

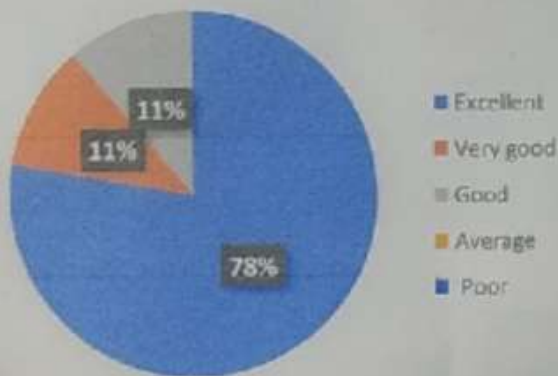


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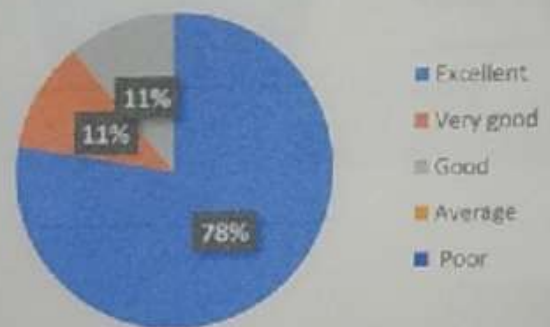
Analysis of Faculty Feedback on Physics UG Curriculum for the academic year 2018-19

Question wise analysis

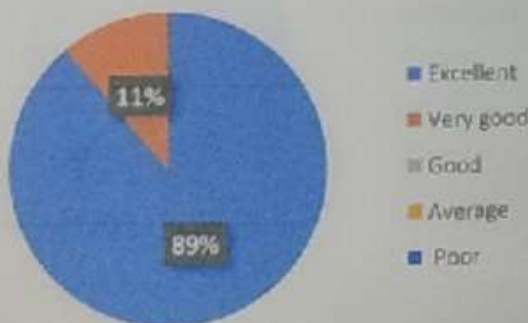
1. Course has suitable syllabus



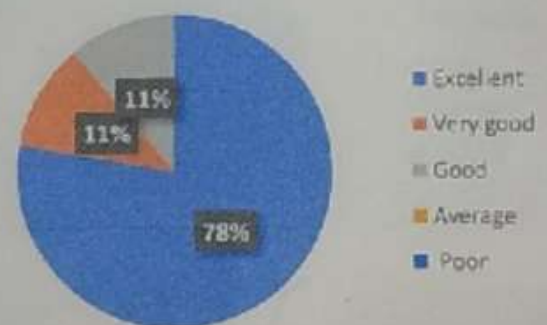
2. Aims and objectives of the syllabi are well defined and clear to students



3. Course content is followed by corresponding reference materials.

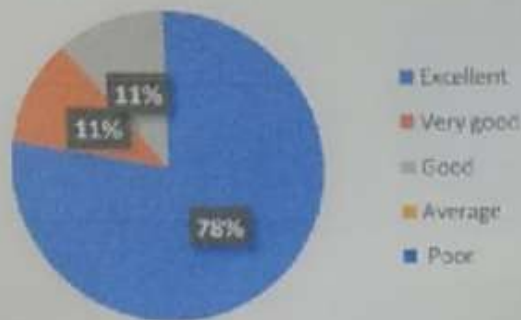


4. Sufficient number of prescribed books are available in the Library.

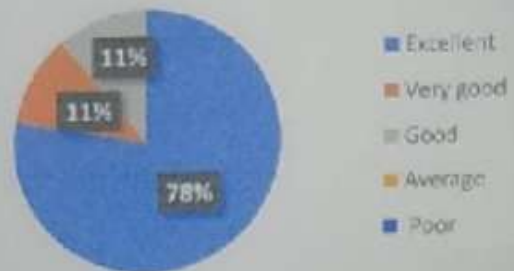


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5. The course has good balance between theory and application.



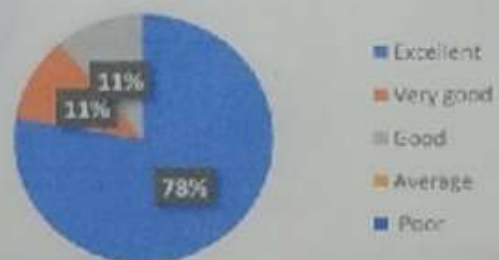
6. The books prescribed/listed as reference materials are relevant, updated and appropriate




7. Tests and examinations are conducted well in time with proper coverage of all units in the syllabus



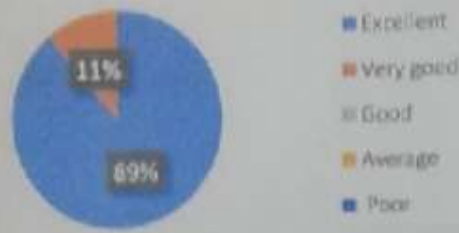
8. I have the freedom to propose, modify, suggest and incorporate new topics in the syllabus.




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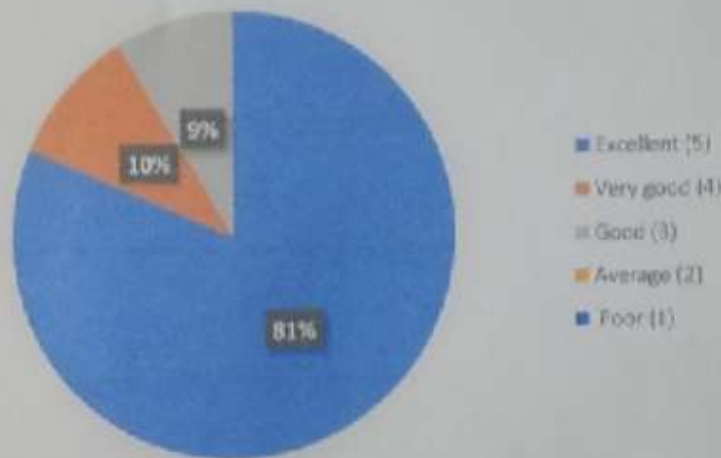


9. I have the freedom to adopt new techniques/strategies of teaching such as presentations, group...



Over all analysis on Physics (UG) curriculum

Faculty Feedback on Physics curriculum - UG

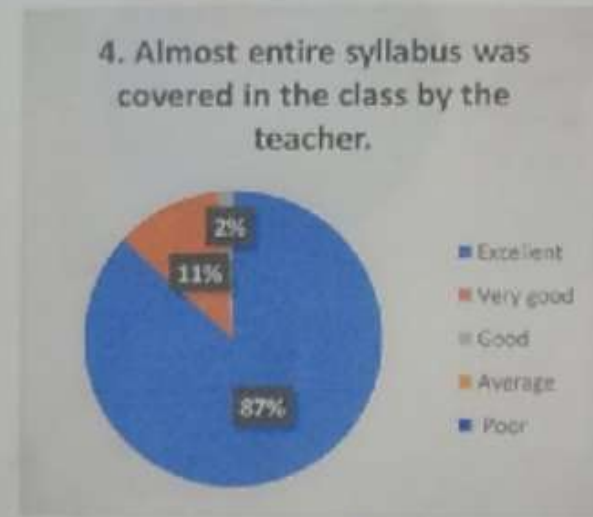
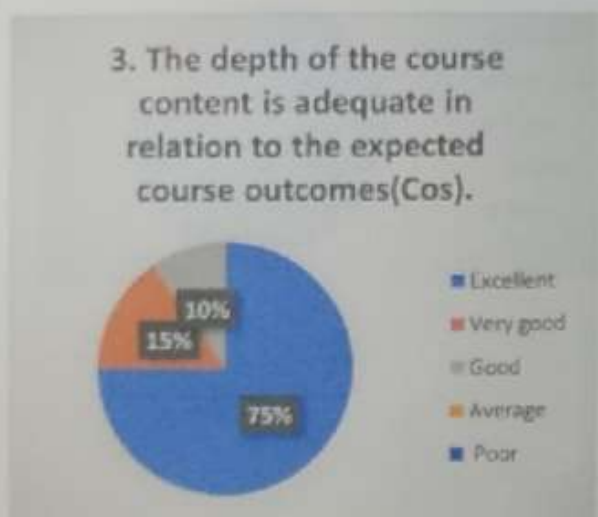
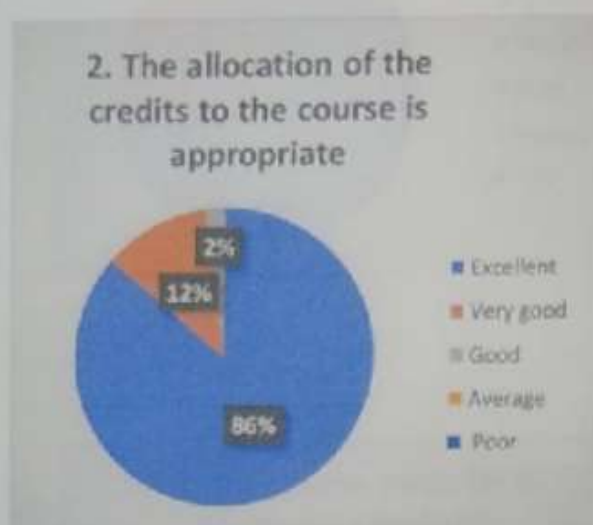
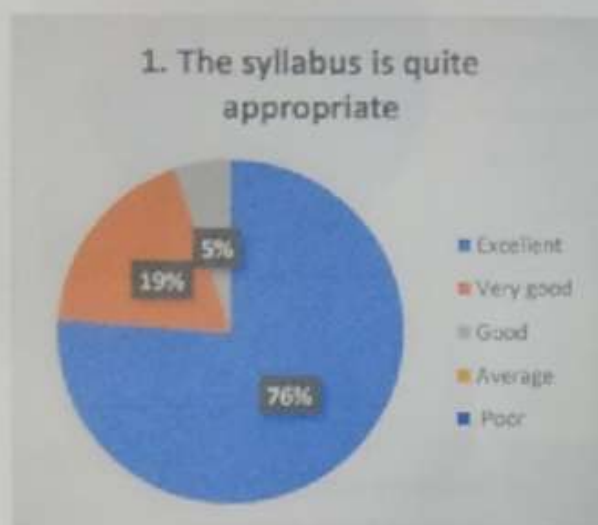


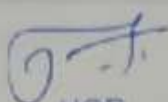
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Analysis of Student Feedback on Physics UG Curriculum for the academic year 2018-19

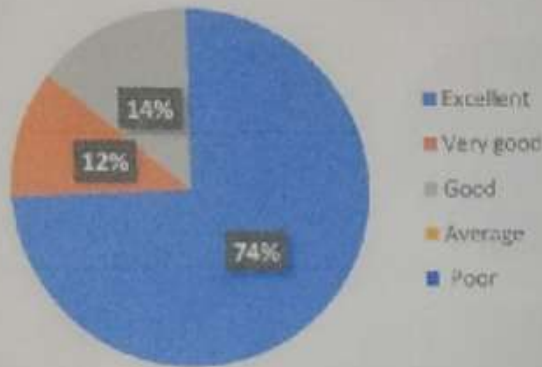
Question wise analysis



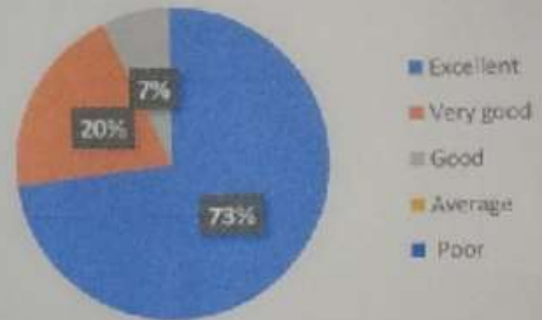

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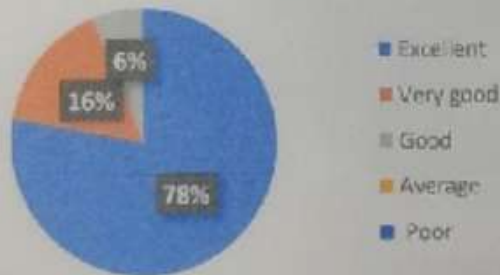
5. The units in the syllabus are properly sequenced.



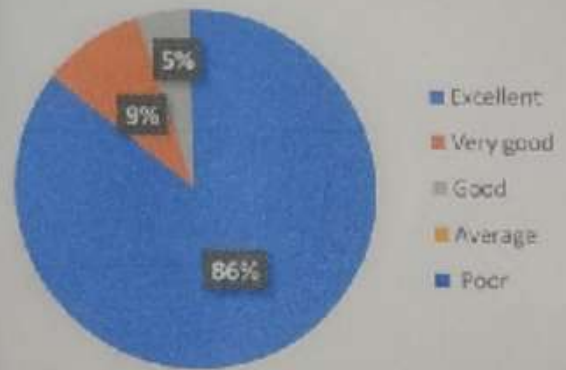
6. Syllabus equipped with necessary technical skills to face the industry/ academia



7. The syllabus enabled to improve my ability to formulate, analyze and solve problems



8. The course material is adequately available.



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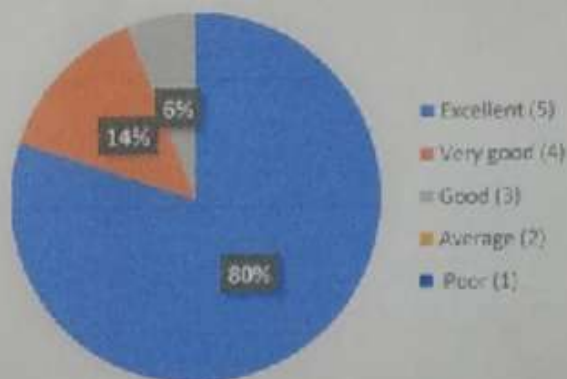


9. The laboratory experiments enhanced understanding of the concepts and enabled to relate theory to practice (Experimental learning).



Over all Student Feedback analysis on Physics (UG) curriculum

Student Feedback on Physics curriculum - UG



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Department of Physics

Action taken report on feedback on course from faculty and students

Corse: Engineering Physics

Course code: PY12/22

Corse: Engineering Physics Lab

Course code: PYL18/28

Based on the analysis of feedback from Faculty and Students on Engineering Physics course, and also in view of the model curriculum proposed by AICTE and VTU in 2018, the BOS expert members suggested some changes in the syllabus of PY12/22. It is decided to delete the Crystal structure unit and add Electromagnetic theory unit in Physics course. These changes are incorporated in the syllabus of PY12 / 22 course for the academic year 2019 - 20.

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COURSE DESIGN, DELIVERY AND ASSESMENT

Course code and Title : PY 12 Engineering Physics	Course Credits : 3:1:0
CIE : 50 Marks	SEE : 50 Marks
Total No of Theory / Tutorial / Lab Hours : 42(theory) + 14(tutorial)	
Prepared by : Dr. Kalpana Sharma	Date : 10/08/2019
Reviewed by : Dr. A. Jagannatha Reddy	Date : 10/08/2019

Prerequisites

Prerequisite Courses with codes
Nil

Course Objectives

- To familiarize students with the concepts of Elasticity, Theory of vibrations and time varying electromagnetic systems and the ideas of electromagnetic waves.
- To expose students to the ideas of wave particle dualism, quantum mechanics and basic principles of lasers and optical fibres.

Course contents

UNIT--I

Elasticity and Vibrations:

Elasticity—Introduction --Hooke's law — Poisson's ratio— Derivations for Y, K, n in terms of linear and lateral strains-- Relationship between Y, k, n and σ – Torsion of a cylinder and determination of couple per unit twist—Torsion pendulum—Determination of rigidity modulus using torsion pendulum --Bending moment of a beam (qualitative) – Cantilever loaded at free end.



Vibrations -- Introduction to vibrations—Analysis of Free and damped vibrations –under, over and critical damping—logarithmic decrement and quality factor—Forced vibrations and Resonance —LCR circuits and electrical resonance (only qualitative). ----- (9 lectures)

UNIT –II

Concepts of Modern Physics and Quantum Mechanics:

Particle nature of electromagnetic radiation—Discussion of Blackbody spectrum—Wien's law, Rayleigh Jeans law, Stefan -Boltzman law and Planck's law (qualitative)—Deduction of Wien's law and Rayleigh Jeans law from Planck's law – Compton effect .

Wave nature of particles—de-Broglie waves— Phase and group velocities—Expression for group velocity from superposition principle—Equivalence of group velocity to velocity of particle- -Relationships between phase velocity and group velocity in dispersive and non dispersive media—Heisenberg's uncertainty relationships-- Applications (Non confinement of electrons in atomic nucleus)-- characteristics of a well behaved wave function—Born approximation and normalization of the wave function—Setting up of one dimensional time independent Schrodinger's wave equation from classical wave equation—Eigen values and energy of a particle in an infinite one dimensional potential well. ----- (9 lectures)

UNIT—III

Electrical conduction in solids:

Metals— Classical free electron theory of metals —Drawbacks of classical free electron theory-- Quantum free electron theory— Density of energy states in a metal --- Fermi energy at 0 K— Effect of temperature on Fermi-Dirac Distribution function- Effect of temperature on $f(E)$, $n(E)$ vs E and $g(E)$ vs E graphs. Merits of quantum free electron theory.

Semiconductors: Formation of energy bands in solids (qualitative)—Density of energy states in conduction and valence bands of a semiconductor—Thermal equilibrium concentration of electrons in conduction band—Intrinsic carrier concentration—Hall effect -----(8 lectures)



UNIT -IV

Electromagnetic theory (Maxwell's equations):

Fundamentals of vector calculus: Divergence and Curl of Electric field and Magnetic field, Gauss divergence theorem, surface and volume integrals, Stokes' theorem, Gauss flux theorem in electrostatics and magnetism, Ampere's law, Biot-Savart's law and Faraday's law in vector notation, Continuity equation, Displacement current(I), Maxwell-Ampere's law, Maxwell's equations, Plane Electromagnetic waves in vacuum, Transverse nature of electromagnetic waves, Polarization of EM waves -- (8 lectures)

UNIT -V

Lasers and Optical fibers:

Lasers--Interaction of radiation with matter—Induced Absorption—spontaneous emission and stimulated emission--Expression for energy density of radiation in terms of Einstein coefficients at thermal equilibrium—Requisites of a laser system-- Three and four level lasers--Principle and operation of He-Ne and semiconductor Lasers

Optical Fibers--Propagation mechanisms in optical fibers, Angle of acceptance and Numerical aperture –Types of optical fibers—Step index and graded index fibers--Intermodal dispersion—Attenuation in optical fibers ----- (8 lectures)

• **Text Books:**

1. **Gaur and Gupta** - A Textbook of Engineering Physics, Dhanpat Rai Publishers, New Delhi, 8th revised edition 2015.
2. **Kenneth S.Krane**- Modern Physics, Wiley-India- 3rd Edition, 2019.
3. **David J. Griffiths** – Introduction to Electrodynamics, Prentice – Hall, 5th Edition

• **Reference Books:**

1. **B.B. Laud** - Lasers and non-linear optics, New Age International, 3rd Edition, 2015.
2. **Donald A Neamen** - Semiconductor Physics and Devices, Tata McGraw Hill, 4th Edition, 2012.
3. **D.S. Mathur** – Elements of properties of matter, S.Chand and company, 11th edition, 2013.
4. **S.P. Basavaraju**-Engineering Physics, Subhas stores, 2014
5. **The Feynman Lectures on Physics** – Addison-Wesley



Record as per Format MSRT/F700A Rev No. 0

Design Input cum Review Record

Department: **Physics**

For the Academic Year: 2019-20

Semester: I/II

Subject and subject code: 1. Engineering Physics [PY 12 / 22]
2. Engineering Physics Lab [PYL18 / 28]

Base input document is previous semester's syllabus / Lesson Plan / Teaching Diary if it is continuity.

Sl. No.	Inputs recognized	Reference to records
1	Lesson plan	F 702
2	Teaching diary	F 706
3	Student feedback	Feedback forms
4.	faculty feedback	Written feedback

Review Record

Issue Discussed	Decision	Responsibility	Target Date
1. Syllabi and curriculum of PY12 / 22 and PYL18 / 28	<p>Considering the faculty and student feedback and after detailed discussion, members decided to make small modification in the syllabus of Engineering Physics (PY12 / 22) course.</p> <p>In the model curriculum announced by AICTE in 2018, a full course is proposed on electromagnetic theory. Also, this topic is included in the revised syllabus of VTU in 2018. In view of the importance of the topic, members decided to include EM theory and Maxwell's equations in the present syllabus. Since the students are already exposed to the Crystal structure topic in 10+2 level in chemistry, members felt that the Crystal structure unit can be replaced by Electromagnetic theory and Maxwell's equations unit in Physics course. The other units of present syllabus are relevant and appropriate and hence can be continued for the academic year 2019-20.</p> <p>In Physics lab (PYL 18 / 28) course, the experiments in the present syllabus are relevant and appropriate and hence can be continued for the academic year 2019-20.</p>	All staff	I semester of 2019-20 (Aug - Dec 2019)

Date of Review: 14-03-2019

Participants:

1) Dr. A. Jagannatha Reddy

2) Dr. Chandrabhas Narayana

3) Dr. M.N. Satyanarayan

4) Dr. H.S. Subramanya

5) Dr. Seema Agarwal

6) Dr. Raveendra Melavanki

Signature of Chairman of BOS with Date

HOD
Department of Physics
Ramaiah Institute of Technology
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Record as per Format MSRIT.F700B Rev No. 0

Design Review cum Verification Record

Department: **Physics**

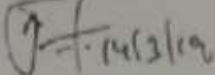
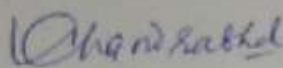
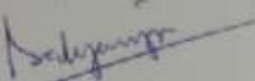
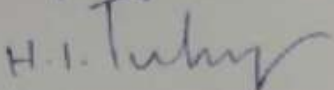
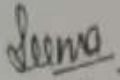
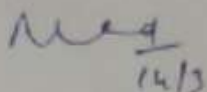
For the Academic Year: 2019 - 20

Semester: I/II

Subject and subject code: 1. Engineering Physics [PY 12 / 22]
2. Engineering Physics Lab [PYL18 / 28]

Participants:

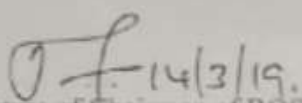
Date of Review: 14-03-2019

1. Dr. A. Jagannatha Reddy 
2. Dr. Chandrabhas Narayana 
3. Dr. M.N. Satyanarayan 
4. Dr. H.S. Subramanya 
5. Dr. Seema Agarwal 
6. Dr. Raveendra Melavanki 

- Verification Decision - PY 12 / 22 : Accept with change as under (Provide reasons).

In view of the importance of Electromagnetic theory and Maxwell's equations topic, the concepts of which are useful for students to learn optical communication, fields and waves in higher semesters, members decided to include EM theory and Maxwell's equations in the present syllabus. Since the students are already exposed to the Crystal structure topic in 10+2 level in chemistry, members felt that the Crystal structure unit can be replaced by Electromagnetic theory and Maxwell's equations unit in Physics course. The experts suggested to add the Photoelectric effect and Davisson-Germer experiment topics in the Modern Physics unit and are included in the syllabus.

- Verification Decision - PYL18 / 28 - Accept without any change.


Signature of Chairman of BOS with Date

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Bangalore-54



Record as per Format MSRIT.F700C Rev No. 0

Design Validation Record

Department: **Physics**

Semester: I/II

Date: 14-03-2019

Syllabus Document Reference: I year syllabus of PY12 / 22 and PYL18 / 28.

For the academic year: **2019 - 20**

Participants:

1. Dr. A. Jagannatha Reddy

J. A. Reddy
14/3/19

2. Dr. Chandrabhas Narayana

Chandrabhas

3. Dr. M.N. Satyanarayan

M.N. Satyanarayan

4. Dr. H.S. Subramanya

H.S. Subramanya

5. Dr. Seema Agarwal

Seema

6. Dr. Raveendra Melavanki

Raveendra
14/3

Sl. No.	Subject with code	Evaluation Result		Changes made
		No change	Needs Change	
1.	PY 12 / 22		✓	Crystal structure unit is replaced by Electromagnetic theory & Maxwell's equations unit in Physics course.
2.	PYL 18 / 28	✓		

J. A. Reddy
Signature of Chairman of BOS with Date
HOD
Department of Physics
Ramaiah Institute of Technology
Bangalore-54



Department of Physics

Proceedings of the BOS meeting held at Department of Physics, RIT, Bangalore
on 14-03-2019 at 11 AM

Venue: Department of Physics (Apex Block)

Members Present:

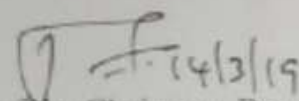
1. Dr. A. Jagannatha Reddy, Professor & HOD, RIT, Bangalore.
2. Dr. Chandrabhas Narayana, Chemistry and Physics of Materials Unit, JNCASR, Bangalore
3. Dr. M.N. Satyanarayan, Professor & HOD, NITK, Surathkal (VTU Nominee)
4. Dr. H.S. Subramanya, Director, Institute of Bioinformatics and Applied Biotechnology, Bangalore
5. Dr. Seema Agarwal, Associate Professor, RIT, Bangalore
6. Dr. Ravindra Melavanki, Assistant Professor, RIT, Bangalore

Discussion of agenda items:

- The syllabus of PY12/22 course for the academic year 2018-19 has been ratified.
- The syllabus of the following courses for the academic year 2019-20 were discussed and approved.

Sl.NO	Subject Code	Subject Title	No.of Credits	Max. No. of Students	Open to the Students of	Semester
1	PY12/22	Engineering Physics	3:1:0	-	All Branches of B.E.	I/II
2	PYL18/28	Engineering Physics Lab.	0:0:1	-	All Branches of B.E.	I/II

- The expert members suggested some changes in the syllabus of PY12/22 in view of the model curriculum proposed by AICTE and VTU in 2018. It is decided to delete the Crystal structure unit and add Electromagnetic theory and Maxwell's equations unit in Physics course for the academic year 2019 - 20. These changes are incorporated.
- No changes were proposed in PYL18 / 28 course.
- The panel of examiners for paper setting and valuation was approved.



Signature of the Chairman, Board of Studies

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