VASAVI COLLEGE OF ENGINEERING (AUTUNOMOUS)
Ibrahimbagh, Hyderabad – 500031

DEPARTMENT OF PHYSICS

27.05.2019

MINUTES OF THE MEETING OF THE BOARD OF STUDIES IN PHYSICS HELD ON 25.05.2019 AT 3.00 PM IN V- BLOCK CONFERENCE HALL VASAVI COLLEGE OF ENGINEERING

The following members were present for the meeting Board of Studies (in Physics) held on 25.05.19 at 3.00 PM in V- block conference hall:

S.No	Name	Designation	Category
1.	Dr. G. Prasad	Professor and Head Department of Physics Osmania University, Hyderabad	Osmania University nominee
2.	Dr. Anjan Kumar Giri	Professor, Department of Physics, Indian Institute of Hyderabad (IIT-H)	Member (Subject expert)
3.	Dr. S. Srinath	Professor Department of Physics University of Hyderabad	Member (Subject expert)
4.	Dr. V. Satyanarayana Murthy	Asst. Professor BITS (Pilani), Hyderabad Campus	Member (Subject expert)
5	Dr. P. K. Jain	Scientist-F and Team Leader Nano Carbon Materials ARCI, Hyderabad	Industry/ Research Institution Member (Subject expert)
6	Dr. A. S. Sai Prasad	Professor and HOD Department of Physics Vasavi College of Engineering Hyderabad	Chairman, BOS, Physics
7.	Dr P Venkateswara Rao	Assoc. Prof. Department of Physics, VCE, Hyderabad	Member
8.	Dr. V.Ravi Kumar	Assoc. Prof. Department of Physics, VCE, Hyderabad	Member
9	Dr. G. Ramadevudu	Sr. Asst. Prof. Department of Physics, VCE, Hyderabad	Member
10	Mr. R. Naga Raju	Asst. Prof. Department of Physics, VCE, Hyderabad	Member

Prof. A. S. Sai Prasad, Head and chairman, BOS in Physics welcomed the members to the meeting. He informed the members that as per the guidelines of AITE model Curriculum with effect from the Academic Year 2019-20, Physics course will be offered in only one semester. He explained that for CSE,IT & CIVIL branches of B.E first year, branch specific physics syllabi is offered in I semester and remaining ECE,EEE,MECH branches will have physics syllabi in II semester w.e.f. AY 2019-20. Hence there is a need to revise the curriculum of Physics to be offered to first year B.E students. He outlined the salient features proposed syllabi to the members. He further added that the proposed syllabi are prepared in consultation with the Heads of Engineering Departments of the college.

The agenda items were taken up for consideration:

1. Confirmation of the Minutes of Meeting (MoM) of earlier Board of studies held on 14.05.2018

The minutes of the meeting are circulated to the members. After due deliberations members confirmed the minutes of the meeting of BOS in Physics held on 14.05.2018

2. Action taken report on the resolution of MoM of Board of studies held on 14.05.2018

Prof. A.S. Sai Prasad, Chairman, BOS, informed the members about the action taken on the resolutions taken in the earlier meeting held on 14.05.2018. The summary of the action taken report is given below:

S.No	Item No	Members Suggestions	Action Taken report
1	**Agenda item No.1** first year B.E Scheme of Instruction and Examination (CBCS)	Enhancing the laboratory duration to three hours per week from proposed 2 hours in the scheme.	1. In I semester the laboratory session for CSE, ECE and IT made to 3 hours duration. 2. In II semester the laboratory session for all branches civil, CSE, ECE, EEE, Mech and IT made to 3 hours duration.
2	**Agenda item No.2** approval of syllabus contents of Physics curriculum of B.E for I and II semesters	1. Incorporate some more topics in the contents of each unit 2. Add more number of reference books	1. All the topics suggested by the members unit-wise and branch – wise have been included in the syllabi. The revised syllabi was approved by the Academic Council. 2. All the suggested references books were added wherever required. The suggested books list was updated accordingly.
4.	**Agenda item No.3** Approval of lists of proposed experiments of Physics laboratory B.E I and II Semesters	1. Introduction of new experiments. 2. Branch-wise list of experiments can be drawn from the list of approved experiments	1. New experiments proposed were procured and were implemented in the curriculum 2. Branch-wise list of experiments were made. CSE and IT branches were placed under one group, ECE and EEE are placed in second group and Civil and Mechanical are placed in third group.

The members are satisfied with the action taken report and approved it.

3. Recommendation of first year B.E Scheme of instruction and Examination to be implemented w.e.f the Academic Year 2019-20.

The proposed B.E scheme contains physics theory course of 3+1 (3 lecture hours and one tutorial class) hours per week with four credits for either in I or II semesters and 3 (hours) duration physics laboratory course of one credit for all the branches of Engineering.

The ratio of marks of Semester End Examination (SEE) to Continuous Internal Evaluation (CIE) is in 60:40. The evaluation process of CIE includes conduct of quizzes, assignments, internal examinations. The Semester End Examination (SEE) for theory and laboratory will be conducted as per the scheme. Model schemes for CSE, ECE and Mech are shown below:

B.E (CSE) I Semester								
Course Code	**Name of the Course**	**Scheme of Instruction**			**Scheme of Examination**			
		Hours per Week			**Duration in Hrs**	**Maximum Marks**		**Credits**
		L	**T**	**P/D**		**SEE**	**CIE**	
THEORY								
U19HS110EH	English Language and Communication – I	2	-	-	3	60	40	2
U19BS110MA	Engineering Mathematics – I	3	-	-	3	60	40	3
U19BS110PH	**Semiconductor Physics and Optoelectronic devices**	**3**	**1**	**-**	**3**	**60**	**40**	**4**
U19ES120CS	Programming for Problem Solving	3	-	-	3	60	40	3
U19ES110EC	Introduction to Electronics Engineering	3	-	-	3	60	40	3
U19ES030CE	Engineering Drawing	1	-	2	3	60	40	2
PRACTICALS								
U19HS111EH	English Language and Communication Skills Lab – I	-	-	2	3	50	30	1
U19BS011PH	**Applied Physics Lab**	**-**	**-**	**2**	**3**	**50**	**30**	**1**
U19ES121CS	Programming for Problem Solving Lab	-	-	2	3	50	30	1
U19ES111EC	Introduction to Electronics Engineering Lab	-	-	2	3	50	30	1
	TOTAL	**15**	**1**	**10**		**560**	**360**	**21**
	GRAND TOTAL	**26**				**920**		

B.E (ECE) II Semester									
S. No.	**Course Code**	**Name of the Course**	**Scheme of Instruction**			**Scheme of Examination**			
			Hours per Week			**Duration in Hrs**	**Maximum Marks**		**Credits**
			L	**T**	**P/D**		**SEE**	**CIE**	
THEORY									
1	U19HS210EH	English Language and Communication – II	2	-	- -	3	60	40	2
2	U19BS210MA	Engineering Mathematics – II	3	-	-	3	60	40	3
3	**U19BS210PH**	**Quantum Mechanics and Materials Science**	**3**	**1**	**-**	**3**	**60**	**40**	**4**
4	U19ES240CS	Object Oriented Programming	3	-	-	3	60	40	3
5	U19ES250CE	Engineering Drawing	1	-	2	3	60	40	2
6	U19ES260EE	Basic Electrical Engineering	2	-	-	3	60	40	2
PRACTICALS									
7	U19HS211EH	English Language and Communication Skills Lab – II	-	-	2	3	50	30	1
8	**U19BS011PH**	**Applied Physics Lab**	**-**	**-**	**2**	**3**	**50**	**30**	**1**
9	U19ES231CS	Object Oriented Programming Lab	-	-	2	3	50	30	1
10	U19ES261EE	Basic Electrical Engineering Lab	-	-	2	3	50	30	1
		TOTAL	**14**	**1**	**10**		**560**	**360**	**20**
		GRAND TOTAL	**36**				**920**		

B.E (MECH) II Semester								
Course Code	**Name of the Course**	**Scheme of Instruction**			**Scheme of Examination**			
		Hours per Week			**Duration in Hrs**	**Maximum Marks**		**Credits**
		L	**T**	**P/D**		**SEE**	**CIE**	
THEORY								
U19HS210EH	English Language and Communication-II	2	-	-	3	60	40	2
U19BS210MA	Engineering Mathematics-II	3		-	3	60	40	3
U19BS020PH	**Applied Physics**	**3**	**1**	**-**	**3**	**60**	**40**	**4**
U19ES220CE	Engineering Graphics-II	1	-	2	3	60	40	2
U19ES210CS	Programming for Engineers	3	-	-	3	60	40	3
U19ES210CE	Engineering Mechanics	3		-	3	60	40	3
PRACTICALS								
U19HS211EH	English language and communication skills Lab-II	-	-	2	3	50	30	1
U19BS021PH	**Applied Physics Lab**	**-**	**-**	**2**	**3**	**50**	**30**	**1**
U19ES211CS	Programming Lab	-	-	2	3	50	30	1
U19ES221ME	Engineering Workshop –II	-	-	2	3	50	30	1
TOTAL		**15**	**1**	**10**		**560**	**360**	**21**
GRAND TOTAL		**36**				**920**		**21**

The members of Board of studies in Physics, agreed the schemes proposed for the A.Y 2019-20 and forwarded for approval in the Academic Council of the college.

4. Review and recommendation of contents of curriculum of Physics theory for B.E first year to all Branches of Engineering to be implemented w.e.f the Academic Year 2019-20.

Head Department of Physics, Prof. A.S. Saiprasad informed the basic philosophy of the draft contents. He narrated the difference and compared the earlier syllabi with the proposed one.

Salient Features

	2018-19	2019-20
Physics theory	Present in both I and II semesters for all Branches of Engineering	• Limited to only one semester. • CSE, IT and Civil will have in I semester • ECE, EEE and Mechanical will have in II semester.
No of classes for Week	2+1	3+1
Branch –wise syllabi	CSE, IT – common syllabi ECE and EEE - common syllabi Civil and Mechanical - common syllabi	• CSE, IT – common syllabi- I semester • Civil – I Semester (common syllabi to Civil and Mech) • ECE and EEE - common syllabi- II semester • Mechanical - II semester (common syllabi to Civil and Mech)
Physics Lab	Present in both I and II semesters for all Branches of Engineering alternate week	• CSE, IT and Civil will have in I semester regular weeks. • ECE, EEE and Mechanical will have in II semester regular weeks.
	Branch-wise experiments	Branch-wise experiments

Comparison between Previous Syllabus and proposed syllabus		
	2018-19 (existing)	**2019-20 (Proposed)**
CSE and IT	**I semester: <u>SEMICONDUCTOR PHYSICS</u>** **UNIT-I**: Fundamentals Of Crystal Structure **UNIT-II**: Band Theory Of Solids **UNIT-III:** Intrinsic And Extrinsic Semiconductors **UNIT-IV**: Transport Phenomenon In Semiconductors **UNIT-V**: Semiconductor interaction with radiation **II semester: <u>OPTOELECTRONIC DEVICES</u>** **UNIT-I**: Led And Photo-Detectors **UNIT-II**: Semiconductor Lasers **UNIT-III**: Optical Fibres **UNIT-IV**: Solar Cells **UNIT-V**: Sensors And Transducers	**SEMICONDUCTOR PHYSICS AND OPTOELECTRONIC DEVICES** **UNIT-I**: Fundamentals of crystal structure **UNIT-II**: semiconductor physics **UNIT-III**: fiber optics **UNIT-IV**: Led and Laser **UNIT-V** : photo detectors
ECE and EEE	**I semester: <u>WAVES AND OPTICS</u>** **UNIT-I:** OSCILLATIONS **UNIT-II:** WAVE OPTICS **UNIT-III**: LASERS **UNIT-IV:** OPTICAL FIBRES **UNIT-V:** EM THEORY **II semester: <u>QUANTUM MECHANICS AND SEMICONDUCTOR PHYSICS</u>** **UNIT-I**: INTRODUCTION TO QUANTUM MECHANICS **UNIT-II**: SOLUTION OF WAVE EQUATIONS **UNIT-III**: BAND THEORY OF SOLIDS **UNIT-IV**: INTRINSIC AND EXTRINSIC SEMICONDUCTORS **UNIT-V:** TRANSPORT PHENOMENON IN SEMICONDUCTORS	**QUANTUM MECHANICS AND MATERIAL SCIENCE** **UNIT-I**: Fundamentals Of Crystal Structure **UNIT-II**: Introduction to Quantum Mechanics **UNIT-III**: Band Theory of Solids **UNIT-IV**: Lasers and Optical Fibres **UNIT-V**: Materials Science
Civil and Mechanical	**I semester: <u>WAVES, OSCILLATIONS AND OPTICS</u>** **UNIT-I**: OSCILLATIONS **UNIT-II:** NON-DISPERSIVE TRANSVERSE AND LONGITUDINAL WAVES **UNIT-III:** ULTRASONIC WAVES **UNIT-IV:** WAVE OPTICS **UNIT-V:** EM THEORY **II semester: <u>APPLIED PHYSICS</u>** **UNIT-I:** LASER**S** **UNIT-II:** OPTICAL FIBRES **UNIT-III:** ACOUSTICS **UNIT-IV:** LOW TEMPERATURE PHYSICS **UNIT-V:** MATERIALS SCIENCE	**APPLIED PHYSICS** **UNIT-I:** Oscillations **UNIT-II:** Wave Optics **UNIT-III:** Lasers and Optical Fibres **UNIT-III**: Acoustics **UNIT-IV**: Low Temperature Physics

The chairman, BOS in Physics requested Dr. G. Ramadevudu, Assistant Prof (Sr) to present the contents of the proposed curriculum of B.E to the members. He informed that, based on the AICTE Model curriculum and the local needs of different Engineering Departments of the college the syllabi was designed separately as per the following groups of Branches in I and II semesters. The following suggestions on the contents have been given by the members:

1. **In CSE and IT syllabus**
    - Remove the topics compositional and substitutional impurities.
    - Shift Fermi-Dirac statistics to unit-II from Unit-I
    - Remove some of reference books which are not required.
    - Add the book M. Ali Omar, Elementary Solid State Physics,1e, Pearson,2002 in the references.
2. **In ECE and EEE syllabus**
    - Add the topic determination of lattice parameters for cubic crystals
    - Add the topic Burger circuit and energy of dislocation
    - Revise the order in unit-III
    - Add the topic calculation of carrier concentration in extrinsic semiconductors
3. **In Civil and Mechanical syllabi**
    - No changes proposed

All the above changes are incorporated in the draft syllabi.

The members of Board of Studies recommended proposed syllabi of First BE Physics I-semester or II-semester theory for the academic year 2019-2020 and forwarded it for the approval of Academic Council.

5. Review and recommendation of lists of experiments of Physics laboratory for B.E first year w.e.f the Academic Year 2019-20.

After due deliberations, members accepted the proposed list of experiments. The members suggested selecting the required experiments as per the necessity of the Branch of Engineering and offering accordingly. The faculty members in consultation with BOS of the department can frame the list of experiments for a particular branch.

The members enquired about the procurement of newly proposed equipment to conduct laboratory session. Prof. Sai Prasad informed that already proposed equipment is procured and multiple sets to conduct the practicals smoothly more number of sets will be procured in this academic year.

The members of Board of Studies recommended proposed syllabi of Physics lab to be offered to B.E first year student for the academic year 2019-2020 and forwarded it for the approval of Academic Council.

6. Recommendation of syllabi of proposed two and three credit open elective courses offered by the Department of Physics to B.E III to VI semesters for 2018-19 batch and 2019-20 batch admitted students.

The Department of Physics is proposed to offer the following open electives to B.E. students from III to VI semesters.

Sl. No.	Title of the Course	Course code	No. of Credits	Semester in which course to be offered			
				III	IV	V	VI
1	Smart materials and applications	U19OE310PH	02	✓			
2	Introduction to optoelectronic devices	U19OE410PH	03		✓		
3	Thin film technology and applications	U19OE420PH	03		✓		
4	Vacuum technology and applications	U19OE510PH	03			✓	
5	Fundamentals of Nano Materials and their Applications	U19OE610PH	03				✓

The members appreciated the efforts of the department to offer Open electives to B.E. students in fundamentals sciences.

The following suggestions were given by the members:

1. In the **open elective smart Materials**
   - Rename the unit –I as Piezo and Ferro materials
     Add following new books
   - K. Otsuka and C M Wayman, Shape memory materials, Cambridge university press, 1998.
   - T W Duerig, K N Melton, D Stockel, C M Wayman, Engineering aspects of shape memory alloys, Butterworth-Heinemann, 1990
2. In the **open elective Thin film technology and applications**
   - Add the topic physical vapour deposition in unit-II
   - Combine Unit-III and Unit-V as unit-V and name it as thin film devices and applications
   - Unit-III is entirely thin film material characterization techniques
3. In the **open elective Vacuum technology and applications**
   - Shift the topic leak ratre from unit-I to unit-IV
4. In the open elective **Fundamentals of Nano Materials and their Applications**
   - Rename the unit-V as carbon nano materials and applications
   - Include the topic Graphene

The above changes are carried out in the syllabi

The BoS, recommended the proposed syllabi of above mentioned open elective courses and credits to be implemented from the academic year 2019-20. The members suggested to implement the same syllabi for the students of A.Y 2018-19 and 2017-18 now moving into higher semesters.The syllabi is forwarded to Academic council for approval.

Prof. A.S. Sai Prasad
Head and chairman
Department of Physics

25.05.2019

Vasavi College of Engineering

Department of Physics

Meeting of Board of Studies in Physics on 25.05.19.

S.No.	Name	Designation	Signature
1.	Prof. G. Prasad University nominee	Head, Dept. of Physics Osmania University, Hyd.	
2.	Prof. Anjan kumar Giri IIT-H, Subject Expert (Member)	Professor, Dept. of Physics IIT-Hyderabad.	
3.	Prof. S. Srinath Subject Expert (Member)	Professor, Dept. of Physics University of Hyderabad	
4.	Dr. V. Satyanarayana Murthy Subject Expert (Member)	Dept. of Physics BITS-PILANI-Hyd	
5.	Dr. P. K. Jain Subject Expert/ Research org (member)	Senior Scientist & Center director, ARCI	
6.	Dr. A. SaiPrasad Chairman, BOS, VCE	Professor, Dept. of Physics Vasavi College of Engg, Hyd.	
7.	Dr. P. Venkateswara Rao (Member)	Assoc. Prof, Dept. of Physics Vasavi College of Engg, Hyd.	
8.	Dr. V. Ravi Kumar (Member)	Assoc. Prof, Dept. of Physics Vasavi college of Engg, Hyd.	
9.	Dr. G. Ramadevudu (Member)	Asst. Prof (Sr), Dept. of Phy Vasavi College of Engg, Hyd.	
10.	Mr. R. Nagaraju (Member)	Asst. Prof, Dept. of Physics Vasavi College of Engg, Hyd.	