Madanapalle Institute of Technology & Science
Affiliated to JNTUA, Anantapur & Approved by AICTE, New Delhi
(AUTONOMOUS)
Recognised Research Center
Recognised by UGC under the sections 2(f) and 12(B) of the UGC act 1956
Estd 1998
GREEN CAMPUS

BOS members for Department of Physics

1. **Chairman:** HoD. Department of Physics, MITS

2. **Members:** Ratified & Senior Faculty of the Department

3. **Experts in the subject:**

   i. **Dr. Y. Nazeer Ahammed**
   Associate Professor, Department of Physics
   Yogi Vemana University,
   KADAPA.
   Email: nazeer@yogivemanauniversity.ac.in
   Phone: +919491944454

   ii. **Dr. Ariful Rahaman**
   Associate Professor
   VIT University, Vellore-632014
   Tamil Nadu
   Email: arahaman@vit.ac.in
   Phone: +91 9698439988

4. **Expert nominated by the V.C.:**
   Prof. R. Padma Suvarna
   Head, Professor of Physics
   JNTUA College of Engineering, Anantapuramu.
   Email: padmajntua@gmail.com
   Phone: +919441079332

5. **Industry Expert:**
   Mr. M. Ravi Sankar,
   Director (I.T)/Scientist E
   District Informatics Officer (DIO)
   National Informatics Center,
   Govt. of India, Ministry of Electronics & IT
   Anantapuramu, Andhra Pradesh
   Email: mr.shankar@nic.in
   Phone: +91 9538802663

Head of the Department
PHYSICS
Madanapalle Institute of Technology & Science
MADANAPALLE - 517 325

Department of PHYSICS
MITS
Head of the Department
PHYSICS
Madanapalle Institute of Technology & Science
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MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE
(UGC-AUTONOMOUS)
Estd 1998

Affiliated to JNTUA, Anantapur & Approved by AICTE, New Delhi
Recognised Research Center
Accredited by NBA for CSE, ECE, EEE & ME
World Bank funded Institute
Recognised by UGC under the sections 2(f) and 12(B) of the UGC act 1956
Recognised as Scientific & Industrial Research Organization by DSIR of DST

Department of Physics

Date: 27-10-2023

Members of the Board of Studies for the Academic Year 2023-24

S.No.	Name of the member	Composition as per the UGC-Autonomous guidelines	Designation & Address
1.	Dr. M. Chandra Sekhar	Head of the Department concerned (Chairman)	Assistant Professor & Head, Department of Physics, MITS
2.	Dr. N. Nanda Kumar Reddy	Subject Expert – Engineering Physics	Assistant Professor, Department of Physics MITS
	Dr. Md Mahabul Islam	Subject Expert – Engineering Physics	Assistant Professor, Department of Physics MITS
	Dr. Usuf Rahaman	Subject Expert – Engineering Physics	Assistant Professor, Department of Physics MITS
	Dr. Chandrakanta	Subject Expert – Engineering Physics	Assistant Professor, Department of Physics MITS
	Dr. Agnibha Das Majumdar	Subject Expert – Engineering Physics	Assistant Professor, Department of Physics MITS
	Dr. Rasmita Jena	Subject Expert – Engineering Physics	Assistant Professor, Department of Physics MITS
	Dr. Ramesh M	Subject Expert – Engineering Physics	Assistant Professor, Department of Physics MITS
	Mr. Aruna Prasad Acharya	Subject Expert – Engineering Physics	Assistant Professor, Department of Physics MITS
	Dr. Charan Kuchi	Subject Expert – Optical Physics & its Applications	Assistant Professor, Department of Physics MITS
	Dr. Sunku Sreedhar	Subject Expert – Laser Physics & Advanced Laser Technology	Assistant Professor, Department of Physics MITS
	Dr. B. Jagadeesh Babu	Subject Expert – Thin Film Technology & its Application	Assistant Professor, Department of Physics MITS
3.	Dr. R. Padma Suvarna	Expert in subject nominated by Academic Council	Professor & Head, Department of Physics, JNTUA College of Engineering, Anantapur 9441079332
	Dr. Ariful Rahaman	Expert in subject nominated by Academic Council	Associate Professor, VIT University, Vellore 632014, Tamil Nadu 9698439988
4.	Dr. Y. Nazeer Ahammed	One expert to be nominated by the Vice-Chancellor from a panel of six recommended by the college Principal	Associate Professor, Department of Physics, Yogi Vemana University Kadapa. 9491944454

5.	Mr. M. Ravi Sankar	Representation from Industry/Corporation Sector	DIO/Scientist D National Informatics Center, Ministry of Electronics &Information Technology, Govt. of India Chickballapur, Karnataka 9538802663

Dr. M. Chandra Sekhar
Assistant Professor & Head
Department of Physics
MITS, Madanapalle

Dr. C. Yuvaraj
Professor & Principal
MITS, Madanapalle

Re: R-23 Revised syllabus - BoS Meeting - Reg.

padma jntu <padmajntua@gmail.com>
Tue 10/31/2023 6:42 PM
To:Physics Department <physicshod@mits.ac.in>

Dear sir,
I am approving the syllabus in its original form.

On Tue, Oct 31, 2023, 9:49 AM Physics Department <physicshod@mits.ac.in> wrote:

Dear Sir/Madam,

Good morning.

Thank you very much for your presence, participation and the suggestions in the 5th BoS meeting for R 23 revised syllabus.

I am herewith attaching the modified/revised syllabus copies of the courses as per the discussion conducted in the BoS meeting on 27th October, 2023. I have incorporated the resolutions suggested by the members in the meeting.

Requesting you to acknowledge the same and send your approval through email.

Best regards,

Dr. M. Chandra Sekhar,
Head, Department of Physics,
Madanapalle Institute of Technology & Science,
Madanapalle-517325, Andhra Pradesh, India.
Contact : +91-9494512910, +91-8008570664
ORCID ID : 0000-0003-1743-8482
Researcher ID : O-5657-2016
Scopus ID: 7003745077
Google Scholar ID: YvuMXPIAAAAJ

Head of the Department
PHYSICS
Madanapalle Institute of Technology & Science
MADANAPALLE - 517 325

Re: Approval for Engineering Physics R-23 syllabus - Reg.

Ariful Rahaman S K <arahaman@vit.ac.in>
Fri 10/27/2023 9:31 PM

To:Physics Department <physicshod@mits.ac.in>

Dear Sir,

Good evening sir.
I declare that I accept the modified/revised syllabus copies as per the discussion in BoS meeting held on 27.10.2023 in Online mode.

Thank you.

with regards,

Dr. Ariful Rahaman
Professor
Centre for Materials Characterization & Testing
School of Mechanical Engineering
VIT-Vellore
Vellore-632014
Tamil Nadu

Head of the Department
PHYSICS
Madanapalle Institute of Technology & Science
MADANAPALLE - 517 325

On Fri, Oct 20, 2023 at 4:07 PM Physics Department <physicshod@mits.ac.in> wrote:

Respected Prof. Ariful Rahaman,

Greetings from MITs!!!

The Managements and Principals of all the Engineering colleges under JNTUA were invited to attend a meeting at JNTUA on 30.08.2023. The agenda of the meeting was related to R23 Regulations, Academic Matters and Examination Related issues. The Honourable Vice Chancellor, JNTUA who chaired the meeting, informed the Autonomous institutions to follow the academic guidelines as given below:

1. Total number of credits shall be 160 for B.Tech. programme and there is no exemption of credits and no additional credits to be studied for the award of B.Tech. Degree.
2. The courses in first and second semesters may be swapped to balance the teaching workload.
3. There may be up to 20% of deviation in enhancing the content of each course.
4. Flexibility to redefine Course Objectives and Outcomes.
5. Flexibility in offering Professional & Open Electives, verticals/tracks under Open Electives, Skill Enhancement courses.

Further Director Academic and Planning, JNTUA has sent an email dated 31/08/2023, sharing the R23 academic regulations, course structure and first year syllabus applicable for the students admitted into the B. Tech. programmes of Constituent, Autonomous and Affiliated colleges of the University from the academic year 2023-24 onwards. The class work for I Year B. Tech Programs commenced from 25th September 2023.

In this connection, we hereby attach the syllabus pertaining to various courses offered by the Department of Physics in the I Year B. Tech Program. In view of the recent developments

mentioned above, we need to implement the R23 Regulations, Structure and Curriculum specified by the affiliating University (JNTUA) without any deviation for the I Year B. Tech Students admitted during the Academic Year (2023-24).

Hence in this direction, we seek your kind approval through circulation on or before 30th October 2023.

Thanking you.

Thanks & Kind regards,

Dr. M. Chandra Sekhar,
Head, Department of Physics,
Madanapalle Institute of Technology & Science,
Madanapalle-517325, Andhra Pradesh, India.
Contact : +91-9494512910, +91-8008570664
ORCID ID : 0000-0003-1743-8482
Researcher ID : O-5657-2016
Scopus ID: 7003745077
Google Scholar ID: YvuMXPIAAAAJ

Re: Approval for Engineering Physics R-23 syllabus - Reg.

Y Nazeer Ahammed <ynahammed@gmail.com>
Sat 10/28/2023 12:27 PM
To:Physics Department <physicshod@mits.ac.in>

Dear Dr Chandra Sekhar garu,

I have examined the Academic Regulations (R-2023) and B.Tech Revised syllabus sent by you, I am herewith approving the same and request you to do the needful in implementation for the Academic Year 2023-24 onwards.

With regards,

Prof. Y. Nazeer Ahammed
Department of Physics
Yogi Vemana University, Kadapa-516005
Present: Secretary, APSCHE, Mangalagiri

Head of the Department
PHYSICS
Madanapalle Institute of Technology & Science
MADANAPALLE - 517 325

On Wed, 25 Oct 2023 at 13:23, Physics Department <physicshod@mits.ac.in> wrote:

Respected Prof. Nazeer Ahammed Garu,

Greetings from MITs!!!

The Managements and Principals of all the Engineering colleges under JNTUA were invited to attend a meeting at JNTUA on 30.08.2023. The agenda of the meeting was related to R23 Regulations, Academic Matters and Examination Related issues. The Honourable Vice Chancellor, JNTUA who chaired the meeting, informed the Autonomous institutions to follow the academic guidelines as given below:

1. Total number of credits shall be 160 for B.Tech. programme and there is no exemption of credits and no additional credits to be studied for the award of B.Tech. Degree.
2. The courses in first and second semesters may be swapped to balance the teaching workload.
3. There may be up to 20% of deviation in enhancing the content of each course.
4. Flexibility to redefine Course Objectives and Outcomes.
5. Flexibility in offering Professional & Open Electives, verticals/tracks under Open Electives, Skill Enhancement courses.

Further Director Academic and Planning, JNTUA has sent an email dated 31/08/2023, sharing the R23 academic regulations, course structure and first year syllabus applicable for the students admitted into the B. Tech. programmes of Constituent, Autonomous and Affiliated colleges of the University from the academic year 2023-24 onwards. The class work for I Year B. Tech Programs commenced from 25th September 2023.

In this connection, we hereby attach the syllabus pertaining to various courses offered by the Department of Physics in the I Year B. Tech Program. In view of the recent developments mentioned above, we need to implement the R23 Regulations, Structure and Curriculum specified by the affiliating University (JNTUA) without any deviation for the I Year B. Tech Students admitted during the Academic Year (2023-24).

Hence in this direction, we seek your kind approval through circulation on or before 30th October 2023.

Thanking you.

Thanks & Kind regards,
Dr. M. Chandra Sekhar,
Head, Department of Physics,
Madanapalle Institute of Technology & Science,
Madanapalle-517325, Andhra Pradesh, India.
Contact : +91-9494512910, +91-8008570664
ORCID ID : 0000-0003-1743-8482
Researcher ID : O-5657-2016
Scopus ID: 7003745077
Google Scholar ID: YvuMXPIAAAAJ

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Prof.Y. Nazeer Ahammed
Atmospheric Science Laboratory
Department of Physics
YOGI VEMANA UNIVERSITY
KADAPA-516 003 (A.P.), INDIA
Phone:08562-225486 (Off.)
Mobile:9491944454
Alt email: nazeer@yogivemanauniversity.ac.in
Visit: http://scholar.google.co.in/citations?hl=en&user=VcE_eT8AAAAJ&view_op=list_works&pagesize=100

Re: BOS Meeting - Department of Physics - Reg

M. Shankar <mr.shankar@nic.in>
Fri 10/27/2023 11:33 AM
To:Physics Department <physicshod@mits.ac.in>
Dear Sir,

I here with confirm my approval for the Syllabus enclosed with this mail.

Thanking you,

with reg.s

yours sincerely
रवि शंकर मंगपोटी / Ravi Sankar Mangapoti
वैज्ञानिक-ई / निदेशक (आई.टी) / Scientist-E / Director (I.T)
Scientist-E / Director (I.T)
जिला सूचना विज्ञान अधिकारी / District Informatics Officer (DIO)
भारत सरकार, इलेक्ट्रॉनिक्स और आईटी मंत्रालय / Govt. of India, Ministry of Electronics & IT
राष्ट्रीय सूचना विज्ञान केंद्र / National Informatics Centre
अनंतपुरमु ,आंध्र प्रदेश / Anantapuramu, Andhra Pradesh
फ़ोन / MOBILE : +91 9538802663
आईपी फ़ोन / 20201

---- On Thu, 26 Oct 2023 17:42:02 +0530 **<physicshod@mits.ac.in>** wrote ---

DEPARTMENT OF PHYSICS
Board of Studies Meeting

Dear Sir/Madam,

Greetings

We have fifth meeting of Board of Studies in online mode through Microsoft Team which will be held on 27.10.2023 at 10:00 AM for the approval of the syllabi of Physics courses offered by Department of Physics, MITS. I have attached the revised syllabus of the following subjects. I request all the members to go through the revised syllabus so that we can have discussion in BoS meeting for any further modification.

Subjects:
1. Engineering Physics (23PHY101) [Common to all branches]
2. Physics Laboratory (23PHY201) [For All]

Please join through the meeting link as mentioned below.

https://teams.microsoft.com/l/meetup-join/19%3a84fefbb5c23a417d9769ec056f8725bc%40thread.tacv2/1698322093648?

Head of the Department
PHYSICS
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Looking forward for your esteemed presence.

Thank you very much.

Thanks & Kind regards,
Dr. M. Chandra Sekhar,
Head, Department of Physics,
Madanapalle Institute of Technology & Science,
Madanapalle-517325, Andhra Pradesh, India.
Contact : +91-9494512910, +91-8008570664
ORCID ID : 0000-0003-1743-8482
Researcher ID : O-5657-2016
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DEPARTMENT OF PHYSICS
Board of Studies Meeting
Minutes of Meeting

Date: .11.2023

The meeting of Board of Studies is held on 27.10.2023 from 10:00 AM - 11:00 AM for the approval and evaluation of the syllabus of the physics and one Physics Practical Courses offered by Department of Physics, MITS.

The following members attended the meeting.

Members Present:

Sl. No.	Name	Position on BoS
1.	Dr. M. Chandra Sekhar	Chairman
2.	Dr. R. Padma Suvarna	University Nominee
3.	Dr. Y. Nazeer Ahammed	Subject Expert
4.	Dr. Ariful Rahaman	Subject Expert
5.	Mr. M. Ravi Sankar	Industry Expert
6.	Dr. B. Jagadeesh Babu	Member
7.	Dr. N. Nanda Kumar Reddy	Member
8.	Dr. Sunku Sreedhar	Member
9.	Dr. M. Ramesh	Member
10.	Dr. Md Mahabul Islam	Member
11.	Dr. Charan Kuchi	Member
12.	Dr. Usuf Rahaman	Member
13.	Dr. K. Chandrakanta	Member
14.	Dr. Agnibha Das Majumdar	Member
15.	Dr. Rasmita Jena	Member
16.	Mr. Aruna Prasad Acharya	Member

Head of the Department
PHYSICS
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BoS Chairman & HoD of Physics, Dr. M. Chandra Sekhar explained in detail regarding the syllabus of Physics for I B. Tech. Programme to be offered in new regulation R23 from the academic year 2023-2024.

Board members reviewed the following syllabi

1. 23PHY101 Engineering Physics
2. 23PHY201 Physics Laboratory

We have revised and updated above listed physics syllabus of different courses for I B.Tech programme on par with many reputed institutions and according to AICTE and JNTUA guidelines to cover fundamental of physics for engineering students to cope up with their core subjects. All physics syllabus of R23 regulations are sent to each BOS Member. All the members are requested to go through the syllabus and thoroughly check for further corrections /modifications /criticisms.

Resolutions:

BOS committee has gone through the proposed syllabi for "*Engineering Physics* (Common for all branches)", and "*Physics Laboratory* (for all branches)", and resolved the necessary changes for the current syllabus.

Engineering Physics (23PHY101)

1. The board suggested to change Unit-III to Unit V which will be useful for the sequential order of the content topics.
2. According to BoS members, Unit-II was fine and suggested to keep same.
3. The committee members suggested to change Unit-IV to Unit III.
4. All the course outcomes are modified and rearranged as per the revised units.

Physics Laboratory (23PHY201)

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MADANAPALLE 517 325

It is resolved that the present syllabi brought before the BoS is thoroughly discussed and can be adopted with the suggested modifications.

Head
(M. CHANDRA SEKHAR)
Department of Physics

Head of the Department
PHYSICS
Madanapalle Institute of Technology & Science
MADANAPALLE - 517 325

Members Present:

Sl. No.	Name	Position on BoS	Signature
1.	Dr. M. Chandra Sekhar	Chairman	
2.	Dr. R. Padma Suvarna	University Nominee	
3.	Dr. Y. Nazeer Ahammed	Subject Expert	
4.	Dr. Ariful Rahaman	Subject Expert	
5.	Mr. M. Ravi Sankar	Industry Expert	
6.	Dr. B. Jagadeesh Babu	Member	
7.	Dr. N. Nanda Kumar Reddy	Member	
8.	Dr. Sunku Sreedhar	Member	
9.	Dr. M. Ramesh	Member	
10.	Dr. Md Mahabul Islam	Member	
11.	Dr. Charan Kuchi	Member	
12.	Dr. Usuf Rahaman	Member	
13.	Dr. K. Chandrakanta	Member	
14.	Dr. Agnibha Das Majumdar	Member	
15.	Dr. Rasmita Jena	Member	
16.	Mr. Aruna Prasad Acharya	Member	14/11/23

Head
Department of Physics

Head of the Department
PHYSICS
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R23 - Curriculum Structure
I Year I Semester

S. No.	Category	Course Code	Course Title	Hours Per Week				Credits
				L	T	P	Total	
1	BS & H	23ENG101	Communicative English	2	0	0	2	2
2	BS & H	23MAT101	Linear Algebra & Calculus	3	0	0	3	3
3	BS & H	23CHE102	Chemistry	3	0	0	3	3
4	ESC	23CME101	Basic Civil and Mechanical Engineering	3	0	0	3	3
5	ESC	23CSD101	Introduction to Programming	3	0	0	3	3
6	BS & H	23ENG201	Communicative English Laboratory	0	0	2	2	1
7	BS & H	23CHE202	Chemistry Laboratory	0	0	2	2	1
8	ESC	23CSD201	Computer Programming Laboratory	0	0	3	3	1.5
9	ESC	23ME201	Engineering Workshop	0	0	3	3	1.5
10	BS&H	23HUM101	Health and Wellness, Yoga and Sports	-	-	1	1	0.5
Total				**13**	**0**	**11**	**25**	**19.5**

I Year II Semester

S. No.	Category	Course Code	Course Title	Hours Per Week				Credits
				L	T	P	Total	
1	BS&H	23MAT102	Differential Equations and Vector Calculus	3	0	0	3	3
2	BS&H	23PHY101	Engineering Physics	3	0	0	3	3
3	ESC	23EEE101	Basic Electrical and Electronics Engineering	3	0	0	3	3
4	ESC	23ME101	Engineering Graphics	1	0	4	5	3
5	PC	23CSD102	Data Structures	3	0	0	3	3
6	BS&H	23PHY201	Engineering Physics Laboratory	0	0	2	2	1
7	ESC	23EEE201	Electrical and Electronics Engineering Workshop	0	0	3	3	1.5
8	ESC	23CSD202	IT Workshop	0	0	2	2	1
9	PCC	23CSD203	Data Structures Laboratory	0	0	3	3	1.5
10	BS&H	23HUM102	NSS / NCC / Scouts & Guide / Community Service	-	-	1	1	0.5
Total				**13**	**0**	**15**	**28**	**20.5**

(L = Lecture, T = Tutorial, P = Practical, C = Credit

Head of the Department
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B. Tech I Year II Semester

23PHY101 ENGINEERING PHYSICS

L	T	P	C
3	0	0	3

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, diffraction 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.

UNIT I WAVE OPTICS — 9 hours

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.

Diffraction: Introduction - Fresnel and Fraunhofer diffractions - Fraunhofer diffraction due to single slit, double slit & N-slits (Qualitative) – Diffraction Grating - Dispersive power and resolving power of Grating (Qualitative). 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 — 9 hours

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 QUANTUM MECHANICS AND FREE ELECTRON THEORY — 9 hours

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 IV SEMICONDUCTORS — 9 hours

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.

UNIT V DIELECTRIC AND MAGNETIC MATERIALS — 9 hours

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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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.

Course Outcomes:

CO1: Apply the knowledge of Interference, Diffraction and Polarization techniques for materials testing and explore their applications in both science and technology.

CO2: Explain the crystal structure in terms of atomic positions, unit cells, and crystal symmetry and also relate the crystal symmetry to the symmetry observed in a diffraction pattern.

CO3: Evaluate the Schrodinger wave equations for simple potentials and explain the concept of conductivity of different types of materials.

CO4: Distinguish the semiconductors using Fermi level and identify the type of semiconductors using Hall effect.

CO5: Explain the origin of fundamental magnetic phenomena and types of magnetic materials. Understand the induced fields in dielectrics, and electrical behaviour of dielectrics.

Text Books:

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

Mode of Evaluation: Assignments, Mid Term Tests, End Semester Examination.

1) Dr. M. Chandra Sekhar (M. C. S.)
2) Dr. B Jagadish Babu (B. Jagadish)
3) Dr. Md Mahabul Islam (Mdsm)
4). Dr. N. Nanda kumar Reddy (NNR)
5) Dr. S. Sreedhar
6) Dr. Usuf Rahaman
7) Dr. Ramita Jena
8. Dr. Charan Kuchi
9. Dr. K. Chandra rao
10. Dr. M. Ramesh M. Ramesh
11. Aruna Prasad Acharya
12. Dr. Agniva Das Majumdar

M. C. S.
Head of the Department
PHYSICS
Madanapalle Institute of Technology & Science
MADANAPALLE - 517 325

B. Tech I Year II Semester

23PHY201 ENGINEERING PHYSICS LABORATORY

L	T	P	C
0	0	2	1

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.

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.
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.

Course Outcomes:

CO1: Know the various phenomena of light practically and gain knowledge about various optical technique methods.

CO2: Verify the theoretical concepts of optics, magnetism and dielectrics by hands on experiment.

CO3: Apply the scientific process in the conduct of semiconductor experiments and report the experimental findings.

CO4: Understand mechanical phenomena by instruments and apply them in real time applications.

CO5: Acquire and interpret experimental data to examine the physical laws.

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Web Resources:

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

Reference Books:

1. A Textbook of Practical Physics - S. Balasubramanian, M.N. Srinivasan, S. Chand Publishers, 2017.
2. Workshop Practice by H. S. Bawa, Tata-McGraw Hill, 2004.
3. Wiring Estimating, Costing and Contracting; Soni P.M. & Upadhyay P.A.; AtulPrakashan, 2021-22.

Mode of Evaluation: Continuous Internal Evaluation and End Semester Examination

1) Dr. M. Chandra Sekhar (M. C. S.)
2) Dr. B. Jagadeesh Babu (B. J.)
3) Dr. Md. Mahabul Islam (M. I.)
4). Dr. N. Nanda Kumar Reddy (N. N. R.)
5) Dr. S. Sreedhar (S. S.)
6) Dr. Usuf Rahaman (U. R.)
(7) Dr. Rasmita Tena R. T.
8) Dr. Charan Kuchi (C. K.)
9) Dr. K. Chenchaiah (K. C.)
10) Dr. Martha Ramesh M. R.
11. Aruna Prasad Acharya 14/11/23
12. Dr. Agnibha Das Majumdar Ad M

Head of the Department
PHYSICS
Madanapalle Institute of Technology & Science
MADANAPALLE - 517 325

Fwd: JNTUA - UG Programmes - B.Tech. - R23 - Academic Regulations, Course Structure, First Year Syllabus - Regarding

Principal MITS <principal@mits.ac.in>

Thu 8/31/2023 8:25 PM

To:HOD <HOD-Group@mits.ac.in>;Vice Principal Administration <viceprincipaladministration@mits.ac.in>;Vice Principal Academics <viceprincipalacademics@mits.ac.in>;Controller of Examinations-MITS <coe@mits.ac.in>;Assistant Controller of Examination <acoe@mits.ac.in>

3 attachments (3 MB)

JNTUA - UG Programmes - B.Tech. - R23 Regulations 31.08.2023.pdf; JNTUA - UG Programmes - B.Tech. - R23 - Course Structure 31.08.2023.pdf; JNTUA - UG Programmes - B.Tech. - R23 - I Year Syllabus 31.08.2023.pdf;

FYI.

Get Outlook for Android

---------- Forwarded message ---------

From: **dap Jntua** <dap@jntua.ac.in>

Date: Thu, 31 Aug, 2023, 4:17 PM

Subject: JNTUA - UG Programmes - B.Tech. - R23 - Academic Regulations, Course Structure, First Year Syllabus - Regarding

Dear Sir/Madam,

Greetings!

By directions, I am sharing the R23 academic regulations, course structure and first year syllabus applicable for the students admitted into the B. Tech. programmes of Constituent, Autonomous and Affiliated colleges of the University from the academic year 2023-24 onwards. Please find the documents attached.

The First year course structure and syllabus are common across all disciplines except for the core component in II Semester.

NON-AUTONOMOUS CONSTITUENT AND AFFILIATED COLLEGES

To balance the teaching workload the disciplines are divided into Group A & Group B and accordingly the first-year course structure to be followed by the institutions is enclosed herewith.

GROUP A disciplines – CSE, EEE, Food Technology & Chemical Engineering

GROUP B disciplines – Civil Engineering, Mechanical Engineering, ECE & Allied, CSE allied & IT

* The course structure along with course codes will be uploaded on the website shortly.

AUTONOMOUS CONSTITUENT AND AFFILIATED COLLEGES

As per the discussions held in the meeting with the Managements and Principals of all the Engineering colleges under JNTUA on 30.08.2023, the Autonomous institutions are informed to follow the academic guidelines as given below:

1. Total number of credits shall be 160 for B.Tech. programme and there is no exemption of credits and no additional credits to be
studied for the award of B.Tech. degree.

2. The courses in first and second semesters may be swapped to balance the teaching workload.
3. There may be up to 20% of deviation in enhancing the content of each course.
4. Flexibility to redefine Course Objectives and Outcomes.
5. Flexibility in offering Professional & Open Electives, verticals/tracks under Open Electives, Skill Enhancement courses.

Please reach me in case of any further clarifications.

Thank you.

Regards,

Prof. V. Sumalatha M.Tech., Ph.D
Director, Academic and Planning,
Jawaharlal Nehru Technological University Anantapur,
Ananthapuramu-515 002.
Andhra Pradesh (India).
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BOS Meeting - Department of Physics - Reg

Physics Department <physicshod@mits.ac.in>

Thu 10/26/2023 5:42 PM

To:padma jntu <padmajntua@gmail.com>;ynahammed@gmail.com <ynahammed@gmail.com>;Ariful Rahaman S K <arahaman@vit.ac.in>;mr.shankar@nic.in <mr.shankar@nic.in>;Department of Physics <physics@mits.ac.in>
Cc:Vice Principal Academics <viceprincipalacademics@mits.ac.in>;Principal MITS <principal@mits.ac.in>

2 attachments (376 KB)

Engineering Physics and Physics Laboratory R23 Syllabus.docx; Engineering Physics and Physics Laboratory R23 Syllabus.pdf;

DEPARTMENT OF PHYSICS
Board of Studies Meeting

Dear Sir/Madam,

Greetings

We have fifth meeting of Board of Studies in online mode through Microsoft Team which will be held on 27.10.2023 at 10:00 AM for the approval of the syllabi of Physics courses offered by Department of Physics, MITS. I have attached the revised syllabus of the following subjects. I request all the members to go through the revised syllabus so that we can have discussion in BoS meeting for any further modification.

Subjects:

1. Engineering Physics (23PHY101) [Common to all branches]
2. Physics Laboratory (23PHY201) [For All]

Please join through the meeting link as mentioned below.

https://teams.microsoft.com/l/meetup-join/19%3a84fefbb5c23a417d9769ec056f8725bc%40thread.tacv2/1698322093648?context=%7b%22Tid%22%3a%22b637c4f6-57b7-44dc-bce4-fec0cd202460%22%2c%22Oid%22%3a%22205b8fe6-a118-4427-ae3d-1aa481a284c9%22%7d

Looking forward for your esteemed presence.

Thank you very much.

Head of the Department
PHYSICS
Madanapalle Institute of Technology & Science
MADANAPALLE - 517 325

Thanks & Kind regards,
Dr. M. Chandra Sekhar,
Head, Department of Physics,
Madanapalle Institute of Technology & Science,
Madanapalle-517325, Andhra Pradesh, India.
Contact : +91-9494512910, +91-8008570664
ORCID ID : 0000-0003-1743-8482
Researcher ID : O-5657-2016