VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

(Sponsored by Vasavi Academy of Education)
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17.05.2024

MINUTES OF MEETING OF BOARD OF STUDIES (BoS) IN PHYSICS held on 17.05.2024 (Friday) at 11.00 AM

The following members were present for the meeting of Board of Studies (in Physics) held on 17.05.2024 at 11.00 AM 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	Sr. Professor, Dean & BoS (Chairman), Department of Physics Osmania University, Hyderabad	Osmania University nominee
3.	Dr. S. Srinath	Professor, School of Physics University of Hyderabad	Member (Subject expert)
4.	Dr. J. Suryanarayana	Professor, Department of Physics IIT-Hyderabad	Member (Subject expert)
5	Dr. M. Srinivas	Professor and Head, Department of Physics, Osmania University, Hyderabad	Member (Subject expert)
6	Dr. Haranath	Professor, Department of Physics NIT- Warangal, Warangal	Member (Subject expert)
7.	Dr. M. Sree Ramana	Scientist-F, RCI, Hyderabad	Member (Subject expert)
8.	Dr P Venkateswara Rao	Assoc. Prof. Department of Physics, VCE, Hyderabad	Member
9	Dr. G. Ramadevudu	Sr. Asst. Prof. Department of Physics, VCE, Hyderabad	Member
10	Dr. R. Nagaraju	Asst. Prof. Department of Physics, VCE, Hyderabad	Member
11	Dr. Vanita Thakur	Asst. Prof. Department of Physics, VCE, Hyderabad	Member

Prof. A. S. Sai Prasad, Head and BoS Chairman, in Physics welcomed the members. He briefly explained to the new members about the scheme of examination, evaluation, credit hours etc. Prof. A.S. Sai Prasad 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 open electives courses with effect from the Academic Year 2024-2025.

He outlined the revisions made in the syllabi compared with previous syllabi and informed that only minor changes have been made in the existing syllabi of 2023-2024. He told to the members that proposed syllabi are prepared after consulting the respective Heads of Engineering Departments of the college and student feedback.

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

1. **To Confirm the Minutes of the meeting of BoS in Physics, held on 26th June 2023**

   The minutes of the meeting of BoS meeting held on 26.06.2023 have been circulated to the members for their comments. The members approved the minutes of BoS Meeting held on 26.06.2023.

2. **Action taken report on the resolutions of BoS meeting in Physics, held on 26th June 2023**

   Action Taken Report:

Item No	Members Suggestions	Action Taken report
3	Revise the first course objective of "Semiconductors and Optoelectronic Devices" course.	Revised as per the suggestions.
4	Topics that are deleted from the previous syllabi shall be taught as prerequisites both in theory and Labs wherever required.	As per the external members suggestions, deleted topics were taught in the theory classes as well as in the laboratory sessions as pre-requisites.

3. **Discuss and approval of theory syllabi of courses offered in I and II semesters of B.E program by the Department of Physics w.e.f 2024-2025 academic year.**

   The draft syllabi designed for CSE and IT, ECE and EEE, Civil and Mechanical Engineering have been made ready for discussion. The proposed titles of theory courses w.e.f. the academic year 2024-25 are given below.

S.No	Title of the Course	Year & Semester	Branch
1	Physics of Semiconductors and Optoelectronic devices(PSOD)	I B.E I Semester	CSE, CSE (AIML) and IT
2	Optics and Acoustics and Sensors (OAS)	I B.E II Semester	Civil Engineering
3	Quantum Mechanics and Materials Science(QMMS)	I B.E II Semester	ECE and EEE
4	Engineering Physics (EP)	I B.E II Semester	Mech. Engineering

1. As per the suggestion/ feedback received from the ***Head, Department of Mechanical Engineering,*** the syllabus designed to Mechanical engineering students is revised by removing the unit on ***Wave Optics*** and in its place a unit on nanomaterials has been added.
2. As per the suggestion of ***Head, Department of Civil Engineering***, in the last unit basics of thermodynamics are additionally incorporated.

The following are the revision made in the proposed syllabi:

S.No	Branch	Name of the Course	Revisions	
			Topics removed	Topics added
1.	CSE CSE (AIML) IT	Physics of Semiconductors and Optoelectronic Devices (PSOD)	No topics Deleted from the syllabus offered in A.Y 2023-24	No new topics added.
2.	ECE EEE	Quantum Mechanics and Materials Science (QMMS)	Fermi-Dirac statistics	No new topics added
3.	CIVIL	Optics, Acoustics and Sensors (OAS)	Linear Variable Differential Transformer (LVDT)	Fundamentals of Thermodynamics: thermodynamic equilibrium, zeroth law, first law and second law of thermodynamics, work done in isothermal and adiabatic process.
4.	Mech	Engineering Physics (EP)	**Unit-I** Wave optics containing Interference, diffraction and polarization deleted	New unit on nanomaterials added.

After thorough discussion, the external members have suggested the following revisions:

1. Instead of removing Fermi-Dirac statistics mathematical quantitative analysis, keep it as Fermi-Dirac statistics (qualitative) for ECE and EEE branches.
2. For civil engineering branches, in addition to suggested topics in the draft syllabus, the following topic can be included- Carnot cycle (Qualitative) treatment.
3. In the mechanical engineering branch syllabus, the following topics are to be included in the last unit on nanomaterials- X-Ray Diffraction: Determination of crystallite size, stress and strain.

As per the above suggestion made by the external members, additional topics suggested are included in the respective syllabi.

The members approved the theory syllabi to be offered by the Department of Physics to B.E students in I and II semesters to CSE, CSE (AI&ML), IT, ECE, EEE, Mechanical and Civil Engineering Branches with effect from the academic Year 2024-2025.

4. Discuss and approve laboratory courses syllabi offered in I and II semesters of B.E program by the Department of Physics w.e.f 2024-2025 academic year.

Prof. A.S. Sai Prasad informed to the members that no changes were made to list of experiments offered for B.E students. However, as per the ***suggestion of Head Department of EEE***, for better mapping of theory and lab courses, additional experiment on determination of dielectric constant of a material is included.

The members are requested to deliberate on the proposed list of experiments for laboratory courses of CSE, CSE (AI &ML), IT, ECE, EEE, Civil and Mechanical Engineering branches.

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

S.No	Branch	Name of the Course	Experiments	
			Deleted	Added
1.	CSE CSE (AIML) IT	Semiconductor Physics and Optoelectronics Lab	No deletions	No additions
2.	ECE EEE	Engineering Physics lab	No deletions	1. Determination of Dielectric constant.
3.	CIVIL Mech	Applied Physics lab	No deletions	No additions

After the discussion, the members approved the laboratory syllabi to be offered by the Department of Physics to B.E students in I and II semesters to CSE, CSE (AI&ML), IT, ECE, EEE, Mechanical and Civil Engineering Branches with effect from the academic Year 2024-2025.

5. Discuss and approve open elective theory courses syllabi offered to B.E students by the Department of Physics w.e.f 2024-2025 academic year.

Prof. A.S. Sai Prasad informed to the members that only minor changes were made in the contents of syllabi of open elective theory courses. The following open electives are proposed to be offered by the Department of Physics w.e.f 2024-25.

S.No	Title of the Course	Year & Semester	Credits
1	Fundamentals of Smart Materials and applications (FSMA)	II B.E III Sem	02
2	Fundamentals of Thin Film Technology and Applications(FTTA)	III B.E V Sem	03
3	Fundamentals of Vacuum Technology and applications(FVTA)	III B.E V Sem	03
4	Introduction to nanotechnology (INT)	III B.E VI Sem	03

Stream based Physics Open Electives			
A	**Materials Science for Engineers (MSE)**		
1	Fundamentals of materials Science	II B.E III Sem	02
2	Synthesis and Properties of Materials	II B.E IV Sem	03
3	Material characterization techniques	III B.E V Sem	03
4	Functional Materials and applications	III B.E VI Sem	03
B	**Semiconductor Physics and Device Applications (SPDA)**		
1	Essentials of Semiconductor Physics	II B.E III Sem	02
2	Basic Semiconductor Devices	II B.E IV Sem	03
3	Advanced Semiconductor Devices	III B.E V Sem	03
4	Optoelectronic Devices	III B.E VI Sem	03

S.No	Name of the Course	Revisions	
		Topics removed	Topics Added
1.	Fundamentals of Smart Materials and applications	Unit-IV: electro chromic devices deleted.	UNIT I: Introduction to smart materials added in place of unit-IV.
2.	Fundamentals of Thin Film Technology and Applications	No Changes have been made in syllabus approved for 2023-24 Academic year.	
3.	Fundamentals of Vacuum Technology and applications	No Changes have been made in syllabus approved for 2023-24 Academic year.	
4.	Introduction to nanotechnology	Unit-I: Reduction of dimensionality Unit-II: Material behaviour at reduced dimensions, Surface scattering. Unit-III: Self-assembly, spar plasma sintering. Unit-V: Nano sensors and Nano catalysts.	No new topics added.
5.	Stream based Physics Open Electives	No Changes have been made in syllabus approved for 2023-24 Academic year.	

Members advised to include a topic "Ion beam sputtering" in unit-II of Fundamentals of thin film technology and applications open elective course.

The members also advised to offer a new open elective on "Quantum technologies" in the coming years. Prepare a draft syllabus for this course and circulate for suggestions.

The members approved the syllabi of open electives offered at different semesters to the B.E students by the Department of Physics with effect from the academic Year 2024-2025.

6. Publications and other research details etc.

The details of research publications, patents and other details are appraised to the external members by Prof. A.S. Sai Prasad. He briefed up the number of publications and also informed that few faculty members along with other departments applied for ISRO projects. Prof. A.S. Sai prasad also informed to the members that

1. All the faculty members of the Department are with Ph.D degree.
2. Two Ph.D. students of Dr. G. Ramadevudu, Assistant Professor (Sr) submitted their thesis to Osmania University, Hyderabad.

The members have made the following suggestions:

1. Appreciated the faculty members for their publication in Scopus/Sci journals
2. Advised to establish at least one experimental equipped for characterisation of samples prepared as at present Department has research lab equipped with furnace and ball mill.
3. Find the ways for collaborative research.

The meeting ended with vote of thanks.

Prof. A. S. Sai Prasad
Head & Chairman, BoS in Physics