

**TELANGANA TRIBAL WELFARE RESIDENTIAL DEGREE  
COLLEGE (G)  
DIST :KOMARAM BHEEM ASIFABAD  
STATE:TELANGANA  
(Affiliated to Kakatiya University)**



**DEPARTMENT OF PHYSICAL SCIENCE**

## **Vision:**

The vision is to build magnificent marvelous and extraordinary educational institutions which would provide high quality, holistic and value based education to the students of marginalized sections on par with the quality of education received by the other advantaged children of the country

## **Objectives:**

Students will use principles, laws, and basic concepts to solve and present problems and explain phenomena in the following areas of physics and engineering at the introductory level; thermodynamics, mechanics, electromagnetic theory, nuclear physics, waves and optics.

## **Inception and Growth:**

The department of Physical Science was introduced in the year 2017-2018

## **Inputs from the Department:**

1. Name and address of the Department : **Department of physical science TTWRDC(W)  
ASIFABAD BURUGUDA.**
2. Year of establishment : **2017**
3. Courses offered : **BSC(MPC)**

**Courses offered in 2018: BSC(MPCs)**

4. Number of teaching, technical and administrative staff of the department:

<b>Category</b>	<b>Male</b>	<b>Female</b>	<b>TOTAL</b>
Total No. of Lecturers	-	03	03
Teachers with Ph.D. qualification	-	-	-
Teachers with M.Phil. qualification	-	-	-
Teachers with P.G. qualification	-	03	03
Teachers pursuing Ph.D.	-	-	-

*Administrative staff is common for all departments*

5. Number of students in the Department during the current year 2018-19,2019-20,2020-21 ,2021-2022,2022-2023

**Number of students in the department during the year 2018-2019**

<b>Particulars</b>	<b>Female</b>	<b>Total</b>
B.SC MPC	31	31
B.SC MPCS	18	18

**Number of students in the department during the year 2019-20**

<b>Particulars</b>	<b>Female</b>	<b>Total</b>
B.SC MPC	50	50
B.SC MPCS	41	41

**Number of students in the department during the year 2020-21**

<b>Particulars</b>	<b>Female</b>	<b>Total</b>
B.SC MPC	50	50
B.SC MPCS	63	63

**Number of students in the department during the year 2021-2022**

<b>Particulars</b>	<b>Female</b>	<b>Total</b>
B.SC MPC	51	51
B.SC MPCS	67	67

**Number of students in the department during the year 2022-2023**

Particulars	Female	Total
B.SC MPC	49	63
B.SC MPCS	49	63

## REMEDIAL TEACHING

- 1.It is based upon a careful diagnosis of defects and is geared to the needs and interest of a pupil
- 2.Future learners are identified and weekly classes are conducted for them
- 3.Important questions from every chapter is being revised and a test is conducted on the same topic at the end of the day
- 4.Weekly analysis of the same is being done by the principal and suggestions regarding the improvement is being given by her
5. Furnish the following details (in figures)

a) Books in the department library:

b) Research projects completed in the last three years: **-Nil**

c) No. of national/ international seminars attended by the lectures during the last two years: **nil**

d) Lecturers who have been Resource Persons at Workshop/ Seminars during last two years;**nil**

6. What are the sanctioned teaching staff strength and the present position?

**Sanctioned – 02 Filled – 02**

**A few of students seminar organized by the department:**

**STUDENT SEMINARS -2018-19**

S.NO	Academic Year	Name of the Department	Name of the student	Date	Topic Name
1	2018-2019 2019-20	PHYSICAL SCIENCE	A.SRIDEVI	20-09-2018	Motion of the rocket
2			B PRADEEPA	20-09-2018	Newton rings
3			JAAN SUHANA	20-08-2018	Michelson morley exp
4			A.NAGALAX MI	01-09-2019	Band theory of solids
5			SRIVANI	01-09-2019	Central force

**STUDENT SEMINAR 2018-2019**

**TOPIC: Motion of the rocket**

**Delivered by : A SRIDEVI**

**Group : BSC(MPC)**

**Year : 1<sup>st</sup> year**

**Date :20-09-2018**

**Brief report**

1.Introduction of newton laws

2.Info about thrust and reaction



Student seminar delivered by A SRIDEVI

**TOPIC : NEWTON RINGS**

**Delivered by :B PRADEEPA**

**Group : BSC(MPC)**

**Year :II year**

**Date :20-09-2018**

**Brief report**

- 1.INTRODUCTION OF NEWTON RINGS
- 2.PHENOMENA OF INTERFERENCE PATTERN
- 3.REFLECTION OF LIGHT BETWEEN TWO SURFACES
- 4.DARK AND BRIGHT RINGS



Student seminar delivered by B PRADEEPA

**TOPIC :Michelson Morley Experiment**

**Delivered by :Jaan Suhana**

**Group : BSC(MPC)**

**Year :1<sup>st</sup> year**

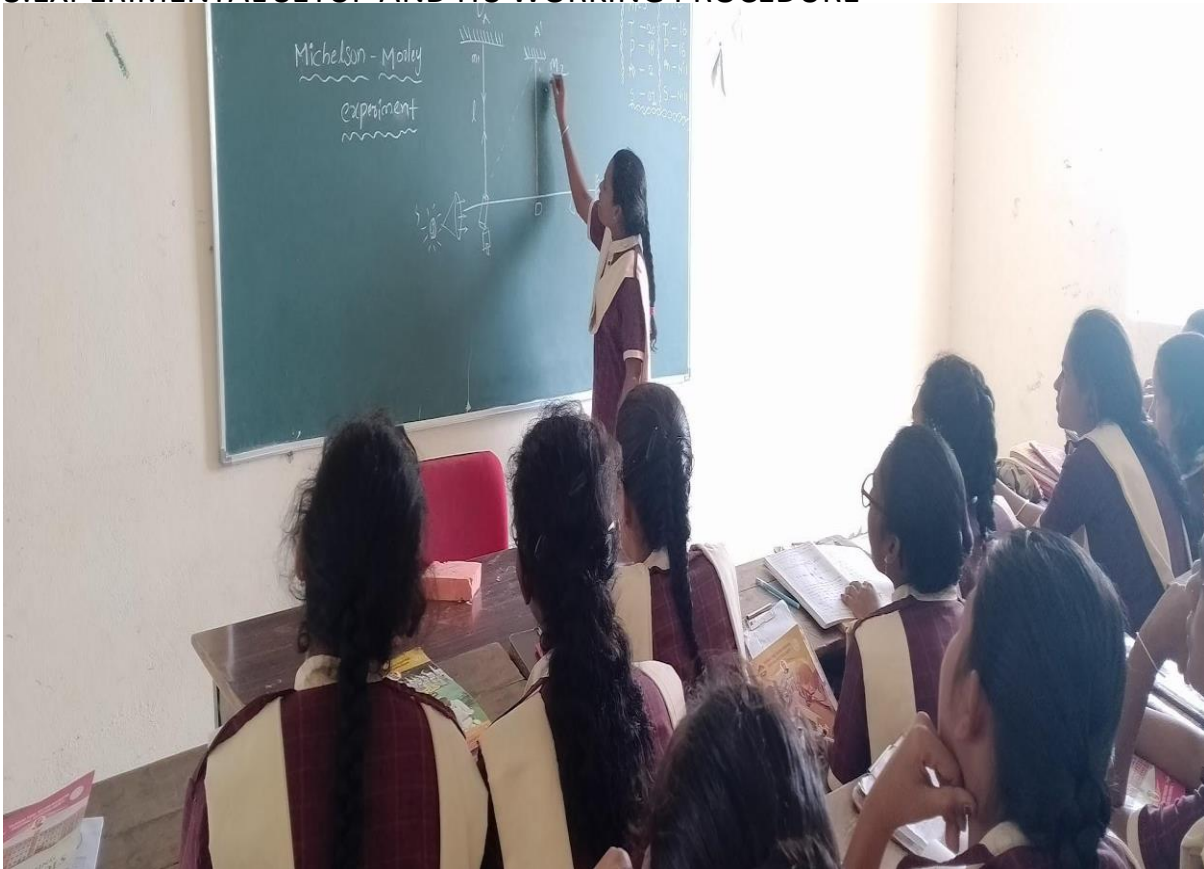
**Date :20-09-2018**

**Brief report**

**1.SPEED OF LIGHT**

**2.SPECIAL THEORY OF RELATIVITY**

**3.EXPERIMENTAL SETUP AND ITS WORKING PROCEDURE**



**Student seminar delivered by JAAN SUHANA**



**TOPIC :BAND THEORY OF SOLIDS**

**Delivered by :A NAGALAXMI**

**Group : BSC(MPC)**

**Year :3YR**

**Date :20-09-2019**

**Brief report**

1.ENERGY BANDS

2.DECREASING RESISTIVITY WITH INCREASING TEMPERATURE

3.OTHER PROPERTIES OF SEMICONDUCTORS



Student seminar delivered by A NAGALAXMI

## TOPIC : CENTRAL FORCE

Delivered by :E SRIVANI

Group BSC(MPCS)

Year :1ST YR

Date :20-09-2019

Brief report

1. Central force is directed force
2. The object is directed towards or away from a point
3. examples of central forces



student seminar delivered by E. Srivani

## A REPORT ON FIELD TRIP



TTWRDC (G) Asifabad organized a field visit to ADA project(sri Komaram bheem project)is a medium reservoir has been built across Peddavagu river,a tributary of the Pranahita river .It is located in ADA village,Asifabad mandal



Name of the project:Sri kumaram bheem irrigation project

Date of visit:march 5,2019

field visit number;1

**REPORT**

Location:ADA village

Opening dates:19-11-2011

Length:1012 mts(3320ft)

This project proposed to supply water to KB, WANKIDI, KAGHAZNAGAR AND SIRPUR mandals more than 45000 in acres

Left canal provides water up to 35 km, the right canal provides irrigation water to about another 25000 acres.

The project consists of an earthen dam 1012m long

A max height of 18m and a total capacity of 10.393tmcft.

**REFERENCES: THE HINDU (NEWS PAPER)**

**A REPORT ON GUEST LECTURE**



## MADAM BALAJI DELIVERING LECTURE

Course and year: BSC(MPC, MPCS)

Subject: WAVES AND OPTICS

Resource Person: MADAM BALAJI

Designation and address: Lecturer in physics department, MATRUSRI DEGREE COLLEGE, Dist: KOMARAM BHEEM

Topic of the lecturer: waves and its properties

Objectives:

- To convey information about WAVES AND ITS PROPERTIES ALONG WITH ITS APPLICATION to stimulate motivation and interest in the subject area
- To make classes more approachable

- To contribute to the teacher's knowledge and practices
- To promote knowledge and experiences by sharing in between · To enrich the students with latest updates
- To explore particular subject with interactions

The department of Physical science has organized a guest lecture on Organization on Behavior for the students of B.SC (MPC, MPCs) on 2-11-2022. 20 students of BSC(MPC, MPCs) attended the class.

The speaker for the lecture was Madam Balaji working as a Lecturer in physical science, at MATRUSRI Degree College, ASIFABAD, Komuram Bheem district. He is one of the senior faculty members of physics at UG level with nearly 11 years of experience. He discussed the topic waves and optics from iv semester

TOPIC; WAVES AND ITS PROPERTIES AND ITS APPLICATIONS

Sir ha explained about types of waves ,concept of waves ,behavior of waves,

He has also explained about mechanical,electromagnetic waves,disturbances caused in the waves ,wave physics formulas,its displacement ,amplitude ,frequency Characteristics,,its wavelength etc .The class was very useful for our students as Sir has explained and cleared all the concepts and made it very clear for us.

## **DEPARTMENT OF PHYSICAL SCIENCE QUIZ COMPETITION 2018-2019**

Name of the Activity : Quiz competition Topic of the quiz:mechanics

Proposed activity : subject questions and General formulas

Date:28/2/2018

No of the student : 12

No of staff involved : 2

Objectives of Quiz:

- To improve competitive spirit of the students
- To improve subject knowledge of the student

Team - A			Team-B
Sl.No	Name of The Student	Sl.no	Name of The Student
1	sharada	1	Teju sri
2	sridevi	2	M ASHVINI
3	ankitha	3	S SHARADA
4	kavitha	4	J VARDHINI
5	Jangu bai	5	D.SARITHA
6	sravani	6	D.DIVYA





<b>S.No</b>	<b>Winner of the Quiz</b>	<b>Runner of the Quiz</b>
	<b>TEAM A</b>	<b>TEAM B</b>



<b>Winner of the Quiz TEAM A</b>	<b>Runner of the Quiz TEAM B</b>
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<b>1</b>	<b>RAJITHA</b>	<b>1</b>	<b>AZRA</b>
<b>2</b>	<b>PARVATHI</b>	<b>2</b>	<b>PALLAVI</b>
<b>3</b>	<b>ASHWINI</b>	<b>3</b>	<b>ANUSHA</b>
<b>4</b>	<b>PREETHI</b>	<b>4</b>	<b>ANASUYA</b>
<b>5</b>	<b>CHANDRAKALA</b>	<b>5</b>	<b>SARITHA</b>
<b>6</b>	<b>LAVANYA</b>	<b>6</b>	<b>MANISHA</b>



Team - A		Team-B	
Sl.No	Name of The Student	Sl.no	Name of The Student
1	SRINIDHI	1	JAGESHWARI
2	SUSHEELA	2	MAHESHWARI
3	VANITHA	3	ROJA
4	VANAJA	4	LAXMI
5	RENUKA	5	NAGALAXMI
6	KALYANI	6	MANISHA





S.No	Winner of the Quiz TEAM B	Runner of the Quiz TEAM A	
1	PRADEEPA	1	K.POOJA
2	SRIVANI	2	PRATYUSHA
3	SUHANA	3	POOJA SARKAR
4	NAGALAKSHMI	4	RAJESHWARI
5	POOJA	5	SUVARNA
6	SRIDEVI	6	PRAVALIKA

Department of Physical science,,TTWRDC (w) Asifabad conducts quiz competition every year on science day 28/2/2018,28/2/2019,28/2/2020,28/2/2021,28/2/2022,28/2/2023 And make students participate actively

### Quiz Organizer's:

1.suman shukla GDL in physics

2.Divyarani DL in physics

### GROUP DISCUSSION 2019-20

S.No	Academic Year	Name of the Department	Name of the Student	Date	Name OF THE SUBJECT
	2019-2020	PHYSICAL SCIENCE	KALYANI	21-11-2019	PHYSICS
			JAGESHWARI		
			SUSHEELA		
			VANITHA		
			VANAJA		
			MAHESHWARI		
			SRINIDHI		
			JYOTHI		
			NAGESHWARI		
			ANURADHA		
			ANNALAKSHMI		
			TEJU SRI		
			JANGU BAI		
			ANUSHA		
			ANASUYA		

			TEJU SRI		
			SANGEETHA		
			PRAVALIKA		
			SHANESHWARA		
			NAGAMANI		

### GROUP DISCUSSION 2019-20

**TOPIC : KEPLER'S LAWS**

**Group : BSC MPC, MPCS**

**Year : FIRST YEAR**

**DATE :21-11-2019**

	<b>Team - A</b>		<b>Team-B</b>
<b>Sl.No</b>	<b>Name of The Student</b>	<b>Sl.No</b>	<b>Name of The Student</b>
<b>1</b>	KALYANI	<b>1</b>	NAGESHWARI
<b>2</b>	JAGESHWARI	<b>2</b>	ANURADHA
<b>3</b>	SUSHEELA	<b>3</b>	ANNALAKSHMI
<b>4</b>	VANITHA	<b>4</b>	TEJUSRI
<b>5</b>	VANAJA	<b>5</b>	JANGUBAI
<b>6</b>	MAHESHWARI	<b>6</b>	ANUSHA
<b>7</b>	SRINIDHI	<b>7</b>	ANUSUYA

<b>8</b>	JYOTHI	<b>8</b>	SANGEETHA
<b>9</b>	TEJUSRI	<b>9</b>	SHANESHWARA
<b>10</b>	SANGEETHA	<b>10</b>	NAGAMANI
<b>11</b>	PRAVALIKA	<b>11</b>	PRASANNA





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**TOPIC :MODERN PHYSICS**

**Group : BSC(MPCs)**

**Year : FIRST YEAR**

**DATE : 10-03-2022**

S NO	GROUP 1	S NO	GROUP 2
1	J.RAMYA	1	anasuya
2	S.LAVANYA	2	JANGUBAI
3	B.SUCHITHA	3	SHAILAJA
4	G.SANDHYA	4	ANASURYA
5	G.RAJESHWARI	5	ROJA

**TOPIC : POYNTING THEOREM**

**Group : BSC(MPC)II YR**

**Year :SECOND YEAR**

**DATE : 10-11-2023**



S.NO	GROUP 1	S NO	GROUP 2
1	M.ASHVINI	1	K SRIDEVI
2	S.RAMYA	2	PULAVARTHI
3	D.DIVYA	3	BHAVANI
4	D.SARITHA	4	MAMATHA
5	K.SINDHU	5	MANISHA

List of the teaching staff, with their designations, qualifications, fields of specializations, years of experience, age and sex.

Sl. No.	Name of the teaching staff	Designation	Highest Qualification	Specialization	Age	Sex	Experience
01	SUMAN SHUKLA	Lecturer	MSC(B.ED)	MSC(Applied electronics)	28	f	6yrs
02	S DIVYARANI	Lecturer	MSC	MSC(Applied electronics)	31	f	4yrs
03	T PRASANNA	LECTURER	MSC(BED)	MSC(solid state physics)	25	f	1yr

7 How Many from the teaching staff have received national/ international recognition as fellows, awardees etc.?

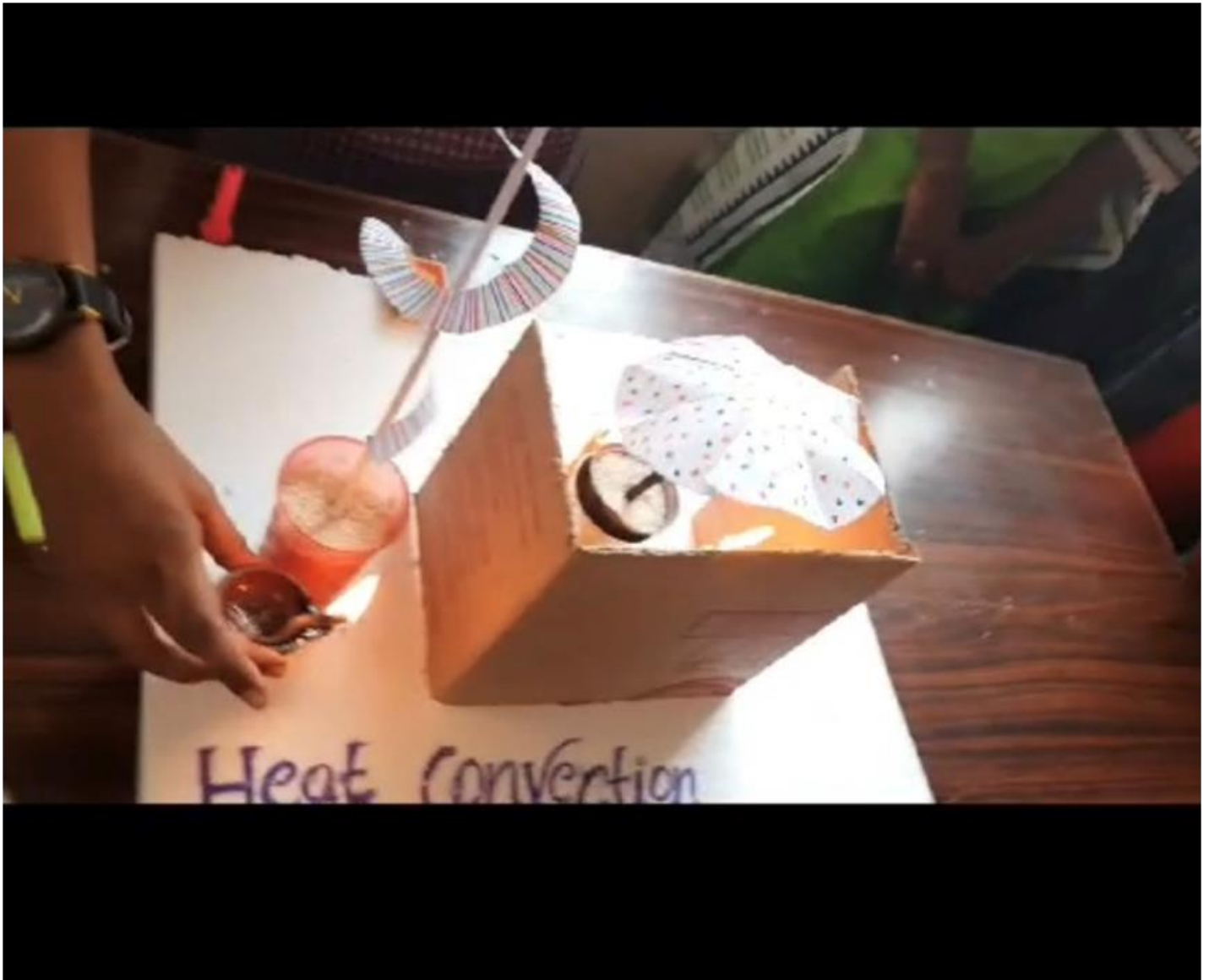
**-Nil**

8 Minor Research Projects applied to UGC -Nil

9 .details of mini project;4

<b>Sl. No.</b>	<b>Title of the mini project</b>	<b>Name of the student</b>	<b>Supporting staff</b>
01	HEAT CONVENTION	M CHANDANA AND TEAM	T.PRASANNA
02	VOLCANOES, ,PROTECTED WATER SUPPLY SCHEME	CH. ANKITHA AND TEAM	SUMAN SHUKLA
03	LOGIC GATES	INDRA AND TEAM	S. DIVYARANI
04	MUTUAL INDUCTION	KALYANI AND TEAM	S.DIVYARANI

# HEAT CONVECTION



Convection(Heat transfer):is the transfer of heat from one place to another due to the movement of Fluid .Convection is usually the dominant form of heatTransfer in liquids and gassesConstruction equipments:Candle,paper sheet,scale,scissors,cardboard sheet,cup of rice

## Working

Take 40 cm length and breadth 10cm of cardboard. After drawing rectangle on the cardboard ,we have to fold the lengths 10 cm,20cm,10cm.Take another card board

cut in circle shape of width 10cm. Mark the circle shape card board with the marker (6 cone shape lines) Cut the cone shape lines up to 5cm and bend it inwards With the help of pencil try to balance the fan (cone shape paper) inserted into the rice cup Surround the paper fan with the candles Glowing below it With the help of heat produced by the candle the fan starts rotating due to convection of heat.

## Volcanoes:





Combine the vinegar, water, dish soap and 2 drops of food coloring into the empty soda bottle.

Use a spoon to mix the baking soda slurry until it is all a liquid.

Eruption time! ... Pour the baking soda slurry into the soda bottle quickly and step back!

## Working:

A chemical reaction between vinegar and baking soda creates a gas called carbon dioxide. Carbon dioxide is the same type of gas used to make the carbonation in sodas. What happens if you shake up a soda? The gas gets very excited and tries to spread out. There is not enough room in the bottle for the gas to spread out so it leaves through the opening very quickly, causing an eruption! The chemical reaction between vinegar and baking soda creates a gas called carbon dioxide. Carbon dioxide is the same type of gas used to make the carbonation in sodas. What happens if you shake up a soda? The gas gets very excited and tries to spread out. There is not enough room in the bottle for the gas to spread out so it leaves through the opening very quickly, causing an eruption!

## Water purification:

There are several methods used in the water purification process, which include: (1) physical processes, such as filtration, sedimentation, or distillation; (2) biological processes, such as sand filters, active carbon; (3) chemical processes, such as flocculation, chlorination, the use of ultraviolet light.

During **filtration**, the clear water passes through filters that have different pore sizes and are made of different materials (such as sand, gravel, and charcoal)

**Sedimentation** is one of the steps water treatment plants use to separate out solids from the water.

**Carbon filters** are designed to capture smaller particles in contaminated water. If you're using a reverse osmosis system

During **coagulation**, chemicals with a positive charge are added to the water. The positive charge neutralizes the negative charge of dirt and other dissolved particles

10. Basic facilities available in the department:

1. Well equipped lab for all the 6 semesters
- 2.no of reference books available ;

11. What is the average workload per week per teacher?

18 periods per week

12. What is a Lecturer's average time spent with students and how much time is spent on committees that deal with academic matters?

- Teaching 18 hrs. per week
- Remedial classes for 3 hrs. per week

- **Academic counseling 1 hrs. per week**
- **Time spent on committees 1 hrs. per week**

**13.** Does the department monitor overall performance of students through regular assessment?

**Yes**

Following methods of assessment are adopted

**✓At knowledge level- Slip tests, Oral tests, Quiz**

**✓Comprehension & Analysis Level- Classroom seminars, Group discussions**

**✓At synthesis level – Assignments & Projects**

**14**How do the teachers update themselves for discharging their teaching / research responsibilities? Give details

- 1. By referring to the latest reference books, journals and periodicals.**
- 2. By Networking with professors of various Universities.**
- 3. Internet Browsing.**

**15** Ratio of students to teachers: 1:20

**16.** Number of research papers published Nil

**17.** Has the department received any special support for teaching or research? ·

**For attending orientation, refresher courses, faculty level seminars & workshops**

**18.** Unique practices and achievements of the department:



### **Expansion & Growth:**

- The department proposed to start physics lab to enable the students to have insight of the curriculum and supplement to classroom teaching.
- Seminars, group discussions on subject and general affairs.
- Extension lectures on different aspects of the curriculum.
- Three year syllabi handouts to the students at the time of the entry level.

To inculcate all round skills among the students, extracurricular activities were organized by the department occasionally.

### **Faculty enrichment:**

## **ANNEXURE**

### **1. COURSES AND COMBINATIONS:**

#### **BSC(MPC),BSC(MPCS)**

<b>PROGRAMME</b>	<b>SEMESTER</b>	<b>MEDIUM</b>	<b>NAME OF THE SUBJECT</b>
BSC MPC	I	English	MECHANICS
BSC MPCS	II	English	THERMODYNAMICS
BSC MPC	III	English	ELECTROMAGNETIC THEORY
BSC MPCS	IV	English	WAVES AND OPTICS
BSC MPC	V	English	MODERN PHYSICS

BSC MPCS	VI	English	ELECTRONICS
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B.Sc. (Physics) Syllabus, Kakatiya University, Warangal (w.e.f 2019-2020)

**KAKATIYA UNIVERSITY, WARANGAL**  
**B.Sc. (PHYSICS)**  
**SCHEME FOR CHOICE BASED CREDIT SYSTEM**  
**YEAR- & SEMESTER-WISE SCHEME OF HPW, CREDITS & MARKS**

Yr	SEM	Course/Paper	Course Type*	Hrs / Week	No. of Credits	Marks			
						Internal	SEM End	Total	
F I R S T	I	Mechanics & Oscillations	DSC-1	4	4	20	80	100	
		Mechanics & Oscillations Lab (Pr)	DSC-1(Pr)	3	1	-	25	25	
	II	Thermal Physics	DSC-2	4	4	20	80	100	
		Thermal Physics Lab (Pr)	DSC-2(Pr)	3	1	-	25	25	
S E C O N D	III	Electromagnetic Theory	DSC-3	4	4	20	80	100	
		Electromagnetic Theory Lab (Pr)	DSC-3(Pr)	3	1	-	25	25	
		1) Experimental methods & Error analysis 2) Electrical circuits & Networking	SEC-1 SEC-2	2 2	2 2	10 10	40 40	50 50	
	IV	Waves & Optics	DSC-4	4	4	20	80	100	
		Waves & Optics Lab (Pr)	DSC-4(Pr)	3	1	-	25	25	
		1) Basic Instrumentation 2) Digital Electronics	SEC-3 SEC-4	2 2	2 2	10 10	40 40	50 50	
	T H I R D	V	(A) Modern Physics Or (B) Computational Physics	DSE-1	4	4	20	80	100
			(A) Modern Physics Lab (Pr) Or (B) Computational Physics Lab (Pr)	DSE-1 (Pr)	3	1	-	25	25
Renewable energy & Energy harvesting			GE	4	4	20	80	100	
VI		(A) Electronics Or (B) Applied Optics	DSE-2	4	4	20	80	100	
		(A) Electronics Lab (Pr) Or (B) Applied Optics Lab (Pr)	DSE-2 (Pr)	3	1	-	25	25	
		Nanoscience	Project / Course in lieu of project	4	4	20	80	100	
<b>Total</b>					<b>30 + 16</b>	<b>120+80</b>	<b>630+320</b>	<b>750 + 400</b>	

\*DSC: Discipline Specific Course (Core); DSE: Discipline Specific Elective (Elective); Pr: Practical  
 SEC: Skill Enhancement Course; GE: Generic Elective

**B.Sc. (Physics) Semester I-Theory Syllabus  
Paper – I: Mechanics**

56 hrs

(w. e. from academic year 2019-20)  
(CBCS)

**Unit – I**

**1. Vector Analysis (14)**

Scalar and vector fields, gradient of a scalar field and its physical significance. Divergence and curl of a vector field and related problems. Vector integration, line, surface and volume integrals. Stokes, Gauss and Greens theorems-simple applications.

**Unit – II**

**2. Mechanics of Particles (07)**

Laws of motion, motion of variable mass system, motion of a rocket, multi-stage rocket, conservation of energy and momentum. Collisions in two and three dimensions, concept of impact parameter, scattering cross-section.

**3. Mechanics of rigid bodies (07)**

Definition of Rigid body, rotational kinematic relations, equation of motion for a rotating body, angular momentum and inertial tensor. Euler's equation, precession of a top, Gyroscope.

**Unit – III**

**4. Central forces (14)**

Central forces – definition and examples, conservative nature of central forces, conservative force as a negative gradient of potential energy, equation of motion under a central force, gravitational potential and gravitational field, motion under inverse square law, derivation of Kepler's laws, Coriolis force and its expressions.

**Unit – IV**

**5. Special theory of relativity (14)**

Galilean relativity, absolute frames, Michelson-Morley experiment, Postulates of special theory of relativity. Lorentz transformation, time dilation, length contraction, addition of velocities, mass-energy relation. Concept of four vector formalism.

**NOTE:** Problems should be solved at the end of every chapter of all units.

*M. V. S. N. S.*

Chairperson  
BOARDS OF STUDIES  
DEPARTMENT OF PHYSICS  
KAKATIYA UNIVERSITY  
WARANGAL-506009 (A.P.)

Question paper pattern

FIRST SEMESTER PRACTICALS

36 hrs  
(3 hrs / week)

Practical Paper – I: Mechanics

1. Study of a compound pendulum determination of 'g' and 'k'.
2. Y by uniform Bending
3. Y by Non-uniform Bending.
4. Moment of Inertia of a fly wheel.
5. Measurement of errors –simple Pendulum.
6. Rigidity moduli by torsion Pendulum.
7. Determine surface tension of a liquid through capillary rise method.
8. Determination of Surface Tension of a liquid by different methods.
9. Determine of Viscosity of a fluid.
10. Calculation of slope and intercept of a  $Y = mX + C$  by theoretical method

**Note:** Minimum of eight experiments should be performed. Maximum of 15 students per batch and maximum of three students per experiment should be allotted in the regular practical class of three hours per week.

**Text and reference books**

1. D.P. Khandelwal, "A laboratory manual for undergraduate classes" (Vani Publishing House, New Delhi).
2. S.P. Singh, "Advanced Practical Physics" (PragatiPrakashan, Meerut).
3. "Practical Physics" R.K Shukla, AnchalSrivastava

*Mans*  
Chairperson  
BOARD OF STUDIES  
DEPARTMENT OF PHYSICS  
KARNATAKA UNIVERSITY  
WARANGAL (T.S.R.)

**Subject: Physics**

**B.Sc. Semester II-Theory Syllabus  
Paper – II : Thermal Physics  
(W.E.F the academic year 2019-2020)**

**56 hrs**

**Unit – I**

**1. Kinetic theory of gases: (6)**

Introduction – Deduction of Maxwell's law of distribution of molecular speeds, Transport Phenomena – Viscosity of gases – thermal conductivity – diffusion of gases.

**2. Thermodynamics: (8)**

Basics of thermodynamics-Kelvin's and Clausius statements – Thermodynamic scale of temperature – Entropy, physical significance – Change in entropy in reversible and irreversible processes – Entropy and disorder – Entropy of universe – Temperature-Entropy (T-S) diagram – Change of entropy of a perfect gas-change of entropy when ice changes into steam.

**Unit – II**

**3. Thermodynamic potentials and Maxwell's equations: (7)**

Thermodynamic potentials – Derivation of Maxwell's thermodynamic relations – Clausius-Clayperon's equation – Derivation for ratio of specific heats – Derivation for difference of two specific heats for perfect gas. Joule Kelvin effect – expression for Joule Kelvin coefficient for perfect and Vanderwaal's gas.

**4. Low temperature Physics: (7)**

Joule Kelvin effect – liquefaction of gas using porous plug experiment. Joule expansion – Distinction between adiabatic and Joule Thomson expansion – Expression for Joule Thomson cooling – Liquefaction of helium, Kapitza's method – Adiabatic demagnetization – Production of low temperatures – Principle of refrigeration, vapour compression type.

**Unit – III**

**5. Quantum theory of radiation: (14)**

Black body-Ferry's black body – distribution of energy in the spectrum of Black body – Wein's displacement law, Wein's law, Rayleigh-Jean's law – Quantum theory of

*M. Anil*  
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MANGALAKOTTA, KERALA

radiation - Planck's law – deduction of Wein's distribution law, Rayleigh-Jeans law, Stefan's law from Planck's law.  
Measurement of radiation using pyrometers – Disappearing filament optical pyrometer – experimental determination – Angstrom pyroheliometer - determination of solar constant, effective temperature of sun.

#### Unit – IV

##### 6. Statistical Mechanics: (14)

Introduction, postulates of statistical mechanics. Phase space, concept of ensembles and some known ensembles, classical and quantum statistics and their differences, concept of probability, Maxwell-Boltzmann's distribution law -Molecular energies in an ideal gas- Maxwell-Boltzmann's velocity distribution law, Bose-Einstein Distribution law, Fermi-Dirac Distribution law, comparison of three distribution laws, Application of B-E distribution to Photons-planks radiation formula, Application of Fermi-Dirac statistics to white dwarfs and Neutron stars.

#### Textbooks

1. **Fundamentals of Physics.** Halliday/Resnick/Walker.C. *Wiley India Edition 2007.*
2. **Second Year Physics – Telugu Academy.**
3. **Modern Physics** by R. Murugesan and Kiruthiga Siva Prasath (for statistical Mechanics) S. Chand & Co.
4. **Heat and Thermodynamics** by Mark W.Zemansky 5<sup>th</sup> edition McGraw - Hill
5. **Heat and Thermodynamics** by D.S. Mathur.

#### Reference Books

1. **Modern Physics** by G. Aruldas and P. Rajagopal, *Eastern Economy Education.*
2. B.B. Laud "**Introduction to statistics Mechanics**"(Macmillan 1981)
3. F.Reif: "**Statistical Physics**"(Mcgraw-Hill,1998)
4. K.Haug: "**Statistical Physics**"(Wiley Eastern 1988)

*Narayana*  
Chairperson  
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**II SEMESTER Practicals Paper – II :**

**42 hrs**  
(3 hrs / week)


**Thermal Physics**

1. Co-efficient of thermal conductivity of a bad conductor by Lee's method.
2. Measurement of Stefan's constant.
3. Specific heat of a liquid by applying Newton's law of cooling correction.
4. Heating efficiency of electrical kettle with varying voltages.
5. Determination of Thermo emf
6. Cooling Curve of a metallic body (Null method)
7. Resistance thermometer. To Determine temp coeff resistance
8. Thermal expansion of solids
9. Study of conversion of mechanical energy into heat.
10. Determine the Specific of a solid (graphite rod)
11. Thermistor Characteristics. Calculation of A and B

**Note:** Minimum of eight experiments should be performed. Maximum of 15 students per batch and maximum of three students per experiment should be allotted in the regular practical class of three hours per week.

**Text and reference books**

1. D.P. Khandelwal, "A laboratory manual for undergraduate classes" (Vani Publishing House, New Delhi).
2. S.P. Singh, "Advanced Practical Physics" (PragatiPrakashan, Meerut).
3. Worsnop and Flint- Advanced Practical physics for students.
4. "Practical Physics" R.K Shukla, AnchalSrivastava

  
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DEPARTMENT OF PHYSICS  
KAKATIYA UNIVERSITY  
WARANGAL-506009 (A.P.)



## Department of Physics

### KAKATIYA UNIVERSITY - WARANGAL - TELANGANA

Under Graduate Courses (Under CBCS 2020 – 2021 onwards)

#### B.Sc. PHYSICS II Year

#### SEMESTER – III

#### PAPER – III: ELECTROMAGNETIC THEORY

Theory:	4 Hours/Week;	Credits: 4	Marks: 100 (Internal: 20; External: 80)
Practical:	3 Hours/Week	Credits: 1	Marks: 25

#### UNIT I

##### Electrostatics

Electric Field:- Concept of electric field lines and electric flux, Gauss's law (Integral and differential forms), application to linear, plane and spherical charge distributions, Conservative nature of electric field 'E', Irrotational field. Electric potential: Concept of electric potential, relation between electric potential and electric field, potential energy of a system of charges, Energy density in an electric field, Calculation of potential from electric field for a spherical charge distribution.

#### UNIT II

##### Magnetostatics

Concept of magnetic field 'B' and magnetic flux, Biot-Savart's law, 'B' due to a straight current carrying conductor, Force on a point charge in a magnetic field, Properties of B, curl and divergence of B, solenoidal field, Integral form of Ampere's law, Applications of Ampere's law: field due to straight, circular and solenoidal currents. Energy stored in magnetic field. Magnetic energy in terms of current and inductance, Magnetic force between two current carrying conductors, Magnetic field intensity, Ballistic Galvanometer: Torque on a current loop in a uniform magnetic field, working principle of B.G., current and charge sensitivity, electromagnetic damping, critical damping resistance.

#### UNIT III:

##### Electromagnetic Induction and Electromagnetic waves

Faraday's laws of induction (differential and integral form), Lenz's law, self and mutual Induction, Continuity equation, modification of Ampere's law, displacement current, Maxwell equations, Maxwell's equations in vacuum and dielectric medium, boundary conditions, plane wave equation: transverse nature of EM waves, velocity of light in vacuum and in medium, Poynting's theorem.

#### UNIT IV:

##### Varying and alternating currents

Growth and decay of currents in LR, CR and LCR circuits - Critical damping, Alternating current, relation between current and voltage in pure R, C and L-vector diagrams - Power in ac circuits. LCR series and parallel resonant circuit-Q-factor, AC & DC motors-single phase, three phase (basics only).

##### Network Theorems

Passive elements, Power sources, Active elements, Network models: T and  $\pi$  Transformations, Superposition theorem, Thevenin's theorem, Norton's theorem. Reciprocity theorem and Maximum power transfer theorem (Simple problems).

#### Suggested Books:

1. Fundamentals of electricity and magnetism By Arthur F. Kip (McGraw-Hill, 1968)
2. Electricity and magnetism by J. H. Fewkes & John Yarwood. Vol. I (Oxford Univ. Press, 1991).
3. Introduction to Electrodynamics, 3rd edition, by David J. Griffiths, (Benjamin Cummings, 1998).
4. Electricity and magnetism By Edward M. Purcell (McGraw-Hill Education, 1986)
5. Electricity and magnetism. By D C Tayal (Himalaya Publishing House, 1988)
6. Electromagnetics by Joseph A. Edminister 2nd ed. (New Delhi: Tata McGraw Hill, 2006).



Mrs. G. Manjula, Chairperson, BoS



Prof. B. Venkatram Reddy, HoD

**PAPER – III: ELECTROMAGNETIC THEORY  
PRACTICALS**

1. To verify the Thevenin's Theorem
2. To verify Norton Theorem
3. To verify Superposition Theorem
4. To verify maximum power transfer theorem.
5. To determine a small resistance by Carey Foster's bridge.
6. To determine the (a) current sensitivity, (b) charge sensitivity, and (c) CDR of a B.G.
7. To determine high resistance by leakage method.
8. To determine the ratio of two capacitances by De Sauty's bridge.
9. To determine self-inductance of a coil by Anderson's bridge using AC.
10. To determine self-inductance of a coil by Rayleigh's method.
11. To determine coefficient of Mutual inductance by absolute method.

**Note:** Minimum of eight experiments should be performed.

Maximum of 15 students per batch and maximum of three students per experiment should be allotted in the regular practical class of three hours per week.

**Suggested Books:**

1. B. L. Worsnop and H. T. Flint Advanced Practical Physics, Asia Publishing House, New Delhi.
2. Indu Prakash and Ramakrishna, A Text Book of Practical Physics, Kitab Mahal

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## Department of Physics

### KAKATIYA UNIVERSITY - WARANGAL - TELANGANA

Under Graduate Courses (Under CBCS 2020 – 2021 onwards)

### B.Sc. PHYSICS II Year

### SEMESTER – IV

#### PAPER – IV:: WAVES AND OPTICS

Theory:	4 Hours/Week;	Credits: 4	Marks: 100 (Internal: 20; External: 80)
Practical:	3 Hours/Week	Credits: 1	Marks: 25

#### UNIT-I:

##### Waves

Fundamentals of Waves -Transverse wave propagation along a stretched string, general solution of wave equation and its significance, modes of vibration of stretched string clamped at ends, overtones, energy transport, transverse impedance.

Longitudinal vibrations in bars- wave equation and its general solution, Special cases: (i) bar fixed at both ends, ii) bar fixed at the midpoint, iii) bar free at both ends, iv) bar fixed at one end, Transverse vibrations in a bar - wave equation and its general solution. Boundary conditions, clamped free bar, free-free bar, bar supported at both ends, Tuning fork.

#### UNIT II:

##### Interference

Principle of superposition – coherence – temporal coherence and spatial coherence – conditions for Interference of light.

Interference by division of wave front: Fresnel's biprism – determination of wave length of light. Determination of thickness of a transparent material using biprism – change of phase on reflection – Lloyd's mirror experiment.

Interference by division of amplitude: Oblique incidence of a plane wave on a thin film due to reflected and transmitted light (Cosine law) – Colours of thin films – Non-reflecting films – interference by a plane parallel film illuminated by a point source – Interference by a film with two non-parallel reflecting surfaces (Wedge shaped film) – Determination of diameter of wire-Newton's rings in reflected light with and without contact between lens and glass plate, Newton's rings in transmitted light (Haidinger Fringes) – Determination of wave length of monochromatic light – Michelson Interferometer – types of fringes – Determination of wavelength of monochromatic light, Difference in wavelength of sodium  $D_1, D_2$  lines and thickness of a thin transparent plate.

#### UNIT III:

##### Diffraction:

Introduction – Distinction between Fresnel and Fraunhofer diffraction, Fraunhofer diffraction:- Diffraction due to single slit and circular aperture – Limit of resolution – Fraunhofer diffraction due to double slit – Fraunhofer diffraction pattern with N slits (diffraction grating).

Resolving Power of grating – Determination of wave length of light in normal and oblique incidence methods using diffraction grating.

Fresnel diffraction-Fresnel's half period zones – area of the half period zones –zone plate – Comparison of zone plate with convex lens – Phase reversal zone plate – diffraction at a straight edge – difference between interference and diffraction.

## UNIT IV:

### Polarization

Polarized light : Methods of Polarization, Polarization by reflection, refraction, Double refraction, selective absorption , scattering of light – Brewster’s law – Malus law – Nicol prism polarizer and analyzer – Refraction of plane wave incident on negative and positive crystals (Huygen’s explanation) – Quarter wave plate, Half wave plate – Babinet’s compensator – Optical activity, analysis of light by Laurent’s half shade polarimeter.

*NOTE: Problems should be solved at the end of every chapter of all units.*

### Suggested books

1. **Optics** by Ajoy Ghatak. *The McGraw-Hill companies.*
2. **Optics** by Subramaniam and Brijlal. *S. Chand & Co.*
3. **Fundamentals of Physics.** Halliday/Resnick/Walker. *C. Wiley India Edition 2007.*
4. **Optics and Spectroscopy.** R. Murugesan and Kiruthiga Siva Prasath. *S. Chand & Co.*
5. **Second Year Physics – Telugu Academy.**
1. **Modern Engineering Physics** by A.S. Vasudeva. *S.Chand & Co. Publications.*
2. **Feynman’s Lectures on Physics** Vol. 1, 2, 3 & 4. *Narosa Publications.*
3. **Fundamentals of Optics** by Jenkins A. Francis and White E. Harvey, *McGraw Hill Inc.*
4. K. Ghatak, **Physical Optics’**
5. D.P. Khandelwal, **Optical and Atomic Physics’** (Himalaya Publishing House, Bombay, 1988)
11. Jenkins and White: **‘Fundamental of Optics’** (McGraw-Hill)
12. Smith and Thomson: **‘Optics’** (John Wiley and sons).

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Mrs. G. Manjula, Chairperson, BoS

(24<sup>th</sup> Aug., 2020)



Prof. B. Venkatram Reddy, HoD

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**Department of Physics**

**KAKATIYA UNIVERSITY - WARANGAL - TELANGANA**

Under Graduate Courses (Under CBCS 2020 – 2021 onwards)

**B.Sc. PHYSICS II Year**

**SEMESTER – IV**

**PAPER – IV:: WAVES AND OPTICS  
PRACTICALS**

1. Thickness of a wire using wedge method.
2. Determination of wavelength of light using Biprism.
3. Determination of Radius of curvature of a given convex lens by forming Newton's rings.
4. Resolving power of grating.
5. Study of optical rotation- polarimeter.
6. Dispersive power of a prism
7. Determination of wavelength of light using diffraction grating minimum deviation method.
8. Wavelength of light using diffraction grating – normal incidence method.
9. Resolving power of a telescope.
10. Refractive index of a liquid and glass (Boys Method).
11. Pulfrich refractometer – determination of refractive index of liquid.
12. Wavelength of Laser light using diffraction grating.
13. Verification of Laws of a stretched string (Three Laws).
14. Velocity of Transverse wave along a stretched string
15. Determination of frequency of a bar- Melde's experiment

*Note: Minimum of eight experiments should be performed Maximum of 15 students per batch and maximum of three students per experiment should be allotted in the regular practical class of three hours per week.*

**Suggested Books**

1. D.P. Khandelwal, "A laboratory manual for undergraduate classes" (Vani Publishing House, New Delhi).
2. S.P. Singh, "Advanced Practical Physics" (Pragati Prakashan, Meerut).
3. Worsnop and Flint- Advanced Practical physics for students.
4. "Practical Physics" R.K Shukla, Anchal Srivastav.





## TIME TABLE FOR I III V SEMESTERS

DAY	I	II	III	IV	V	VI	VII	viii
timings	9am to 10am	10am to 11am	11.10am to 12.10pm	12.10pm to 1.10 pm	1.10 pm to 2.10pm	2.10 pm to 3.10pm	3.10pm to 4.10pm	4.10pm to 5.10pm
MON	ELCTROMAGNETIC THEORY, NUCLEAR PHYSICS	MECHANICS(P)	NUCLEAR PHYSICS		LUNCH	ELECTROMAGNETIC THEORY,	PG COACHING(PHYSICS)	PG COACHING(PHYSICS)
TUE	ELCTOMAGNETIC THEORY, NUCLEAR PHYSICS	MECHANICS(P)	NUCLEAR PHYSICS		LUNCH	ELECTROMAGNETIC THEORY,	PG COACHING(PHYSICS)	PG COACHING(PHYSICS)
WED	ELCTOMAGNETIC THEORY (P), NUCLEAR PHYSICS	MECHANICS	NUCLEAR PHYSICS		LUNCH	ELECTROMAGNETIC THEORY,	PG COACHING(PHYSICS)	PG COACHING(PHYSICS)
THU	ELCTOMAGNETIC THEORY(P), NUCLEAR PHYSICS	MECHANICS	NUCLEAR PHYSICS		LUNCH	ELECTROMAGNETIC THEORY,	PG COACHING(PHYSICS)	PG COACHING(PHYSICS)
FRI	ELCTOMAGNETIC THEORY, NUCLEAR PHYSICS(p)	MECHANICS	NUCLEAR PHYSICSP		LUNCH	ELECTROMAGNETIC THEORY,	PG COACHING(PHYSICS)	PG COACHING(PHYSICS)
SAT	ELCTOMAGNETIC THEORY, NUCLEAR PHYSICS(P)	MECHANICS	NUCLEAR PHYSICS(P)		LUNCH	ELECTROMAGNETIC THEORY,	PG COACHING(PHYSICS)	PG COACHING(PHYSICS)

## TIME TABLE FOR II IV VI SEMESTERS

DAY	I	II	III	IV	V	VI	VII	viii
timings	9am to 10am	10am to 11am	11.10am to 12.10pm	12.10 pm to 1.10pm	1.10 pm to 2.10pm	2.10 pm to 3.10pm	3.10pm to 4.10pm	4.10pm to 5.10pm
MON	Wave optics/ electronics	Thermal physics	electronics		lunch	Wave optics	PG COACHING(PHYSICS)	PG COACHING(PHYSICS)
TUE	Wave optics/ electronics	Thermal physics	electronics		lunch	Wave optics	PG COACHING(PHYSICS)	PG COACHING(PHYSICS)
WED	Wave optics/ electronics	Thermal physics	electronics		lunch	Wave optics	PG COACHING(PHYSICS)	PG COACHING(PHYSICS)
THU	Wave optics/ electronics	Thermal physics	electronics		lunch	Wave optics	PG COACHING(PHYSICS)	PG COACHING(PHYSICS)
FRI	Wave optics/ electronics	Thermal physics	electronics		lunch	Wave optics	PG COACHING(PHYSICS)	PG COACHING(PHYSICS)
SAT	Wave optics/ electronics	Thermal physics	electronics		lunch	Wave optics	PG COACHING(PHYSICS)	PG COACHING(PHYSICS)

## DEPARTMENTAL ACTIVITY PLAN - 2021-22

JUNE 21	ANNUAL PLAN PREPARATION ,SYLLABUS DIVISION,TIME TABLE ALLOTMENT
JULY 22	ADMISSION PROCESS
AUGUST 18	ADMISSION PROCESS,DISTRIBUTION OF NOTES,TEXT BOOKS
SEPTEMBER24	QUIZ COMPETITION,REMEDIAL COACHING ,CLUB ACTIVITIES
OCTOBER 25	CONDUCTION OF SEMINARS.DEBATES,GROUP DISCUSSIONS
NOVEMBER 27	REVISION FOR SEMESTER EXAMS
DECEMBER 22	TERM EXAMS
JANUARY 29	MINI PROJECT WORKS, FIELD TRIP
FEBRUARY 23	PREPARATION FOR IIT JAM STUDENTS
MARCH 24	CONDUCTING PG ENTRANCE PRACTICE TEST

RESULT ANALYSIS FOR THE ACADEMIC YEAR



2021-2023

Telangana Tribal Welfare Residential Degree College  
(W) Asifabad

**Department of Physics**

Result analysis

Academic year 2021-2022

GROUP	Semester	Appeared	Pass	Fail	Pass Percentage
BSC (MPC, MPCs)	I	54	52	02	96%
BSc (MPC, MPCs)	II	51	47	04	92%
BSC (MPC, MPCs)	III	25	23	02	92%
BSC (MPC, MPCs)	IV	25	19	06	76%
BSC (MPC, MPCs)	V	40	38	02	95%
BSC (MPC, MPCs)	VI	40	35	05	87.5%

### Academic year 2022-2023

Group	Semester	Appeared	Pass	Fail	Pass Percentage
BSC MPC, MPCs	I	32	21	11	65%
BSc MPC, MPCs	II	38	36	02	94%
BSC MPC, MPCs	III	50	46	04	92%
BSC MPC, MPCs	IV	49	47	02	95%
BSC MPC, MPCs	V	23	21	02	91%
BSC MPC, MPCs	VI	23	21	02	91%

**2017-2018**

**19.INDIVIDUAL PROFILE OF THE FACULTY MEMBERS**

**1.Name : SUMAN SHUKLA**



**Father Name :K S SHUKLA**

**3. Mother Name;MEERA SHUKLA**

**4. Date of Birth : 12-1-1995**

**5. Place of Birth : KAGHAZNAGAR**

**6. Nationality : INDIAN**

**7. Gender : FEMALE**

**8. Community : OC**

**9. Languages known : Telugu, Hindi, English,Marathi**

**10. Working Experience :**

Lecturer (2017 to 2018 february) Dept of physical science  
CV RAMAN DEGREE AND PG COLLEGE  
MANCHERIAL

Lecturer (2018 to TILL DATE) Dept. of PHYSICAL SCIENCE  
TTWRDC ASIFABAD  
BURUGUDA

### specialization Areas & Subject taught:-

Specialization in applied electronics

Subject taught;

Mechanics for BSC(mpc,mpcs) 1semester

Waves and oscillations for BSC( mpc,mpcs) 2semester

Thermodynamics for BSC(mpc mpcs) 3 semester

Waves and optics for BSC ( mpc mpcs)4 semester

Electromagnetic theory and solid state physics for BSC( mpc mpcs) v semester

Modern physics and Basic electronics for BSC ( mpc mpcs) vi semester

### 20. Education Qualification Starting From Matriculation On wards:

Sl. No	Qualification	Board /College & University	Year of Passing
1	SSC	FATIMA CONVENT HIGH SCHOOL	2010
2	Intermediate	BALA BHARATHI JUNIOR COLLEGE	2012
3	Degree <b>BSC MPCS</b>	VASUNDHARA DEGREE COLLEGE	2015
4	Post Graduation MSC (APPLIED ELECTRONI CS)	CV RAMAN DEGREE AND PG COLLEGE	2017
5	ANY OTHER QUALIFICA TION	Dr. RAJENDRA PRASAD B.ED COLLEGE	2020

	(B.ED)		
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**2019-2020**

**FACULTY MEMBERS**



- 1. Name : S DIVYARANI**
- 2. Father Name :S PRABHAKAR (LATE)**
- 3. Mother Name : S SHOBHARANI**
- 4. Date of Birth : 30-04-1992**
- 5. Place of Birth : MNCL**
- 6. Nationality : INDIAN**
- 7. Gender :FEMALE**
- 8. Community : BC-A**
- 9. Languages known : Telugu, Hindi, English**
- 10. Working Experience : Lecturer (2019 to Till date)**  
Dept of physical science  
TTWRDC ASIFABAD  
BURUGUDA

Sl. No	Qualification	Board /College & University	Year of Passing
1	SSC	S V NIKETAN HIGH SCHOOL	2007
2	Intermediate	Manjeera Junior College Bellampalli Board of Intermediate Education, Andhra Pradesh	2009
3	Degree <b>BSC</b>	BHAVITHA DEGREE COLLEGE	2012
4	Post Graduation <b>MSC</b>	UNIVERSITY COLLEGE OF SCIENCE	2015
5	ANY OTHER QUALIFICA TION	SET	2017

### **specialization Areas & Subject taught:-**

**Specialization in applied electronics**

**Subject taught;**

**Mechanics for BSC(mpc,mpcs) 1semester**

**Waves and oscillations forBSC( mpc,mpcs) 2semester**

**Thermodynamics for BSC(mpc mpcs) 3 semester**

**Waves and optics for BSC (mpc mpcs)4 semester**

**Electromagnetic theory and solid state physics for BSC( mpc mpcs) v semester**

**Modern physics and Basic electronics for BSC ( mpc mpcs) vi semester**

**2022-2023**

**FACULTY MEMBERS**

**1. Name :T PRASANNA**



**2. Father Name :SAMBAIAH**

**3. Mother Name : UMAVATHI**

**4. Date of Birth : 24-04-1998**

**5. Place of Birth :KAGHAZNAGAR**

**6. Nationality : INDIAN**

**7. Gender :FEMALE**

**8. Community : BC-B**

**9. Languages known : Telugu, Hindi, English**

**10. Working Experience : Lecturer (2022 to Till date)**

Dept of physical science  
TTWRDC ASIFABAD  
BURUGUDA

**Specialization in solid state physics**

**Subject taught;**

**Mechanics for BSC(mpc,mpcs) 1semester**

**Thermodynamics for BSC(mpc mpcs) 2 semester**

**Waves and optics for BSC (mpc mpcs)4 semester**

**Electromagnetic theory BSC(mpc mpcs) 3 semester**

<b>Sl. No</b>	<b>Qualification</b>	<b>Board /College &amp; University</b>	<b>Year of Passing</b>
1	SSC	SHISHU MANDIR HIGH SCHOOL	2013
2	Intermediate	VIVEKANANDA JUNIOR COLLEGE	2015
3	Degree <b>BSC</b>	VASUNDHARA DEGREE COLLEGE	2018
4	Post Graduation <b>MSC</b>	KAKATIYA UNIVERSITY	2021
5	ANY OTHER QUALIFICA TION (B.ED)	Dr. RAJENDRA PRASAD B.ED COLLEGE	2023