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B++ NAAC

DEPARTMENT OF PHYSICS

Resolutions of the 1st Board of Studies Meeting

Department of Physics

A Y. 2025–26

Date : 24-FEB-2026

Time : 2:00 PM

Mode : Hybrid

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DEPARTMENT OF PHYSICS

Ref: ESWR/PHY/BoS-MoM/2025–26/01 **27-FEB-2026**

Resolutions of the 1st BOS Meeting of the Department of Physics of Eswar College of Engineering (Autonomous), Kesanupalli held on 24.02.2026

(Through Hybrid Mode)

Members Present

S.No	Name of the Member	Designation/Occupation	Category
1	Dr.G.Naga Koti Reddy	Head of the Department	Chairman
2	Mr.P.Bharat Chandra	Asso. Professor	One Faculty from each specialization from the College
3	Mrs.V.Vijayalakshmi Prasunna	Asst.Professor	
4	Ms.M.Kiranmai	Asst. Professor	
5	Prof.P. Syam Prasad	Professor, Department of Physics, NIT, Warangal, Telangana. Mail ID: syamprasad@nitw.ac.in Contact No: 8332969472	Subject experts outside parent university
6	Prof. R. Padma Suvarna	Professor, Department of Physics, JNTUA, Anantapuram, AP. Mail ID: Padma.physics@jntua.ac.in Contact No: 9441079382	
7	Prof.V.Ravi Kumar	Professor, Department of Physics, Acharya Nagarjuna University, Guntur. Mail ID: vrksumsuchi@gmail.com Contact No:9440201711	University Nominee
8	Mr. Pothuri Venkata Pavan Kumar	General manager, Technical, Lohitha power products Pvt., Ltd., 604-BN Reddy Nagar, Charlapalli, Hyderabad-51. Mail ID: pavankumar@lohithapower.com Contact No: 9246837470	Industry
9	Mr.Tirumalasetty Anil	Senior ASIC Verification engineer at MOSCHIP TECHNOLOGIES Email ID: aniltirumalasetty030@gmail.com Contact No: 8297746955	Alumni

Agenda of the Meeting

1. Welcome of the Members and Invitees of the Board of Studies Meeting.

Members Absent: Nil

The quorum being present, the Chairman called the meeting to order.

DEPARTMENT OF PHYSICS

2. Address by the Chairman of the Board of Studies

3. Presentation of the Programme Structure.

4. Presentation of Syllabus.

5. Ratification of Academic Regulations, Credit Structure.

6. Vote of Thanks

MINUTES OF THE FIRST BOARD OF STUDIES MEETING

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DEPARTMENT OF PHYSICS

List of Members Present at the BOS Meeting

S.No	Name of the Member	Designation/Occupation	Category	Signature
1	Dr.G.Naga Koti Reddy	Head of the Department	Chairman	
2	Mr.P.Bharat Chandra	Assoc.Professor	One Faculty from each specialization from the College	
3	Mrs.V.Vijayalakshmi Prasunna	Asst.Professor		
4	Ms.M.Kiranmai	Asst.Professor		
5	Prof.P. Syam Prasad	Professor, Department of Physics, NIT, Warangal, Telangana. Mail ID: syamprasad@nitw.ac.in Contact No: 8332969472	Subject experts outside parent university	Approved Through Mail
6	Prof. R. Padma Suvarna	Professor, Department of Physics, JNTUA, Anantapuram, AP. Mail ID: Padma.physics@jntua.ac.in Contact No: 9441079332		Approved Through Mail
7	Prof.V.Ravi Kumar	Professor, Department of Physics, Acharya Nagarjuna University, Guntur. Mail ID: vrksumsuch@gmail.com Contact No:9440201741	University Nominee	
8	Mr. Pothuri Venkata Pavan Kumar	General manager, Technical, Lohitha power products Pvt., Ltd., 604-BN Reddy Nagar, Charlapalli, Hyderabad-51. Mail ID: pavankumar@lohithapower.com Contact No: 9246837470	Industry	Approved Through Mail
9	Mr.Tirumalasetty Anil	Senior ASIC Verification engineer at MOSCHIP TECHNOLOGIES Email ID: aniltirumalasetty030@gmail.com Contact No: 8297746955	Alumni	Approved Through Mail

DEPARTMENT OF PHYSICS

Agenda Items: 2026/PHY/BoS–1

The First Board of Studies meeting of the **Department of Physics** was conducted as per the scheduled agenda. The Chairman welcomed all internal members, external academicians, industry experts, university.

Agenda 1– Welcome of the Members and Invitees

The Chairman extended a warm welcome to all the members of the Board of Studies and highlighted the importance of collaborative academic planning.

Resolution: The board took the welcome of chair person.

Agenda 2: Address by the Chairman of the Board of Studies

The Chairman outlined the objectives of the meeting and emphasized adherence to the prescribed academic regulations.

Resolution The Board **ratified** the welcome note and commencement of the First Board of Studies Meeting.

Agenda 3: Presentation of the Programme Structure

Resolution

After having though discussion the programme structure was presented before the Board and noted for implementation in accordance with JNTUK R23 regulations.

Agenda 4: Presentation and Ratification of Draft Syllabus

Resolution The Board considered and ratified the syllabus adopted under JNTUK R23 regulations and resolved to continue the same without modification for the current academic year.

Agenda 5:Radification of Academic Regulations and Credit Structure

Resolution

The academic regulations and credit distribution as prescribed under JNTUK R23 were reviewed and radified for continuation without change.

DEPARTMENT OF PHYSICS

Agenda 6: Any Other Item with the Permission of the Chair

The honourable members expressed the following views regarding the Physics Laboratory component:

- **Prof. V. Ravi Kumar** emphasized strengthening experiential learning and proposed that the Physics Laboratory credits may be reconsidered to provide greater emphasis on hands-on training in future academic frameworks.
- **Prof. P. Syam Prasad** pointed out that the present credit allocation may not fully reflect the practical workload and recommended examining a revised credit structure for the laboratory component in subsequent curriculum revisions.
- **Prof. R. Padma Suvarna**. highlighted the need for improved laboratory engagement and suggested that increasing the Physics Lab credit hours to **three** may be considered in future academic regulations

The Board resolved to continue the existing JNTUK R23 syllabus and credit structure for the current academic year without modification, and to place suggestions for consideration in future academic revisions.

Vote of Thanks:

The meeting concluded with a formal vote of thanks proposed by Dr.G. NagaKoti Reddy, expressing sincere gratitude to all the members for their valuable guidance and participation. The proceedings ended at 3:00 PM with the approval of the Chair.

Search mail

Compose

Inbox 448
Starred
Snoozed
Important
Sent
Drafts 32
Purchases 71
Social 348
Updates 1,990
Forums 2
Promotions 2,400
More

Labels

Personal
Unsorted
More

Upgrade

Formal Request: Approval of Minutes of Meeting and syllabus ratification

naga koti reddy
Respected Sir,Please find attached the Minutes of Meeting (MoM) held on 24-02-2026 and the finalized Engineering Physics Syllat

Syam Prasad P
to me

Dear Sir

It is approved from my end.
Thank you.

Regards
Dr. P. Syam Prasad
Professor
Department of Physics
National Institute of Technology, Warangal (NITW)
Warangal-506004,
Telangana State
INDIA
Ph :+91 8332969472
Email :syam9405@gmail.com
:syamprasad@nitw.ac.in
ResearchGate: click here
Google Scholar: click here

Reply Forward

Gmail

naga koti reddy <kotireddygade@gmail.com>

Request for approval of Minutes of Meeting and Syllabus Ratification

Dr.R.Padma Suvarna <padma.physics@jntua.ac.in> Fri, Feb 27, 2026 at 3:23 PM
To: naga koti reddy <kotireddygade@gmail.com>

Dear Sir,
Herewith I am approving/ratifying the syllabus and accepting the minutes of the meeting in its entirety.
Thank you for involving me in this task of Board of Studies.
[Quoted text hidden]
--
Dr.R.Padma Suvarna
Professor
Department of Physics
JNTUA COLLEGE OF ENGINEERING
ANANTAPURAMU
Andhra Pradesh (India)

Gmail

naga koti reddy <kotireddygade@gmail.com>

request for approval of MoM and Syllabus ratification

Pavan Kumar <pavankumar@lohithapower.com> Sat, Feb 28, 2026 at 12:04 PM
To: naga koti reddy <kotireddygade@gmail.com>

Greetings from Lohitha power,

With reference to the the meeting held and discussed, i here by accept and approve the system proposed.

Thanking You,
For Lohitha Power Products Private Limited.

P.V.Pavan Kumar
+91 9246837470

UNIQE™
Your Power Conditioning Partner

[Quoted text hidden]

Gmail

naga koti reddy <kotireddygade@gmail.com>

Request for approval of MoM and syllabus ratification

Anil Tirumalasetty <aniltirumalasetty030@gmail.com> Fri, Feb 27, 2026 at 3:44 PM
To: naga koti reddy <kotireddygade@gmail.com>

I hereby approve of the changes done as per MOM and finalized Engineering Physics Syllabus.

Thanks,
Anil Tirumalasetty.
[Quoted text hidden]

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ENGINEERING PHYSICS
(Common for all branches of Engineering)

Course Objectives:

To bridge the gap between the Physics in school at 10+2 level and UG level engineering courses by identifying the importance of the optical phenomenon like interference, polarization etc, enlightening the periodic arrangement of atoms in crystalline solids and concepts of quantum mechanics, introduce novel concepts of dielectric and magnetic materials, physics of semiconductors.

Course Outcomes:

CO1: Analyse the intensity variation of light due to interference and polarization.
CO2: Familiarize with the basics of crystals and their structures.
CO3: Explain fundamentals of quantum mechanics and apply it to one dimensional motion of particles.
CO4: Summarize various types of polarization of dielectrics and classify the magnetic materials.
CO5: Explain the basic concepts of Quantum Mechanics and the band theory of solids.
CO6: Identify the type of semiconductor using Hall effect.

UNIT I Wave Optics

Interference: Introduction - Principle of superposition –Interference of light - Interference in thin films (Reflection Geometry) & applications - Colours in thin films- Newton's Rings, Determination of wavelength and refractive index.
Polarization: Introduction -Types of polarization - Polarization by reflection, refraction and Double refraction - Nicol's Prism -Half wave and Quarter wave plates.

UNIT II Crystallography and X-ray diffraction

Crystallography: Space lattice, Basis, Unit Cell and lattice parameters – Bravais Lattices – crystal systems (3D) – coordination number - packing fraction of SC, BCC & FCC - Miller indices – separation between successive (hkl) planes.
X-ray diffraction: Bragg's law - X-ray Diffractometer – crystal structure determination by Laue's and powder methods.

UNIT III Dielectric and Magnetic Materials

Dielectric Materials: Introduction - Dielectric polarization - Dielectric polarizability, Susceptibility, Dielectric constant and Displacement Vector – Relation between the electric vectors - Types of polarizations- Electronic (Quantitative), Ionic (Quantitative) and Orientation polarizations (Qualitative) - Lorentz internal field - Clausius- Mossotti equation - complex dielectric constant – Frequency dependence of polarization – dielectric loss

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NAGARJUNA NAGAR,
Guntur - 522 510, (A.P.)

Magnetic Materials: Introduction - Magnetic dipole moment - Magnetization-Magnetic susceptibility and permeability – Atomic origin of magnetism - Classification of magnetic materials: Dia, para, Ferro, anti-ferro & Ferri magnetic materials - Domain concept for Ferromagnetism & Domain walls (Qualitative) - Hysteresis - soft and hard magnetic materials.

UNIT IV Quantum Mechanics and Free electron Theory

Quantum Mechanics: Dual nature of matter – Heisenberg's Uncertainty Principle – Significance and properties of wave function – Schrodinger's time independent and dependent wave equations– Particle in a one-dimensional infinite potential well.

Free Electron Theory: Classical free electron theory (Qualitative with discussion of merits and demerits) – Quantum free electron theory – electrical conductivity based on quantum free electron theory - Fermi-Dirac distribution - Density of states - Fermi energy

UNIT V Semiconductors

Semiconductors: Formation of energy bands – classification of crystalline solids - Intrinsic semiconductors: Density of charge carriers – Electrical conductivity – Fermi level – Extrinsic semiconductors: density of charge carriers – dependence of Fermi energy on carrier concentration and temperature - Drift and diffusion currents – Einstein's equation – Hall effect and its applications.

Textbooks:

1. A Text book of Engineering Physics, M. N. Avadhanulu, P.G.Kshirsagar & TVS Arun Murthy, S. Chand Publications, 11th Edition 2019.
2. Engineering Physics - D.K.Bhattacharya and Poonam Tandon, Oxford press (2015)

Reference Books:

1. Engineering Physics - B.K. Pandey and S. Chaturvedi, Cengage Learning 2021.
2. Engineering Physics - Shatendra Sharma, Jyotsna Sharma, Pearson Education, 2018.
3. Engineering Physics" - Sanjay D. Jain, D. Sahasrabudhe and Girish, University Press. 2010
4. Engineering Physics - M.R. Srinivasan, New Age international publishers (2009).

Web Resources: https://www.loc.gov/rr/scitech/selected-internet/physics.html

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ENGINEERING PHYSICS LAB
(Common for all branches of Engineering)

Course Objectives:
To study the concepts of optical phenomenon like interference, diffraction etc., recognize the importance of energy gap in the study of conductivity and Hall effect in semiconductors and study the parameters and applications of dielectric and magnetic materials by conducting experiments.

Course Outcomes: The students will be able to

CO1: Operate optical instruments like travelling microscope and spectrometer.

CO2: Estimate the wavelengths of different colors using diffraction grating.

CO3: Plot the intensity of the magnetic field of circular coil carrying current with distance.

CO4: Evaluate dielectric constant and magnetic susceptibility for dielectric and magnetic materials respectively.

CO5: Calculate the band gap of a given semiconductor.

CO6: Identify the type of semiconductor using Hall effect.

List of Experiments:

1. Determination of radius of curvature of a given Plano-convex lens by Newton's rings.
2. Determination of wavelengths of different spectral lines in mercury spectrum using diffraction grating in normal incidence configuration.
3. Verification of Brewster's law
4. Determination of dielectric constant using charging and discharging method.
5. Study the variation of B versus H by magnetizing the magnetic material (B-H curve).
6. Determination of wavelength of Laser light using diffraction grating.
7. Estimation of Planck's constant using photoelectric effect.
8. Determination of the resistivity of semiconductors by four probe methods.
9. Determination of energy gap of a semiconductor using p-n junction diode.
10. Magnetic field along the axis of a current carrying circular coil by Stewart Gee's Method.
11. Determination of Hall voltage and Hall coefficient of a given semiconductor using Hall effect.
12. Determination of temperature coefficients of a thermistor.
13. Determination of acceleration due to gravity and radius of Gyration by using a compound pendulum.
14. Determination of magnetic susceptibility by Kundt's tube method.
15. Determination of rigidity modulus of the material of the given wire using Torsional pendulum.
16. Sonometer: Verification of laws of stretched string.

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17. Determination of young's modulus for the given material of wooden scale by non-uniform bending (or double cantilever) method.

18. Determination of Frequency of electrically maintained tuning fork by Melde's experiment.

Note: Any **TEN** of the listed experiments are to be conducted. Out of which any **TWO** experiments may be conducted in virtual mode.

Reference Books:

A Textbook of Practical Physics - S. Balasubramanian, M.N. Srinivasan, S. Chand Publishers, 2017.

Web Resources

- www.vlab.co.in
- https://phet.colorado.edu/en/simulations/filter?subjects=physics&type=html,prototype

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