs, PSOs and POs.
   The Chairman reviewed Institute Vision & Mission, Department Vision& Mission, PEOs, PSOs and POs.

4. The Chairman presented the major achievements of the Department for the Academic Year 2024-25.

   Department achievements:

   The Chairman highlighted the achievements of the Department and brought the following to the notice of the BOS.

   - Three Career Guidance sessions and seven Guest Lectures were organized by the Department.
   - 5 Research Scholars were awarded Ph.D degree from last 3 years.
   - Conducted a 2nd International Conference on "Advanced Materials and Computational Methods in Mechanical Engineering (ICAMCMME-2025). (Hybrid Mode) during 14-15 Feb 2025.
     - 107 papers received
     - 75 papers selected & registered
     - 66 papers were presented across the country.
   - Organized Online FDP on "Applications of Machine Learning and AI in Mechanical Engineering" in collaboration with NIT Warangal from 26.05.2025 to 06.06.2025 for faculty.
   - Achievements of the faculty as Toppers in NPTEL certification course during AY 2024-25.
     Dr. C. Gururaja Rao, Professor
     Dr. P. Venkateswara Rao, Associate Professor
     Mr. K. Veladri, Associate Professor
     Dr. V.B.S. Rajendra Prasad, Associate Professor
     Mr. S. Sreekrishna, Assistant Professor
     Mr. B. Naga Manohar, Assistant Professor

- Research Papers Published by the faculty during AY 2023-24
  No. of Scopus Indexed Journals : 19
  No. of Conference papers : 31

- A Project Expo to showcase the final year projects was organized for B.E VIII Sem Outgoing Batch of 2021-25 on 05.05.2025. Mr. Randhir Prasad & Mr. G. Satyanarayana, Scientist 'F', SCPC-ASL, DRDO, Hyderabad has adjudicated this event.

5. Review of the following for the BE students to be admitted during 2025-26:
   a. Scheme of instruction and examinations from I to VIII semesters.
   b. Syllabus for I and II semester courses.
   The scheme of instruction and examination for the B.E. Semesters I to VIII and also the syllabus for I and II semester courses for the AY 2025-26 were reviewed.

6. Review of the following for the BE students admitted during 2024-25:
   a. Scheme of instruction and examinations from III to IV semesters.
   b. Syllabus for III and IV semester courses.
   The scheme of instruction and examination for the B.E. Semesters III to IV and also the syllabus for III and IV semester courses for the AY 2025-26 were reviewed.

7. Review of the following for the BE students admitted during 2023-24:
   a. Scheme of instruction and examinations from V to VI semesters.
   b. Syllabus for V and VI semester courses.
   The scheme of instruction and examination for the B.E. Semesters V to VI and also the syllabus for V and VI semester courses for the AY 2025-26 were reviewed.

8. Review of the following for the BE students admitted during 2022-23:
   a. Scheme of instruction and examinations from VII to VIII semesters.
   b. Syllabus for VII and VIII semester courses.
   The scheme of instruction and examination for the B.E. Semesters VII to VIII and also the syllabus for VII and VIII semester courses for the AY 2025-26 were reviewed.

9. Review of the following for the ME (ADM) students to be admitted during 2025-26:
   a. Scheme of instruction and examinations from I to IV semesters.
   b. Syllabus for I and II semester courses.
   The scheme of instruction and examination for the B.E. Semesters I to IV and also the syllabus for I toIV semester courses for the AY 2025-26 were reviewed.

10. Clarifications sought and suggestions given by the members.

- Prof. R. Rajendra , Professor, MED, OU recommended/enquired the following.
  a) Introduce "Additive Manufacturing "course by combining Machine Drawing and Production Drawing into a single course. (Or in place of Industry 4.O & Automation in Professional Elective segment)
  b) The title "Material Processing" course to be replaced by "Material Processing Methods" in the Honours program

- Dr AVSS Kumara Swamy Gupta, director, IIIT, Idupulapaya recommended/ enquired about the following.
  a) Change the title to " FEM" for UG and "FEA" for PG.
  b) Balance the credits in all the semesters to arrive at a uniform level (By reducing for KOM and increasing to ATD courses)
  c) "Gas Turbine " course to be included as a unit or as a full course.
  d) Heat Transfer lab is not in the core courses, should be included.
  e) TTM course should be in the core course and not as a PE course.
  f) OE courses should not have any back ground knowledge, but many courses offered by various departments need some back ground knowledge. Theme Based Open Electives are not recommended.

- Dr B Venkatesham, Professor, Mechanical & Aerospace Engineering Department, IIT, Hyderabad recommended/enquired about the following.
  a) Materials Engg course is shifted from III sem to I sem , but recommended for II sem.
  b) The title "Industrial Engg" stream to be upgraded as " Manufacturing & Industrial Engg" in Sem-7 to include Mfg courses also in that stream.
  c) Mechanical Vibrations course is a core course which is missing in the scheme. Include Vibrations + Vibrations lab in PE during Sem-VII
  d) A student of Robotics- Honours Program student is forced to take RAC(PE) in Sem-7, So pl keep Mechanical Vibrations + Lab in place of Robotic Engg + lab course.
  e) The title Ceramics, Plastics course to be replaced by Engg Materials in proposed Honours in Materials Science.
  f) Suggested a Lab using Ansys software in Materials Engineering Honours programme in place of proposed Material Characterization Lab.

- Dr Jeevan Jaidi, Professor, MED, BITS, Hyderabad recommended about the following.
  a) PG stipend to be raised from 3000/- to 6000/- to attract talent.
  b) The proposal to replace ATD by Thermal Engineering is not recommended as Thermal Engineering is the title of specialisation in Mechanical Engineering.
  c) The title " Fluid Mechanics & Hydraulic machines" is to be replaced by " Fluid Mechanics & Machines"
  d) The title TTM to be replaced by TM
  e) Introduce "Ind Robotics "course under the PE stream Manufacturing & Ind Engineering.

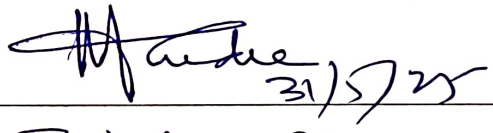
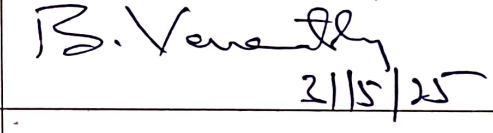
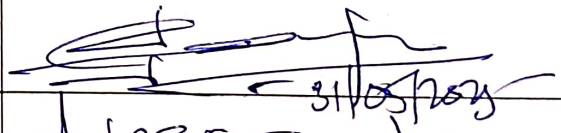
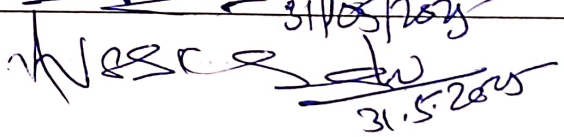
11. The members of the BOS have verified the syllabus changes proposed by the faculty and approved the same as shown in the following table.

Sem.	Course Name	Topics addition	Topics deletion	Reasons
II	Thermodynamics	-	**Unit-I** concept of Continuum; temperature scales Unit-II steady-state process **Unit-V** [Concepts with P-v and T-s diagram]	
III	Mechanics of Materials	-	**Unit-III:** annular **Unit-V:** effect of combined bending and torsion. introduction to thick cylinders.	
I & III	Materials Engineering	**Unit-II:** Construction and interpretation of Phase diagrams of binary non-ferrous alloys. **Unit-III:** iron-iron carbide equilibrium diagram Construction and interpretation. **Unit-V** Super alloys: Hastelloy and inconel - their composition, properties and applications.	**Unit-I** Packing factor of crystal structures. **Unit-IV:** Fracture; Fatigue and Creep **Unit-V** Maraging steels, Hadfield steel,	Deleted topics of **Unit-I** covered in Chemistry / Intermediate and **unit-IV** in Machine Design. Advanced topics are added in **unit-V**
III	Mechanics of Materials Lab	**Experiment:** Strain measurement using Split Hopkinson Pressure Bar.	-	
III	Introduction to Industrial Robots (Open Elective)	-	**Unit-II** Position and velocity feedback devices	
III	Introduction to Unmanned Aerial Vehicles (Open Elective)	Unit III and Unit IV are interchanged to accommodate artificial intelligence in UAV Systems in Unit IV	--	
IV	Applied Thermodynamics	-	**Unit-III:** types of combustion chambers in SI and CI engines. Unit-IV: fire tube boilers water tube boilers- super critical boilers- boiler draught (concept only)	
IV	Fluid Mechanics and Hydraulic Machines	-	**Unit-I:** Introduction, **Unit-II:** mass, momentum and energy conservation equations; **Unit-III:** formation and its thickness, displacement, momentum and energy thickness. **Unit-IV:** and types **Unit-V:** unit quantities	

m.	Course Name	Topics addition	Topics deletion	Reasons
IV	Kinematics and Dynamics of Robotics (Open Elective)	-	**Unit-I:** RR planar **Unit-II:** Velocity propagation **Unit-III:** Jacobian in statics	
IV	Applied Thermodynamics Lab		To conduct performance test on a two-stroke Petrol engine	
V	Heat Transfer	**Unit-V:** in two-body enclosures	**Unit-I:** [derivation] **Unit-II:** definition **Unit-V:** between infinite parallel plates, concentric cylinders, spheres - chart solutions;	
V	Kinematics of Machines	**Unit-V:** Introduction to Gear Trains	**Unit-II:** Coriolis component of acceleration. Unit-V: Simple, Compound, Reverted and Epi-cyclic Gear Trains.	
V	Manufacturing Processes	**Unit-V:** drawing operations.	**Unit-III:** Numericals on welding speed, melting efficiency, heat input in Arc welding process. **Unit-IV:** Numericals on current, heat generated in resistance spot welding. **Unit-V:** Numerical problems on Rolling, drawing, shearing and deep drawing operations. Engineering stress and strain, true stress and strain.	Allotted hours per week for this subject is only 3
V	Design of Machine Elements		**Unit-V:** Design of Screws: Design of screw jack. Differential and Compound Screws.	
V	CAD/CAM	-	**Unit-I:** Introduction to computer aided design and manufacturing. Concepts of NURBS. **Unit-II:** feature instancing **Unit-IV:** Industrial Robots: Robot Anatomy, Configurations, Controls, Drivers, and applications.	Analytical description of NURBS is complicated. Topics are shifted to Robotic courses.
V	Drives and Control Systems for Robotics	-	Unit-I: Open Loop & Closed Loop Systems.	-
V	Introduction to Robotics	-	Unit-I: Serial manipulator & Parallel Manipulator Unit-II: Motion interpolation Unit-III: Introduction to solve any robotic kinematic problem using python programming. Unit-IV: sensors, Pressure sensors, position and velocity feedback devices.	
VI	Dynamics of Machines		**Unit-I:** Kinematic analysis of slider crank mechanisms using analytical method	It is shifted to KOM course.

m.	Course Name	Topics addition	Topics deletion	Reasons
VI	Metrology and Instrumentation	**Unit-II:** Geometric Features: **Unit-IV:** Strain and Load Measurement **Unit-V:** Seismic and Pressure Measuring Instruments.	**Unit-II:** Gear Nomenclature **Unit-III:** Ambient temperature compensation **Unit-V:** Introduction to data acquisition systems and signal processing.	
VI	Metal Cutting and Machine Tools	**Unit-I:** parts of lathes **Unit-V:** numericals	**Unit-I:** Kinematic structure of lathe **Unit-V:** Geometry of drills, milling cutters. Numerical problems on economics of machining	
VI	Refrigeration and Air conditioning		**Unit-IV:** Sensible cooling and heating, absolute humidification and dehumidification, cooling with dehumidification, heating with humidification, adiabatic humidification and adiabatic chemical dehumidification	
VII	Finite Element Analysis	**Unit-I:** Steps involved in FEA. one dimensional problems involving homogeneous boundary condition and point loading **Unit-III:** subjected to point load and uniformly distributed load. **Unit-V:** significance of eigen vectors	**Unit-I:** stress and Equilibrium, Strain, displacement, stress– strain relations. Unit-IV: Mesh requirements Pre-processing, solution, post processing. **Unit-V:** properties of eigen vectors	
VII	Industrial Engineering	-	**Unit-IV:** fixed order quantity system, periodic review system **Unit-V:** crashing of network	
VII	Robotic Engineering	**Unit-I:** Types of configurations **Unit-III:** analysis	**Unit-I:** Basic terminology. Basic configurations **Unit-III:** moment transformation. Redundancy	
VII	Thermal Turbo Machines	-	**Unit-I:** various regimes of flow **Unit-V:** Introduction	
VII	Computational Fluid Dynamics	**Unit-II:** RNS equation	**Unit-I:** Reynolds and Favre averaged N-S equations; Transfer; steady and unsteady flows; **Unit-III & V:** without and with constant source term	
VII	Unmanned Aerial Vehicles	**Unit III** and **Unit V** are interchanged to accommodate Artificial Intelligence in UAV systems in Unit V; Old Unit IV and V are merged by removing case studies as they will be dealt in Laboratory. UAV design is introduced for Professional Elective in Unit III **Unit-III** UAV Design and	**Unit-IV** Case studies – Design of nanosize (hand held) multirotor UAV, design of landing gear for multirotor **Unit-V** case study- Small Scale UAV wing design and CFD analysis to obtain maximum efficiency, Aerodynamic and stability analysis of VTOL.	

		Manufacturing: Airfoil selection, wing design, fuselage design, empennage design, power plant selection, ground control unit, Drone Manufacturing, Additive Manufacturing, Health Evaluation and Failsafe.		
VII	Computer Aided Engineering Lab	-	Introduction to FEA software	
VII	Computational Fluid Dynamics Lab	Analysis of flow under natural convection	Unsteady flow analysis of 3D Bifurcating Artery	
VII	Unmanned Aerial Vehicles Lab	**Experiments:** As Smoke generator is procured, corresponding experiments have been included To visualise the form drag at various angle of attacks and velocities on uncambered airfoil of fixed wing UAV. To visualise the form drag at various angle of attacks and velocities on cambered airfoil of fixed wing UAV. To visualise the form drag at various wind velocities on cylindrical model. To visualise the form drag at various wind velocities on rectangular plate, circular plate and triangular prism. To visualise the form drag at various wind velocities on sphere and hollow hemi sphere. To visualise the form drag at various angle of attacks and velocities on 3D printed uncambered airfoil of fixed wing UAV.	--	
VII	Robotics and Control (BE Honours)	-	**Unit-I:** RR planar **Unit-II:** Velocity propagation; Jacobian in statics **Unit-V:** Force control with inner position loop, inner velocity loop, parallel force / position control	
VIII	Composite Materials	-	**Unit-I:** Definition; PMC, MMC, CMC, FRP Composites; Fiber Reinforcements; Fiber Forms; **Unit-III:** Basic concepts;	
VIII	Power Plant Engineering	-	**Unit-III:** related numerical problems. **Unit-V:** Related exercises	
VIII	Production and Operations Management	-	**Unit-I:** Calculations on productivity. Capacity planning and process planning calculations.	

Name of the Expert	Signature
Dr. Rega Rajendra OU-Nominee	
Dr. B. Venkatesham Subject Expert	
Dr. Jeevan Jaidi Subject Expert	
Dr. A.V.S.S. Kumara Swamy Gupta Subject Expert	
Dr. Srinivasa Rao Perla Industry Representative	
Mr. Rahul Sai PG-Alumni	
Dr. T. Ramamohan Rao Chairman & HOD