VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
(Sponsored by Vasavi Academy of Education)
(Affiliated to Osmania University & approved by AICTE)
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06.06.2022

MINUTES OF MEETING OF BOARD OF STUDIES IN PHYSICS (BOS) HELD ON 04.06.2022 (SATURDAY) AT 2.30PM

The following members were present for the meeting of Board of Studies (in Physics) held on 04.06.22 at 02.30 PM in the college campus.

S.No	Name	Designation	Category
1.	Dr. A. S. Sai Prasad	Professor and HOD Department of Physics Vasavi College of Engineering Hyderabad	Chairman, BOS, Physics
2.	Dr. D. Karuna Sagar	Professor and Head Department of Physics Osmania University, Hyderabad	Osmania University nominee
3.	Dr. Anjan Kumar Giri	Professor, Department of Physics, Indian Institute of Hyderabad (IIT-H)	Member (Subject expert)
4.	Dr. S. Srinath	Professor, School of Physics University of Hyderabad	Member (Subject expert)
5	Dr. M. Srinivas	Professor and Chairman, BOS in Physics, Department of Physics, Osmania University, Hyderabad	Member (Subject expert)
6	Dr. Haranath	Associate Professor Department of Physics NIT- Warangal, Warangal	Member (Subject expert)
7.	Dr. S. V. Manorama	Principal Scientist, IICT, Hyderabad	Industry/ Research Institution Member (Subject expert)
8.	Dr P Venkateswara Rao	Assoc. Prof. Department of Physics, VCE, Hyderabad	Member
9	Dr.V. Ravi Kumar	Assoc. Prof. Department of Physics, VCE, Hyderabad	Member
10	Dr. G. Ramadevudu	Sr. Asst. Prof. Department of Physics, VCE, Hyderabad	Member
11	Mr. R. Naga Raju	Asst. Prof. Department of Physics, VCE, Hyderabad	Member
12	Dr. Vanita Thakur	Asst. Prof. Department of Physics, VCE, Hyderabad	Member

Prof. A. S. Sai Prasad, Head and chairman, BOS in Physics welcomed the members. He informed the members that the Department of Physics has prepared a draft syllabus to be offered in B.E first year I and II semesters and also open electives courses with effect from the 2022-2023.

He outlined the revisions made in the syllabi compared with previous syllabi. He informed to the members that proposed syllabi are prepared after consulting the respective Heads of Engineering Departments of the college.

Then, the following agenda items were taken up for consideration:

1. **To Confirm the Minutes of the meeting of BoS in Physics, held on 5th August 2021**

   The minutes of the meeting of BOS meeting held on 05.08.2021 have been circulated to the members for their comments. The members approved the minutes of the Meeting of BoS in Physics, held on 5th August 2021.

2. **Action taken report on the resolutions of BoS meeting in Physics, held on 5th August 2021**

   Action Taken Report:

Item No	Members Suggestions	Action Taken report
3	The revised the mission statement of the Department of Physics	The revised statement is "To imbibe spirit of scientific temperament and instill logical and analytical approach to budding engineers. This statement has to be approved.
4	Course Outcome statements can be refined further by revising the Blooms taxonomy verbs.	As per the suggestions of the members the course outcomes are revised with appropriate highest level of Bloom's taxonomy to each CO.
7	Review of syllabi of theory courses offered by the Department of Physics to B.E I and II semesters for the year 2021-22	The suggestion given by the members are incorporated in the syllabi.

3. **Approval of proposed theory syllabi of the courses offered in I and II semesters of B.E program by the Department of Physics w.e.f 2022-2023 academic year.**

   The syllabi of CSE, CSE (AI &ML) and IT, ECE and EEE, Civil and Mechanical Engineering have been prepared separately. The proposed syllabi of theory courses to be implemented w.e.f the academic year 2022-23 are given below.

S.No	Title of the Course	Year and Semester	Branch
1	Semiconductors and Optoelectronic devices	I B.E I Semester	CSE and IT
2	Optics, Acoustics and Sensors	I B.E II Semester	Civil Engineering
3	Quantum Mechanics Material Science	I B.E II Semester	ECE and EEE
4	Engineering Physics	I B.E II Semester	Mechanical Engineering

Curriculum revision has taken up after collecting feedback from Heads of the Engineering Departments on the existing syllabi. Minor revisions and re-organization of Units have been done. The following are the revisions made in theory curriculum as per the suggestions of BOS members:

Semiconductors and Optoelectronic Devices [CSE, CSE (AI &ML) and IT Branches]

Topics deleted	Topics added	Remarks
• Space lattice, Basis, primitive and non-primitive unit cells, Bravais lattices and crystal systems • Wave-particle duality • uncertainty principle • Classification of materials • Intrinsic semiconductors, extrinsic semiconductors • He-Ne laser • Introduction, total internal reflection • evanescent field, • light sources for optical fibers	1. Crystallography applications relevant to computer science and engineering. 2. Wave packet, group velocity and phase velocity 3. Potential barrier-quantum tunneling problem. 4. Representation of Qubit, applications of quantum computing. 5. PN junction diode current equation. 6. Applications of semiconductor devices to computer architecture. 7. applications of lasers including computer devices such as memory, printers, and interconnects. 8. application of optical fibers including broad band communications.	• Some of the above topics deleted are part of curriculum at eleventh and Twelfth level and hence deleted. • Topics 1, 3, 4, 6 added were proposed by the external members • Topics 2, 7, 8 added were proposed by the department faculty members • Topics 5 suggested by Head, Department of IT.

Quantum Mechanics and Material Science [ECE and EEE Branches]

Topics deleted	Topics added	Remarks
• Space lattice, Basis, primitive and non-primitive unit cells, • Bravais lattices and crystal systems • NaCl and ZnS structure. • Wave-particle duality, uncertainty principle • Classification of solids • He-Ne (gas Laser) • total internal reflection • evanescent field	1. Rotating crystal method and Debye-Scherrer method 2. Crystallography applications related to Electronics and communication engineering. 3. wave packet, group velocity and phase velocity, 4. Representation of Qubit, applications of quantum computing. 5. Hall effect and its applications. 6. Applications of semiconductor devices to computer architecture 7. optoelectronic applications of lasers. 8. magnetic materials and their applications including electro-magnetic shielding. 9. electronic applications of dielectric materials. 10. Applications of superconductors in communications.	• Some of the above topics deleted are part of curriculum at eleventh and Twelfth level and hence deleted. • Topics 1, 2, 4,5, 6,10 added were proposed by the external members • Topics 3, 7, 8, 9 added were proposed by the department faculty members

Optics, Acoustics and Sensors (Civil Engineering)		
Topics deleted	**Topics added**	**Remarks**
• superposition principle, • Rayleigh criterion for limit of resolution • Brewster law and Malus law • total internal reflection, • evanescent field • Acoustic Emission Sensor	1. Relevant applications of wave optics in the field of civil engineering such as stress management. 2. applications of lasers including highway engineering. 3. sound proofing applications used in civil and building Engineering. 4. ultrasonic non-destructive testing applications in civil engineering.	• Some of the above topics deleted are part of curriculum at eleventh and Twelfth level and hence deleted. • Topics 1, 3, 4 added were proposed by the external members • Topic 2 added were proposed by the department faculty members

ENGINEERING PHYSICS (Mechanical Engineering)		
Topics deleted	**Topics added**	**Remarks**
• Unit-I waves and Oscillation • Brewster law and Malus law • total internal reflection, V-number, Inter and intra modal dispersion, evanescent field • Liquefaction of air by Linde Process	1. New Unit on Magnetic materials is added 2. Relevant applications of wave optics in the field of mechanical engineering. 3. applications of lasers in mechanical engineering such as Laser Marking, Laser Drilling, Laser Cutting, Laser Welding. 4. Applications of optical fiber sensors in mechanical measurements. 5. Ultrasonic non-destructive testing applications in mechanical engineering. 6. Applications of cryogenic liquids including cryogenic treatment of mechanical machine tools.	• Some of the above topics deleted are part of curriculum at eleventh and Twelfth level and hence deleted. • Unit-I waves and Oscillation is removed as per the request of the Head Department of Mechanical Engineering as is being covered in their revised syllabi • New Unit on Magnetic materials is added is as per the request of Head Department of Mechanical Engineering • Topics 3, 4, 5 added were proposed by the external members • Topic 6 added were proposed by the department faculty members

4. To discuss and approve the proposed laboratory courses syllabi offered in I and II semesters of B.E program by the Department of Physics w.e.f 2022-2023 academic year.

The proposed list of experiments for laboratory courses of CSE, CSE (AI &ML) and IT, ECE and EEE, Civil and Mechanical Engineering listed below.

S.No	Title of the Course	Year and Semester	Branch
1	Semiconductor and Optoelectronics Lab	I B.E I Semester	CSE. CSE (AI &ML) and IT
2	Engineering Physics lab	I B.E II Semester	ECE and EEE
3	Applied Physics lab	I B.E II Semester	Mechanical Engineering and Civil Engineering

The external members appreciated the incorporation of experiments

1. comparative study of I-V characteristics of PN diode and Zener
2. comparative study of I-V characteristics of LED and Photodiode

The external members also appreciated the incorporation of new experiments

1. Estimation of distance by laser light source
2. Assessment of velocity of ultrasonic waves in liquids

5. To discuss and approve the proposed open elective theory courses syllabi offered to B.E students by the Department of Physics w.e.f 2022-2023 academic year.

The following open electives are proposed to be offered by the Department of Physics w.e.f 2022-23.

S.No	Title of the Course	Year and Semester	Credits
1	Smart Materials and Applications	II B.E III Semester	02
2	Thin Film Technology and Applications	III B.E V Semester	03

No revision in the syllabi of above courses is suggested by the experts. Hence the same curriculum will continue.

6. Analysis of B.E. I Semester SEE results.

Semester End Examinations for B.E I semester were conducted in the month of April 2022 and the results have been declared on 18th May 2022.

Prof. A.S. Sai Prasad explained the course-wise result analysis and branch-wise analysis.

External experts suggested to give more assignments to Civil, Mechanical and EEE students to improve the pass percentage.

7. Discussion on various funding opportunities in the thrust areas of R & D

Members have suggested that:

- Try for collaborative research work with HCU, NIT-W and IICT using various schemes recently proposed by the MHRD. Visit their websites and apply as per the research topics listed at a specified institution
- Make some MOUS with institutions like IICT

Dr A S Sai Prasad
Head, Dept. of Physics &
Chairman,BoS