BOARD OF STUDIES MEETING – 2018-19
K.S.R.M COLLEGE OF ENGINEERING
AUTONOMOUS

Minutes of the Meeting

Date	**08.06.2018**	**Day**	**Friday**
Time	**10:00 AM-5.00PM**	**Venue**	**Main Block Computer Lab**
Dept./SS	**Humanities and Sciences (Physics)**	**Convener**	**Mr.M.Ravi Sankar Reddy**

MembersPresent:03 **Members Absent: 00**

S.No	Name	Designation	Signature	S.No	Name	Designation
1.	Dr.K.Thyagarajan	Professor, Department of H&S, HOD,JNTUA, Pulivendula				
2.	Mr. M. Ravi Sankar Reddy	Assistant Professor, HOD, Department of H&S, KSRMCE	M. Ravi			
3.	Mr. G.C.Venkata Subbaiah	Assistant Professor, Department of H&S, KSRMCE				

Mr.M.Ravi Sankar Reddy, welcomed all the members to the meeting and presented the agenda of the meeting.

The resolutions are:

	To do item	Discussion	Resolution	Coordinator/in-charge
1	To finalize the curriculum and syllabus for I & II Semesters under R18UG Regulations.	The Board of Chairman has presented the syllabus designed by the faculty after taking the feedback from all stakeholders and comparing with premier institute syllabus.	The committee proposed few modifications in Engineering physics theory & Lab syllabus.	Mr.M.Ravi Sankar Reddy
2	To frame the curriculum and syllabus for Engineering Physics lab Course of I&II Sem under R18UG Regulations	The Board of Chairman has presented the syllabus designed by the faculty after taking the feedback from all stakeholders and comparing with premier institute syllabus.	The experiments for Engineering physics lab also framed for the academic year 2018-19.	Mr.M.Ravi Sankar Reddy
3.	To finalize and approve the syllabus for Certificate Course.	The Board of Chairman has presented the certification course syllabus designed by the faculty after taking the feedback from all stakeholders.	The committee appreciated the course and approved the content for offering Certificate Courses.	Mr.M.Ravi Sankar Reddy

The Head of the Department have proposed the Vote of thanks and concluded the meeting.

M. Ravi

Convener

B. Ravi

HoD

Head of Humanities & Sciences
K.S.R.M College of Engineering
KADAPA 516 005

UG Programs in Civil Engineering (R18 UG)

Curriculum

1st Semester

Subject Code	Subject Category	Subject Title	L	T	P	IM	EM	CR
1821101	BSC	Mathematics – 1	3	1	0	30	70	4
1823102	BSC	Engineering Chemistry	3	1	0	30	70	4
1824103	HSMC	English	2	0	0	30	70	2
1805104	ESC	Programming for Problem Solving	3	0	0	30	70	3
1823107	BSC	Chemistry Lab	0	0	3	50	50	1.5
1805108	ESC	Programming for Problem Solving Lab	0	0	4	50	50	2
1824109	HSMC	English Lab	0	0	2	50	50	1
		Total	**11**	**2**	**9**	**270**	**430**	**17.5**

2nd Semester

Subject Code	Subject Category	Subject Title	L	T	P	IM	EM	CR
1821201	BSC	Mathematics – 2	3	1	0	30	70	4
1822204	BSC	Engineering Physics	3	1	0	30	70	4
1802205	ESC	Basic Electrical Engineering	3	1	0	30	70	4
1803207	ESC	Engineering Graphics and Design	1	0	4	50	50	3
1822208	BSC	Engineering Physics Lab	0	0	3	50	50	1.5
1802209	ESC	Basic Electrical Engineering Lab	0	0	2	50	50	1
1803211	ESC	Workshop and Manufacturing Practice	1	0	4	50	50	3
		Total	**11**	**3**	**13**	**290**	**410**	**20.5**

B. Ram
Head of Humanities & Sciences
K.S.R.M College of Engineering
KADAPA 516 005

Detailed Course Structure
Department of EEE

B. Tech - I Semester (Theory - 4, Lab - 3)

S. No.	Subject Code	SUBJECT	SC	L	T	P	IM	EM	CR
1	1821101	Mathematics-I	BSC	3	1	0	30	70	4
2	1823102	Engineering Chemistry	BSC	3	1	0	30	70	4
3	1824103	English	HSMC	2	0	0	30	70	2
4	1805104	Programming for Problem Solving	ESC	3	0	0	30	70	3
5	1823107	Chemistry Lab	BSC	0	0	3	50	50	1.5
6	1805108	Programming for Problem Solving Lab	ESC	0	0	4	50	50	2
7	1824109	English Lab	HSMC	0	0	2	50	50	1
Total				11	02	09	270	430	17.5

B. Tech - II Semester (Theory - 4, Lab - 3)

S. No.	Subject Code	SUBJECT	SC	L	T	P	IM	EM	CR
1	1821201	Mathematics-II	BSC	3	1	0	30	70	4
2	1822203	Engineering Physics	BSC	3	1	0	30	70	4
3	1802206	Basic Electrical Engineering	ESC	3	1	0	30	70	4
4	1803207	Engineering Graphics & Design	ESC	1	0	4	50	50	3
5	1822208	Engineering Physics Lab	BSC	0	0	3	50	50	1.5
6	1802210	Basic Electrical Engineering Lab	ESC	0	0	2	50	50	1
7	1803211	Workshop on Manufacturing Practices	ESC	1	0	4	50	50	3
Total				11	03	13	290	410	20.5

B. Rao
Head of Humanities & Sciences
K.S.R.M College of Engineering
KADAPA 516 005

UG Programs in Mechanical Engineering (R18 UG)
Curriculum

1st Semester

Subject Code	Subject Category	Subject Title	L	T	P	IM	E M	CR
1821101	BSC	Mathematics - I	3	1	0	30	70	4
1823102	BSC	Engineering Chemistry	3	1	0	30	70	4
1824103	HSMC	English	2	0	0	30	70	2
1805104	ESC	Programming for Problem Solving	3	0	0	30	70	3
1823107	BSC	Chemistry Lab	0	0	3	50	50	1.5
1805108	ESC	Programming for Problem Solving Lab	0	0	4	50	50	2
1824109	HSMC	English Lab	0	0	2	50	50	1
		Total	11	2	9	270	430	17.5

Second Semester (mechanical)

Subject Code	Subject Category	Subject Title	L	T	P	IM	EM	CR
1821201	BSC	Mathematics - II	3	1	0	30	70	4
1822204	BSC	Engineering Physics	3	1	0	30	70	4
1802205	ESC	Basic Electrical Engineering	3	1	0	30	70	4
1803207	ESC	Engineering Graphics & Design	1	0	4	50	50	3
1822208	BSC	Engineering Physics Lab	0	0	3	50	50	1.5
1802209	ESC	Basic Electrical Engineering Lab	0	0	2	50	50	1
1803211	ESC	Workshop and Manufacturing Practices	1	0	4	50	50	3
		Total	11	3	13	290	410	20.5

B. Ramj
Head of Humanities & Sciences
K.S.R.M College of Engineering
KADAPA 516 005

Detailed Course Structure
Department of ECE

I Semester

S. No.	Subject Code	Subject	Category	L	T	P	IM	EM	Credits
1	1821101	Mathematics – I	BSC	3	1	0	30	70	4
2	1822102	Engineering Physics	BSC	3	1	0	30	70	4
3	1823103	Basic Electrical Engineering	ESC	3	1	0	30	70	4
4	1824107	Engineering Graphics & Design	ESC	1	0	4	50	50	3
5	1822108	Engineering Physics Lab	BSC	0	0	3	50	50	1.5
6	1826106	Basic Electrical Engineering Lab	ESC	0	0	2	50	50	1
7	1827110	Workshop and Manufacturing Practices	ESC	1	0	4	50	50	3
		Total:		11	3		290	410	20.5

II Semester

S. No.	Subject Code	Subject	Category	L	T	P	IM	EM	Credits
1	1821201	Mathematics - II	BSC	3	1	0	30	70	4
2	1823202	Engineering Chemistry	BSC	3	1	0	30	70	4
3	1824203	English	HSMC	2	0	0	30	70	2
4	1805204	Programming for Problem Solving	ESC	3	0	0	50	50	3
5	1823207	Chemistry Lab	BSC	0	0	3	50	50	1.5
6	1805208	Programming for Problem Solving Lab	ESC	0	0	4	50	50	2
7	1824209	English Lab	HSMC	0	0	2	50	50	1
		Total:		11	02	09			17.5

B. Ramu
Head of Humanities & Sciences
K.S.R.M College of Engineering
KADAPA - 516 005

Detailed Course Structure
COMPUTER SCIENCE AND ENGINEERING

I Semester

Subject Code	Subject Category	Course Name	L	T	P	IM	EM	CR
1821101	BSC	Mathematics – I	3	1	0	30	70	4
1822104	BSC	Engineering Physics	3	1	0	30	70	4
1802103	ESC	Basic Electrical Engineering	3	1	0	30	70	4
1803107	ESC	Engineering Graphics & Design	1	0	4	50	50	3
1822108	BSC	Engineering Physics Lab	0	0	3	50	50	1.5
1802109	ESC	Basic Electrical Engineering Lab	0	0	2	50	50	1
1803110	ESC	Workshop and Manufacturing Practices	1	0	4	50	50	3
		TOTAL	**11**	**3**	**13**	**290**	**410**	**20.5**

II Semester

Subject Code	Subject Category	Course Name	L	T	P	IM	EM	CR
1821201	BSC	Mathematics – II	3	1	0	30	70	4
1823202	BSC	Engineering Chemistry	3	1	0	30	70	4
1824203	HSMC	English	2	0	0	30	70	2
1805204	ESC	Programming for Problem Solving	3	0	0	30	70	3
1823207	BSC	Chemistry Lab	0	0	3	50	50	1.5
1805208	ESC	Programming for Problem Solving Lab	0	0	4	50	50	2
1824209	HSMC	English Lab	0	0	2	50	50	1
		TOTAL	**11**	**2**	**9**	**270**	**430**	**17.5**

B. Ram
Head of Humanities & Sciences
K.S.R.M College of Engineering
KADAPA - 516 005

Course Title	ENGINEERING PHYSICS				B. Tech. CSE (I Sem)		
Course Code	Category	Hours/Week			Credits	Maximum Marks	
1822104	BSC	L	T	P	C	Continuous Internal Assessment	End Exams	Total
		3	1	0	4	30	70	100
					End Exam Duration: 3Hrs			

Course Objectives:

1	Analyze and understand the concepts of waves and optics to prepare the students for advanced level courses.
2	Expose students to theoretical and mathematical aspects of Interference, Diffraction techniques and Lasers for testing of materials.
3	Understand the fundamental concepts of Electronic materials.
4	Develop knowledge and understanding the fundamental concepts of semiconductors and nanomaterials.
5	Adaptability to new developments in science and technology.

COURSE OUTCOMES

Upon successful completion of this course, the students should be able to:

CO1	**Apply** the knowledge of Sciences to solve engineering problems by using Interference and Diffraction techniques	
CO2	**Identify** the working elements of different lasers and laser operation parameters.	
CO3	**Understand** the idea of Electronic materials & its applications in Engineering.	
CO4	**Explain** the role of semiconductors in different realms of physics and their applications in both science and technology.	
CO5	**Analyze** the different properties of nanomaterials with various synthesizing techniques.	

Course Syllabus:

Unit I: Light & Optics (12 lectures)

Huygens' Principle, superposition of waves, Young's double slit experiment, expression for fringe width, Interference in thin film by reflection, Newton's rings experiment, Diffraction, Farunhofer diffraction due to single slit, and Diffraction grating (N-slit).

Unit II: Lasers (08 lectures)

Introduction to lasers, characteristics of laser, interaction of radiation with matter-spontaneous and stimulated emission, Einstein's coefficients; population inversion, excitation mechanisms, types of lasers: Solid-state lasers – Nd-YAG laser, Gas lasers - He-Ne Laser, Semiconductor p-n junction diode laser, Applications of lasers

UNIT III: Electronic materials (10 lectures)

Free electron theory, Density of states and energy band diagrams, Kronig-Penny model (to introduce origin of band gap), E-k diagram, Energy bands in solids, Direct and indirect band gaps, Types of electronic materials: metals, semiconductors, and insulators, Density of states, Fermi level, Effective mass, Phonons.

UNIT IV: Semiconductors (10 lectures)

Intrinsic and extrinsic semiconductors, Dependence of Fermi level on carrier-concentration and temperature (equilibrium carrier statistics), Carrier generation and recombination, Carrier transport: diffusion and drift, p-n junction, Metal-semiconductor junction (Ohmic and Schottky), Semiconductor materials of interest for optoelectronic devices.

UNIT 5: Engineered Nanomaterials (06 lectures)

Introduction, significance of Nano scale and types of nanomaterials, Properties of nanomaterials: physical , optical, thermal, mechanical and magnetic properties. Synthesis of nanomaterials: Ball-milling, Chemical Vapour Deposition and Sol-Gel methods. Applications of nanomaterials.

Text Books:

1. Engineering Physics by **K. Thygarajan**, Mac Graw – Hill Publishing Co. New Delhi.
2. Optics- AjoyGhatak, McGraw Hill Publishers,6th edition,
3. Fundamental of Physics- Halliday, Resnick and Walker, Wiley publications.
4. Solid State Physics, Hall H E, paramount Publications.

References:

1. Engineering Physics – Dr. M.N. Avadhanulu & Dr. P.G. Krishnasagar,S. Chand and Company.

2. S. M. Sze, Semiconductor Devices: Physics and Technology, Wiley (2008).

3. Lasers & Non-linear Optics Nelkon M parker P, Arnold Heinemann Publications.

4. Semiconductor physics and devices- Basic principle – Donald A, Neamen, McGraw Hill.

M. Ramesh

Faculty Incharge

B. Ramesh

HOD-H&S

Head of Humanities & Sciences
K.S.R.M College of Engineering
KADAPA 516 005

Course Title	ENGINEERING PHYSICS				B. Tech. ECE (I-SEM) EEE (II-Sem)		
Course Code	Category	Hours/Week			Credits	Maximum Marks	
1822102/1822203	BSC	L	T	P	C	Continuous Internal Assessment	End Exams	Total
		3	1	0	4	30	70	100
					End Exam Duration: 3Hrs		

Course Objectives:

1	Expose students in understanding the basic laws of nature through wave equationusing the principles of oscillations and waves.
2	Understand students to theoretical and mathematical aspects of Interference, Diffraction techniques and Lasers for testing of materials.
3	Develop knowledge and understanding the fundamental concepts of Quantum mechanics.
4	Extend the knowledge and understanding the fundamental concepts of solids and semiconductors.
5	Adaptability to new developments in science and technology

COURSE OUTCOMES

Upon successful completion of this course, the students should be able to:

CO1	**Describe** a mathematical wave equation using the principles of waves and oscillations
CO2	**Apply** the knowledge of Sciences to solve engineering problems by using Interference and Diffraction techniques.
CO3	**Identify** the working elements of different lasers and applications.
CO4	**Understand** the fundamental concepts of Quantum Mechanics
CO5	**Explain** about the solids and different types of semiconductor materials of carrier concentration.

Course Syllabus:

Unit I: Waves (08 lectures)

Introduction, Simple harmonic motion, Characteristics of Simple harmonic motion, Energy of Simple harmonic motion, Principle of Superposition of waves, Linear superposition of two waves of same frequency. Damped harmonic oscillations, Energy and power dissipations in Damped harmonic oscillations, forced harmonic oscillations, Resonance.

Unit II: Wave Optics (10 lectures)

Introduction, Huygens' Principle, Superposition of waves, Young's double slit experiment, expression for fringe width, Interference in thin film by reflection, Newton's rings experiment, Diffraction, Farunhofer diffraction due to single slit, and Diffraction grating (N-slits).

Unit III: Lasers (8 lectures)

Introduction to lasers, characteristics of laser, Interaction of radiation with matter-spontaneous and stimulated emission, Einstein's coefficients; Population inversion, Excitation mechanisms, types of lasers: Solid-state lasers – Nd-YAG laser, Gas lasers - He-Ne Laser, Semiconductor p-n junction diode laser, Applications of lasers

Unit IV: Quantum Mechanics & Wave Equations (8 lectures)

Introduction, Wave nature of matter, Uncertainty principle, Time-dependent and time-independent Schrodinger equations for wave function, Physical significance of wave function, Schrodinger equation for one dimensional particle in a box.

Unit V: Solids & Semiconductors (12 lectures)

Introduction, Free electron theory of metals (drift velocity and electrical conductivity), Fermi energy level, Kronig-Penney model and Origin of energy bands, band structure of metals, semiconductors, and insulators. Direct and indirect bandgap semiconductors, Intrinsic and extrinsic semiconductors, Dependence of Fermi level on carrier-concentration and temperature (equilibrium carrier statistics), Diffusion and Drift, p -n junction.

Text books:

1. Engineering Physics – Dr. M.N. Avadhanulu& Dr. P.G. Krishnasagar,S.Chand and Company
2. Optics- Ajoy Ghatak, McGraw Hill Publishers,6th edition,
3. Fundamental of Physics- Halliday, Resnick and Walker, Wiley publications.
4. Solid State Physics, Hall H E, paramount Publications

Reference Books:

1. Engineering Physics – K.Thyagarajan, McGraw Hill Publishers
2. Semiconductor Devices- S.M.Sze , Wiley Publications.
3. Lasers & Non-linear Optics Nelkon M parker P, Arnold Heinemann Publications
4. Semiconductor physics and devices- Basic principle – Donald A, Neamen, McGraw Hill,2002

Faculty Incharge

HOD-H&S

Head of Humanities & Sciences
K.S.R.M College of Engineering
KADAPA - 516 005

Course Title	ENGINEERING PHYSICS				B. Tech. CE (II Sem)		
Course Code	Category	Hours/Week			Credits	Maximum Marks	
1822202	BSC	L	T	P	C	Continuous Internal Assessment	End Exams	Total
		3	1	0	4	30	70	100
					End Exam Duration: 3Hrs		

Course Objectives:

1	**Understand** students to theoretical and mathematical aspects of interference and diffraction of light for testing of materials.
2	**Describe** the importance of Mechanics of particles & Rigid body.
3	**Expose** students to the fundamental principles and laws of mechanics in Physics to understand the types of motion.
4	**Develop** knowledge and understanding the fundamental concepts of Solids and semiconductors.
5	**Adaptability** to new developments in science and technology.

COURSE OUTCOMES

Upon successful completion of this course, the students should be able to:

CO1	**Define** the fundamentals of materials testing using Interference and Diffraction techniques and **solve** the engineering problems.
CO2	**Apply** the lasers concepts in various applications and Identify the working elements of different lasers and estimate laser operation parameters.
CO3	**Acquire** new knowledge and explain the fundamental physical principles and laws of Mechanics in Physics.
CO4	**Design** electrical systems and Explain the role of semiconductors in different realms of physics and their applications in both science and technology.
CO5	**Develop** confidence for self-education and to understand the value of lifelong learning

Course Syllabus:

Unit I: Interference & Diffraction **(10 lectures)**

Introduction to Interference, Interference in thin film by reflection, Newton's rings experiment, Diffraction, Farunhofer diffraction due to single slit, Double slit and Diffraction grating (N-slit),Grating Spectrum, Applications of Diffraction.

Unit II: Lasers **(08 lectures)**

Introduction to lasers, characteristics of laser, interaction of radiation with matter-spontaneous and stimulated emission, Einstein's coefficients; population inversion, excitation mechanisms, types of lasers: Solid-state lasers – Nd-YAG laser, Gas lasers - He-Ne Laser, Semiconductor p-n junction diode laser, Applications of lasers

Unit III: Mechanics of particles **(08 lectures)**

Velocity and Acceleration, Motion in one dimension, several dimensions, Formal solution of kinematical equations. Polar Co-ordinates, velocity and acceleration in polar coordinates. Newton's Laws, applications of Newton's laws. Conservative and non-conservative forces.

Unit IV: Rigid body Mechanics **(08 lectures)**

Definition and motion of a rigid body in the plane, Rotation in the plane, Kinematics in a coordinate system rotating and translating in the plane; Angular momentum about a point of a rigid body in planar motion; Euler's laws of motion, their independence from Newton's laws, and their necessity in describing rigid body motion; Examples;

Unit V: Solids & Semiconductors **(12 lectures)**

Introduction to solids and semiconductors. Free electron theory of metals (drift velocity and electrical conductivity), Fermi energy level, Kronig-Penney model and origin of energy bands, band structure of metals, semiconductors, and insulators. Direct and indirect bandgap semiconductors, Intrinsic and extrinsic semiconductors, Dependence of Fermi level on carrier-concentration and temperature (equilibrium carrier statistics), diffusion and drift, p -n junction.

Text books:

1. Engineering Physics – Dr. M.N. Avadhanulu& Dr. P.G. Krishnasagar, S.Chand and Company
2. Optics- AjoyGhatak , McGraw Hill Publishers,6th edition,
3. Engineering Mechanics - Dynamics, 7th ed. – J.L Meriam.
4. Solid State physics, Hall H E, paramount Publications

Reference Books:

1. Engineering Physics – K. Thyagarajan, McGraw Hill Publishers, New Delhi.
2. An Introduction to Mechanics — D Kleppner & R Kolenkow.
3. Lasers & Non-linear Optics Nelkon M parker P, Arnold Heinemann Publications.
4. Solid State Physics-Kittels-8th edition,1st January-2015,Wiley Publications.

M. Ramireddy

Faculty Incharge

B. Ramu

HOD-H&S

Head of Humanities & Sciences
K.S.R.M College of Engineering
KADAPA - 516 005

Course Title	ENGINEERING PHYSICS				B. Tech. ME (II Sem)		
Course Code	Category	Hours/Week		Credits	Maximum Marks		
1822204	BSC	L	T	P	C	Continuous Internal Assessment	End Exams	Total
		3	1	0	4	30	70	100
					End Exam Duration: 3Hrs		

Course Objectives:

1	Expose students to theoretical and mathematical aspects of Interference, Diffraction techniques and Lasers for testing of materials.
2	To understand the concepts of Simple harmonic Oscilator & non dispensive Transverse & Longitudinal waves .
3	Develop knowledge and understanding the fundamental concepts of solids and semiconductors.
4	Adaptability to new developments in science and technology.

COURSE OUTCOMES

Upon successful completion of the course, students will be able to

CO1	**Apply** the knowledge of Sciences to solve engineering problems by using Interference and Diffraction techniques.
CO2	**Explain** the working elements of different lasers and estimate laser operation parameters.
CO3	**Compute** Damped & Forced Simple Hormonic Oscilations.
CO4	**Understand** Tranverse & Longitudinal waves.
CO5	**Develop** confidence and **Explain** the role of semiconductors in different realms of physics and their applications in both science and technology.

Course Syllabus:

Unit I: Wave Optics **10 lectures**

Introduction, Huygens' Principle, Superposition of waves, Young's double slit experiment, expression for fringe width, interference in thin film by reflection, Newton's rings experiment, Diffraction Farunhofer diffraction due to single slit, and Diffraction grating (N-slits).

Unit II: Lasers **08 lectures**

Introduction to lasers, characteristics of laser, interaction of radiation with matter-spontaneous and stimulated emission, Einstein's coefficients; population inversion, excitation mechanisms, types of lasers: Solid-state lasers – Nd-YAG laser, Gas lasers - He-Ne Laser, Semiconductor p-n junction diode laser, Applications of lasers

Unit III: Damped and Forced Simple Harmonic Oscillator **10 lectures**

Mechanical and electrical simple harmonic oscillators, Damped harmonic oscillator – Heavy, critical and light damping, Energy decay in a damped harmonic oscillator, Quality factor, Forced Mechanical and Electrical oscillators, Electrical and Mechanical impedance.

UNIT IV: Non-dispersive transverse and longitudinal waves in one dimension String

08 lectures

Transverse wave on a string, the wave equation on a string, Harmonic waves, Reflection and transmission of waves at a boundary, Impedance matching, Standing waves and their Eigen frequencies, Longitudinal waves and the wave equation for them.

Unit V: Solids & Semiconductors **10 lectures**

Introduction, Free electron theory of metals (drift velocity and electrical conductivity), Fermi energy level, Kronig-Penney model and origin of energy bands, band structure of metals, semiconductors, and insulators. Direct and indirect bandgap semiconductors, Intrinsic and extrinsic semiconductors, Dependence of Fermi level on carrier-concentration and temperature (equilibrium carrier statistics), diffusion and drift, p -n junction.

Text books:

1. Engineering Physics – Dr. M.N. Avadhanulu& Dr. P.G. Krishnasagar, S.Chand and Company

2. Optics- AjoyGhatak , McGraw Hill Publishers,6th edition,

3. Waves and Oscillations in physics', Ian G. Main.

4. Solid State physics, Hall H E, paramount Publications

Reference Books:

1. Engineering Physics – K. Thyagarajan, McGraw Hill Publishers.
2. Acoustic Waves and Oscillations-Sen S N, Prism Publications.
3. Semiconductor Physics & Devices, 'Neamen'.
4. Solid State Physics-Kittels-8th edition,1st January-2015,Wiley Publications.

M. Ravisankar

Faculty Incharge

B. Ramesh

HOD-H&S

Head of Humanities & Sciences
K.S.R.M College of Engineering
KADAPA - 516 005

Course Title	ENGINEERING PHYSICS LAB				B. Tech. ECE & CSE(I-Sem) CE, EEE & ME (II-Sem)		
Course Code	Category	Hours/Week			Credits	Maximum Marks	
		L	T	P	C	Continuous Internal Assessment	End lab Exams	Total
1822108/1822208	BSC	0	0	3	1.5	50	50	100
					End Exam Duration: 3Hrs			

Course objectives :

1	To explore the application of interference and diffraction by doing concerned experiments.
2	Elucidate the concepts of Physics through involvement in the experiment by applying theoretical knowledge.
3	Develop an ability to apply the knowledge of physics experiments in the later studies.
4	To understand the concept of energy gap, B-H curve, and synthesis of nano material by performing the experiments.

Course Outcomes: At the end of the course, the students will be able to

CO.1	**Operate** various optical and electronic instruments.
CO.2	**Evaluate** the acceptance angle of an optical fiber and numerical aperture.
CO.3	**Plots** the intensity of the magnetic field of circular coil carrying current with distance
CO.4	**Apply** the concepts of interference and diffraction to determine various parameters
CO.5	**Estimate** wavelength of laser and particles size using laser.

Any 8 of the following experiments has to be performed

1. Determine the thickness of the wire using wedge shape method.
2. Determine the radius of curvature of the Plano-convex lens by Newton's ring method.
3. Determine the wavelength of light by plane diffraction grating method.
4. Determine the Dispersive power of prism.
5. Determine the wavelength of LASER light using diffraction grating.
6. Magnetic field along the axis of a circular coil carrying current- Stewart - Gee's method.
7. Study the variation of B versus H by magnetizing the magnetic curve.(B-H curve)
8. Determine the energy band gap of a semiconductor diode.
9. Determine the rigidity modulus of the material of the given wire by dynamical method using a torsional pendulum
10. Determine the frequency of a vibrating bar (or) tuning fork using Melde's arrangement.
11. Determine the resonance frequency in a series and parallel LCR circuit
12. Evaluate spring constant for the given spring-Coupled Pendulums.

Text books:

1. S. Balasubramanian, M.N. Srinivasan "A Text book of Practical Physics"- S ChandPublishers,

2. Physics Laboratory Manual by Loyd D H, Cengage learning, 4Th International Edition 2014.

3. Et.Al. Engineering Physics Lab Manual by MadhusudhanaRao, SCITECH PUBLICATIONS (INDIA) PVT.LTD, 2015.

4. Practical Physics by K.Venugopalan (Author), VimalSaraswat (Author), Himanshu Publications.

References:

1. Physics Laboratory Experiments, by Jerry Wilson (Author), Cecilia A. Hernandez-Hall (Author),Brooks/cole; 7th edition (11 June 2009).

2. Lab manual Physics, R Rangarajan, R P Manchanda, R K Gupta, Rajesh Kumar NeenaSinha- NewSaraswati House.

3. Practical Physics by Kumar P. R. Sasi, Prentice-Hall of India Pvt.Ltd.

Weblink:

1. http://vlab.amrita.edu/index.php - Virtual Labs, Amrita University.

M. Ravisankar

Faculty Incharge

B. Ramesh

HOD-H&S

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KADAPA 516 005