VASAVI COLLEGE OF ENGINEERING (Autonomous)

9-5-81, Ibrahimbagh, Hyderabad-500031, Telangana, India

(Sponsored by Vasavi Academy of Education)

Phone: +91-40-23146003 Fax: +91-40-23146090, +91-40-23146080

DEPARTMENT OF MECHANICAL ENGINEERING

Date: 27.05.2024

Minutes of the fifteenth meeting of Board of Studies, Mechanical Engineering Department, held at 10.30 AM on 18.05.2024 (Saturday).

Members Present:

Name of the Member	Designation
Dr. T. Ramamohan Rao	Chairman & HOD
Dr. B. Venkatesham	Subject Expert
Dr. Jeevan Jaidi	Subject expert
Dr. A.V.S.S. Kumara Swamy Gupta	Subject expert
Dr. B. Radhakrishna Prasad	UG-Alumni
Mr. Rahul Sai	PG-Alumni
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
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 14th BOS meeting held on 23.06.2023.
   The Chairman and members reviewed the minutes of 14th BOS meeting held on 23.06.2023 and then confirmed.

2. Action taken report on the items of 14th BOS held on 23.06.2023.
   The Chairman presented the action taken report for the suggestions given by the members of 14th 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 2023-24.

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 eight Guest Lectures organized by the Department.
- Inauguration of Robotics Lab.
- Organized a Robotic workshop on "Recent Trends in Smart Path Follower Navigating the Future" in collaboration with Binford Research Labs Pvt. Ltd., Hyderabad.
- Achievements of the faculty as Toppers in NPTEL certification course during AY 2023-24.
  Dr. C. Gururaja Rao, Professor (04th rank in R & AC and 1st Rank in Convective Heat Transfer)
  Dr. S. Venkataiah, Associate Professor (Power Plant Engineering)
  Dr. P. Venkateswara Rao, Associate Professor (Power Plant Engineering and Programming in C)
- Research Papers Published by the faculty during AY 2023-24
  No. of Scopus Indexed Journals : 12
  No. of Conference papers : 03
- Patent has been granted to Dr. K. Kishore, Dr. P.V. Gopal Krishna and Mr. D. Govinda Rao for an invention entitled Adjustable rotary fixture attachment to electrical discharge machining for improved metal removal rate for the term of 20 years from 15.05.2022.
- A Project Expo to showcase the final year projects was organized for B.E VIII Sem Outgoing Batch of 2020-24 on 06.05.2024. Prof. L. Sivaramakrishna, MED, OU and Mr. Krishna Rao, Ex-Group Director -RCIand Adjunct Professor in MED adjudicatedthe event.

5. Review of the following for the BE students to be admitted during 2024-25:
   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 2024-25 were reviewed.

6. Review of the following for the BE students admitted during 2023-24:
   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 2024-25 were reviewed.

7. Review of the following for the BE students admitted during 2022-23:
   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 2024-25 were reviewed.

8. Review of the following for the BE students admitted during 2021-22:
   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 2024-25 were reviewed.

9. Review of the following for the ME (ADM) students to be admitted during 2024-25:
   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 2024-25 were reviewed.

10. Clarifications sought and suggestions given by the members.

- Prof. Venkatesham, IITH has recommended "Robotics and Automation" as the title for the Honours program in place of "Robotics" program as the opportunities in "Robotics" Program in research/placements are very less and also by adding Automation it will increase the scope for the students of Mechanical Engineering towards Placements and Higher Studies.

- Prof. Venkatesham suggested to use Slow track/Fast track in place of Slow learners/ Fast Learners.

- Dr. Venkatesham enquired whether the honors students completed the NPTEL course stipulated or not, the HOD clarified that all the 17 students have completed the course.

- Prof Jeevan Jaidi, BITS Hyderabad enquired about the criteria for admission into category-B seats .

- Prof. KumaraSwamy Gupta, Director, IIIT Idupulapaya has asked about the number of credits for the Robotics Honours program of BE students.

- Mr. G. Krishna Rao, Retd. Scientist "H", RCI-Hyderabad, Adjunct Professor, MED enquired whether any prior information given to students for conducting Quiz tests.

- Prof. Gupta enquired about the faculty for Skill Development courses (SDC) whether they are from inside the college or External expertise.

- Prof. Venkatesham suggested to incorporate the Industrial Engineering Course and Corresponding Lab under the Professional Electives in Sem-7 of BE in the area of Industrial Engineering.
- Prof. Venkatesham suggested to include the course Industry 4.0 as professional electives in the B.E VIII Sem.
- Prof. KumaraSwamy Gupta asked about the softwares used in the CFD lab in Semester-7.
- Prof. Venkatesham recommended to change the title of one course under "Robotics" honours program. The title "Introduction to Industrial Robotics & Industry 4.0" be changed as "Introduction to Robotics & Automation".
- Prof. Jeevan Jaidi expressed concern about the non-availability of PG students during admission inspite of two stipends i.e., Gate stipend and that from the BITS institute.
- Prof. Jeevan Jaidi recommended to have collaboration with "Centre of Excellence" available in IIT/BITS/NIT/DMRL/DRDO etc. for student projects/publications.
- Prof. Jeevan Jaidi further proposed to have guest lectures from ZF Technologies Hyderabad, an Automotive Design Company and collaborating with the same in getting expertise to the Department.
- Prof. Venkatesham recommended a new course "Embedded C Programming" is introduced in the Robotics Honours Program in place of Industry 4.O.

11. The lab courses for first year for Civil, EEE and ECE students i.e.
Engineering workshop-I (Sem-I) &
Engineering Workshop-II (Sem-II) are proposed to be combined into a single course with suitable trades offered for the respective branches as shown in Annexure-I.

12. 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	Addition	Deletion	Faculty suggested	BOS Member approved
III	Materials Engineering	-	**Unit-I** Peritectoid and monotectic **Unit-II** brief introduction of Age Hardening **Unit-III** Effect of dislocations on plastic deformation; **Unit-IV** Effect of	Mr. D. Govinda Rao & Mr. K. Veladri	Dr. B. Venkatesham

			metallurgical variables on fatigue of metal, Low cycle fatigue, Cumulative fatigue damage; Creep deformation mechanisms **Unit-V** Super alloys: Hastelloy, Inconel-composition, properties and applications		
III	Mechanics of Materials	**Unit-III** Shear stress in circular sections.	**Unit-I** Bars of uniform strength. Compound bars. **Unit-III** I- and T-, standard steel and hollow sections. **Unit-V** Stresses in compound cylinders.	Dr. J. Anjaneyulu	Dr. B. Venkatesham
IV	Fluid Mechanics and Hydraulic Machines	-	**Unit-III** separation of boundary layer;	Dr. P.V. Rao	Dr. Kumara Swamy Gupta
V	Heat Transfer	**Unit-I** Composite slabs and cylinders,	**Unit-I** Composite structures	Dr. C. Gururaja Rao	Dr. Jeevan Jaidi
V	Kinematics of Machines	**Unit-II** Acceleration analysis of planar mechanisms involving tangential and radial acceleration components.	**Unit-II** including **Unit-III** Hooke's joint. **Unit-IV** and for oscillating motion - roller follower	Mr. B. Naga Manohar	Dr. B. Venkatesham
V	Manufacturing Processes	**Unit-III** Classification of welding processes and gas cutting	**Unit-I** colour code for patterns, **Unit-II** Inspection and testing of casting.	Mr. D. Govinda Rao	Dr. B. Venkatesham

			Unit-III Solid state welding processes - Friction welding, Forge welding, Explosive welding and ultrasonic welding, **Unit-IV** and Electro slag welding.		
V	Design of Machine Elements	-	**Unit-I** Design of cotter; Design of components subjected to impact loading. **Unit-III** splined shafts Flexible Couplings. Design of pulleys **Unit-V** Design of power Screws; Eccentric	Mr. B. Naga Manohar	Dr. B. Venkatesham
V	CAD/CAM	-	**Unit-I** circle and helix **Unit-II** **CAD Database:** CAD Database and structure. **Unit-IV** Programming methods **Unit-V** Elements;	Mr. D. Govinda Rao	Dr. B. Venkatesham
VI	Metrology and Instrumentation	**Unit-II** Gear measurement - numericals **Unit-III** Numericals on static characteristics of instrument. **Unit-IV** Numericals on gauge factor of strain gauge.	**Unit-II** General Geometric tests for testing machine tools – Lathe, drilling and milling machines. **Unit-III** Calculation of Uncertainty, **Unit-IV** Adjacent arm and self-compensating gauges.	Mr. B. Sandeep	Dr. B. Venkatesham

VI	Dynamics of Machines	**Unit-II** Conditions required for balancing of radial engines	**Unit-II** V type engines and Radial engines. **Unit-III** **clutches**-single plate, cone and centrifugal clutches.		Dr. B. Venkatesham
VI	Machine Design	-	**Unit-III** Introduction to design of gear box.	Dr. J. Anjaneyulu	Dr. B. Venkatesham
VI	Metal Cutting and Machine Tools	-	**Unit-IV** Metal removal rate in LBM and EBM	Mr. D. Govinda Rao	Dr. Jeevan Jaidi
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,	**Unit-IV** heating & cooling with humidification and dehumidification and adiabatic dehumidification, adiabatic chemical dehumidification	Dr. C. Gururaja Rao	Dr. Jeevan Jaidi&Dr. Kumara Swamy Gupta
VI	Theory of Machine Lab	**Experiments:** 1. To study the motion and analyzing forces in gears. 2. To study free vibrations of various beams. **3.** To analyze impact test on cantilever beam.	**Experiments:** 1. To analyze a 1- DOF system subjected to un damped and damped Forced Vibrations using MATLAB. 2. To analyze a 1- DOF system subjected to un damped and damped Free Vibrations using SIMULINK.	Mr. B. Naga Manohar	Dr. B. Venkatesham

			3. To analyze a 1- DOF system subjected to un damped and damped Forced Vibrations using SIMULINK.		
VI	Machine Tools and Metrology Lab	**Experiments:** 1. Surface roughness measurement using Talysurf. 2. Angular measurement using Bevel protractor and sine bar.	**Experiments:** 1. Design of snap gauge.	Mr. B. Sandeep	Dr. B. Venkatesham
VII	Finite Element Analysis	-	**Unit-III** Two dimensional stress analysis and treatment of boundary conditions.	Mr. B. Naga Manohar	Dr. B. Venkatesham&Dr. Kumara Swamy Gupta
VII	Computational Fluid Dynamics		**Unit-I** Momentum and Energy equations **Unit-III** von Neumann analysis **Unit-IV** Thomas algorithm ADI methods O, H, C; Grid quality parameters: Aspect Ratio, grid density, skewness, tet Vs hex. **Unit-V** Exponential scheme, power law scheme. Solution	Dr. P.V. Rao	Dr. Kumara Swamy Gupta &Dr. Jeevan Jaidi

			algorithm for pressure velocity coupling in steady flows		
VII	Computer Aided Engineering Lab	**Experiment:** Buckling analysis of columns.	**Experiment:** Demonstration of non-linear crash analysis.	Dr. J. Anjaneyulu	Dr. B. Venkatesham
VIII	Product Design and Development	**Unit-III** Concept testing and market analysis. **Unit-IV** Design principles, design for manufacturing and assembly, quality control during design, prototyping. **Unit-V** Types of value, functions, value analysis job plan, value analysis tests, costs reduction through VE. elements	**Unit-III** Research and new product development. **Unit-IV** Interaction between the functions of design, manufacture, quality, testing, and marketing. **Unit-V** Concepts in product development: estimation of costs for manufacture. product design, group technology, concepts of concurrent engineering. threads views,	Dr. M. Gayatri	Dr. B. Venkatesham
VIII	Renewable Energy Systems	**Unit-I** Introduction and classification of Renewable Energy Systems.	**Unit-I** Photo-voltaic conversion efficiency, performance characteristics of solar cells as a function of light intensity, temperature and cell area, solar cell module and arrays. **Unit-III** vapor dominated systems; Liquid	Dr. C. Gururaja Rao	Dr. Jeevan Jaidi

			dominated systems. Petro thermal systems and Geo pressure systems. Ocean thermal energy power plant development; Closed and open cycles: advantages and operating difficulties. working of heaving float type, pitching type, heaving and pitching float type, oscillating water column type and surge devices. **Unit-V** Digester design considerations of bio-gas plants.		
VIII	Composite Materials	-	**Unit-II** Gel time test for resins, curing cycle. **Unit-V** Laminate Strength: First ply Failure, Fiber Failure.	Mr. B. Sandeep	Dr. B. Venkatesham
VIII	Power Plant Engineering		**Unit-I** Properties of Coal; and their choice, Coal storage systems; **Unit-II** and Heat rejection, Corrosion and feed water treatment; **Unit-III** Storage and Pondage, Classification of dams and spillways.	Dr. C. Gururaja Rao	Dr. Kumara Swamy Gupta

			Unit-IV Radiation Hazards and Shielding.		
M.E. I	Mechanical Vibrations	-	**Unit-V** Limit cycle, perturbation method	Dr. J. Anjaneyulu	Dr. B. Venkatesham
M.E. II	Finite Element Method	**Unit-III** by using two point formula **Unit-IV** slab	**Unit-II** and Forms; Analysis of frames with two translations and a rotational degree of freedom at each node. **Unit-III** Finite element modeling of Axisymmentric solids subjected to axisymmetric loading with triangular elements. **Unit-IV** Analysis of a uniform shaft subjected to torsion using Finite Element Analysis. **Unit-V** 1-d Finite Element formulation of an incompressible fluid. Potential flow problems. Introduction to finite element formulation of three dimensional structural problems.	Dr. J. Anjaneyulu	Dr. B. Venkatesham&Dr. Kumaraswamy Gupta
M.E. II	Vibration Analysis Lab	Expt: Impact test on cantilever beam using FFT analyser and Lab VIEW Software.	Expt: To analyze a 1-DOF free and forced vibration systems using SIMULINK	Dr. V.B.S. R. Prasad	Dr. B. Venkatesham

		Analyzing vibrational behaviour of a real time application of a mechanical engineering component composite leaf spring. Analyzing vibrational behaviour a real time application of electric motor.	To analyze a Multi - DOF free and forced vibration systems using SIMULINK Vibration Analysis of spring mass system and it's data acquisition using Lab VIEW Software		

The meeting concluded at 1.30 pm.

Name of the Expert	Signature
Dr. B. Venkatesham Subject Expert	
Dr. Jeevan Jaidi Subject Expert	
Dr. A.V.S.S. Kumara Swamy Gupta Subject Expert	
Dr. B. Radhakrishna Prasad UG-Alumni	
Mr. Rahul Sai PG-Alumni	
Dr. T. Ramamohan Rao Chairman & HOD	