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INTRODUCTION

The Department of physics was started in 2017 with the B.Sc. (MPC & MPCs) (ENGLISH MEDIUM) course. The Department organizes physics Field Trips and study tours at different places for studying and acquiring knowledge skills and visited different Local institutions (As per MOU).Field work experiences at field and Institutes. The faculty is always available to guide and council the students and remain friendly and accessible. Special coaching for different entrance examinations after graduation. Departmental Library is also available with reference books. The Department of physics has available. Departmental Library and Digital Library and again Reading Room, Computers Lab Facility is available to students with Internet Facility.

Department of physics was established in the year 2017-18 with B.Sc.(MPC &MPCs) (ENGLISH MEDIUM) Course in UG section. Initially B. Sc(MPC & MPCs) ENGLISH Medium program was offered.

B.Sc., (MPC,MPCs) (EM) UG courses are continuing in present. In UG courses CBCS system introduced since 2017-18 academic year.

AIMS AND OBJECTIVES

- ❖ Recognize that physics permeates the world around us appreciate the usefulness, power and beauty of Physics.
- ❖ Enjoy physics and develop patience and persistence when solving problems.
- ❖ Understand and be able to use the language, symbols and notation of physics.
- ❖ Develops scientific knowledge, curiosity in physics and use laboratory, inductive and deductive reasoning when solving problems.

VISION & MISSION

The Vision of the Physics Department

- ❖ To create an enlighten society of educated young minds with scientific temperament, logical analysis and rational thinking.

The Mission of the Physics Department

- ❖ By preparing the students not only for the three-year academic phase but also for the Period where they have to struggle individually for their careers and jobs. The Mission of the Department of Physics is to advance the Physical Sciences through the education of undergraduate students by providing them with quality class room, research and service opportunities, with a high standard for excellence in all three areas the department will produce students who are knowledge able in Physics and can think critically.

Strength weakness opportunities and Challenges (SWOC Analysis)

Strengths

- ❖ Faculty members are regular in appointment, well qualified and have significant experience not only in teaching, but they are well versed with multi discipline skills.
- ❖ Faculties have rich knowledge and skills in online; ICT enabled teaching and digital tools operation.
- ❖ Students learning evaluation through online facilities.
- ❖ Well equipped laboratories with latest experimental materials and necessary electrification and digital tools.
- ❖ Well ventilated lecture halls and ambient college atmosphere.
- ❖ Department faculty active participation in extension academic activities and faculty development Programs, seminars, webinars cater students learning with updated content.

Weakness

- ❖ Most of the students are economically and socially poor and unable to afford to attain digital technology facilities..
- ❖ Lack in research facilities and funding is a constraint.

Opportunities

- ❖ This department provides the students to pursue their higher education with PG coaching and guest lectures.
- ❖ Research orientation and deep understanding of physics principles through study projects and field trips.
- ❖ Exchange of knowledge through guest lectures and MoUs.
- ❖ The Choice Based Credit System (CBCS) enables students to learn subjects as per their choice.
- ❖ The increase of student enrolment giving opportunity to get more faculties in the department.
- ❖ Newly augmented computer lab facility in the campus increases student accessibility of E-learning resources, technology based skills.

Challenges

- ❖ To promote hard work and uplift the scholastic capacities of students through appropriate Motivation is a major challenge.
- ❖ To cultivate research aptitude among them.
- ❖ Collaboration with reputed organizations and companies to provide immediate employability to the students.

BIODATA OF FACULTY WORKING CURRENTLY



NAME : Dr. BANOTH PRAVALLIKA
DESIGNATION : DEGREE LECTURER
EDUCATIONAL QUALIFICATION : M.Sc., Ph.D., SET
EXPERIENCE : 1 YEAR



NAME : MOTHKURI NAGASRI
DESIGNATION : DEGREE LECTURER
EDUCATIONAL QUALIFICATION : M.Sc., SET
EXPERIENCE : 4 YEAR

CRITERION-I

CURRICULAR ASPECTS

CURRICULAR ASPECTS

Department of Physics was established in the year 2017-18 with B.Sc.(MPC) & (MPCs) (ENGLISH MEDIUM)

Course in UG section

- ❖ Initially B.Sc. (MPC&MPCs) English Medium program was offered, But B.Sc. (MPC) English program was implemented in the academic year 2017-18.
- ❖ B.Sc., MPC & MPCs (EM) UG courses are continuing in present.
- ❖ In UG courses CBCS system introduced since 2016-17 academic year.
- ❖ In Present Academic Year Offered Courses: B.Sc. MPCs (E.M)

SYLLABUS 2017-20 & 2018-21 YEAR SEMESTER WISE

COURSE	YEAR	SEMESTER	PAPER	TOPICS	MAX.MARKS
B.Sc.	IYEAR	I	I	MECHANICS	80+20+50=150
		II	II	WAVES AND OPTICS	80+20+50=150
	IIYEAR	III	III	THERMAL PHYSICS	80+20+50=150
		IV	IV	OPTICS	80+20+50=150
	III Year	V	V	ELECTROMAGNETISM	80+20+50=150
			V (A)	SOLID STATE PHYSICS	80+20+50=150
	VI	VI	MODERN PHYSICS	80+20+50=150	
		VI (B)	BASIC ELECTRONICS	80+20+50=150	

SYLLABUS 2019-22 YEAR SEMESTER WISE

COURSE	PAPERS	TOPICS	MAX.MARKS
B.Sc.,	I Year (Sem-1)	MECHANICS	25+100=125
	I Year (Sem-2)	THERMAL PHYSICS	25+100=125
	II Year (Sem-3)	ELECTROMAGNETIC THEORY	25+100=125
	II Year (Sem-4)	OPTICS	25+100=125
	III Year (Sem-5)	MODERN PHYSICS	25+100=125
	III Year (Sem-6)	ELECTRONICS	25+100=125

SYLLABUS 2023-24- & 2024-25-YEAR SEMESTER WISE

COURSE	PAPERS	TOPICS	MAX.MARKS
B.Sc.,	I Year (Sem-1)	MECHANICS	100+25=125
	I Year (Sem-2)	THERMAL PHYSICS	100+25=125
	II Year (Sem-3)	ELECTROMAGNETIC THEORY	100+25=125
	II Year (Sem-4)	WAVES AND OPTICS	100+25=125
	III Year (Sem-5)	MODERN PHYSICS	100+25=125
	III Year (Sem-6)	ELECTRONICS	100+25=125

Papers and Credits

SEMESTER	THEORY	PRACTICAL	TOTAL
I MECHANICS	4	1	5
II THERMAL PHYSICS	4	1	5
III EM THEORY	4	1	5
IV WAVES & OSCILLATIONS	4	1	5
V MODERN PHYSICS	4	1	5
VI ELECTRONICS	4	1	5

Course Outcomes

SEMESTER – I (MECHANICS)			
	Course name & Category	Credits	COURSE OUTCOMES
BS105	Mechanics (DSC-2A)	4	<ul style="list-style-type: none"> • Students after completion of this course have deep understanding of Newton's Laws to solve the problems of simple configurations.
			<ul style="list-style-type: none"> • Understand the foundations of potential, fields, central forces and Kepler's Laws.
			<ul style="list-style-type: none"> • Students will learn gradient of scalar field, divergence & curl of vector field, vector integration and their conversions.
			<ul style="list-style-type: none"> • Students get good knowledge about laws of motion and variable mass system which mostly appears in physical world like motion of rocket.
			<ul style="list-style-type: none"> • Students study their rigid body dynamics and get comparative idea between linear & rotational motions. Students understand the working principle of Gyroscope which serves as 3D compass and get the idea of precision of equinoxes.
			<ul style="list-style-type: none"> • Students study the central forces which help to understand the motion of planets and satellites.
			<ul style="list-style-type: none"> • Understand the negative result of Michelson Morley experiment, Galilean and Lorentz transformation. Study relativistic effects such as length contraction and time dilation and understand twins paradox
SEMESTER II THERMAL PHYSICS			
BS205	Thermal Physics DS C-2B	4	<ul style="list-style-type: none"> • Learn the basic aspects of kinetic theory of gases, Maxwell-Boltzmann Distribution law, equipartition of energies, mean free path of molecular collisions, viscosity, thermal conductivity and diffusion..
			<ul style="list-style-type: none"> • Students learn the laws of Thermodynamics & absolute scale of temperature and come to know entropy change in reversible & irreversible processes.
			<ul style="list-style-type: none"> • Students learn thermodynamic potentials, Maxwell's thermodynamic relations, real gas equations, Vander Waal equation of state, and the Joule-Thompson effect, Thompson effect.
			<ul style="list-style-type: none"> • Students know about black bodies and radiation laws of black body radiation. Students know why hot objects appear in different colors and about high temperature measuring devices & solar constant measuring devices.
			<ul style="list-style-type: none"> • Understand the concepts of microstate, microstate, ensemble, phase space, thermodynamic probability.
			<ul style="list-style-type: none"> • Understand and compare the three different distribution laws e.g. Maxwell-Boltzmann distribution, Bose-Einstein distribution and Fermi-Dirac distribution laws of particles and their derivation.

**SEMESTER III
ELECTROMAGNETIC THEORY**

BS306	Electromagnetic Theory (DSC-2C)	4	<ul style="list-style-type: none"> • Teach Coulomb 'slaw, Gauss 'law in electrostatics and apply it to systems of point charges as well as line, surface and volume distributions of charges.
			<ul style="list-style-type: none"> • Learn the concept of magnetic field B, magnetic flux, Biot- Savart's law, • Ampere laws and applications of these laws. Solve the problems of determination of B due to magnetic dipoles and electric currents.
			<ul style="list-style-type: none"> • Learn the concepts of Faraday's laws of induction, Lenz 'slaw, self and mutual Induction, modification of Ampere's law, displacement current, Maxwell equations.
			<ul style="list-style-type: none"> • Learn Maxwell's equations in vacuum and dielectric medium, boundary conditions, plane wave equation & Poynting theorem.
			<ul style="list-style-type: none"> • Observe the voltage-current relations of passive components (like resistor, capacitor and inductor). Learn about electrical oscillatory circuits like LR, RC and LC circuits. Learn about resonant circuits (LCR series & parallel) and AC & DC motors.
			<ul style="list-style-type: none"> • Understand and verify Thevenin's, Norton's, Superposition and Maximum power transfer theorems by doing experiments. Determine a small resistance by Carey Foster's bridge. Determine the ratio of two capacitances by De Sauty's bridge. Determine self-inductance of a coil by Anderson's bridge using AC.
			<ul style="list-style-type: none"> • Know about Passive & Active Elements, Power sources and T to Π Transformations. Understand and demonstrate Superposition theorem,
			<ul style="list-style-type: none"> • Thevenin's Theorem, Norton's theorem, Reciprocity Theorem and Maximum power transfer theorem.

**SEMESTER IV
WAVES & OPTICS**

BS4 06	WAVES & OPTICS DSC-2D	4	<ul style="list-style-type: none"> • Know the distinction between Fresnel and Fraunhofer diffraction. Know the limit of resolution, resolving power of grating, dispersive of prism and measurement of λ of light using above devices.
			<ul style="list-style-type: none"> • Understand the concept of coherence, temporal & spatial coherence. Understand Interference by division of amplitude e & division of wave front.
			<ul style="list-style-type: none"> • Understand the measurement of wavelength of light using Biprism, Lloyd's mirror, Newton's rings, Wedge shaped film and Michelson Interferometer experiments. Know the reason for colors of thin films like soap bubbles.
			<ul style="list-style-type: none"> • Understand the measurement of diameter of thin wires. • Students study the propagation of transverse waves in strings and energy transport
			<ul style="list-style-type: none"> • Students study the longitudinal vibrations in bars in different vibrating modes and study the vibrations of tuning for k.

			<ul style="list-style-type: none"> • Determine the wave length of light using diffraction grating and Newton's rings setup. Calculate the dispersive power of a prism and resolving power of grating & Telescope through experiments.
			<ul style="list-style-type: none"> • Determination of refractive index of liquid using Pulfrich refractometer and that of glass using Boys 'method experiments. Determine the radius of curvature of a given convex lens by forming Newton's rings.
			<ul style="list-style-type: none"> • Determine the thickness of tiny wires using wedge method. • Understand different methods of Polarization, Optical rotation, Babinet's compensator, Laurent's half shade polarimeter. •

**SEMESTER V
PAPER-V (A) MODERN PHYSICS (DSE-1:ELECTIVE)**

BS505	Modern Physics DSE-2E	4	<ul style="list-style-type: none"> • Learn the basic properties of nucleus, nuclear models: Liquid Drop model-semi-empirical mass formula and binding energy, Nuclear Shell Model and magic numbers
			<ul style="list-style-type: none"> • Know the Inadequacy of Bohr atomic model and modification of atomic models. Learn the spectroscopic terms and study doublet fine structure, Zeeman, Paschen-Back and Stark effects of spectral lines.
			<ul style="list-style-type: none"> • Know different types of spectra. Study the rotational, vibrational spectra of molecules and Raman effect.
			<ul style="list-style-type: none"> • Learn Schrodinger's Time dependent and independent wave equations. Learn about wave function and it's properties. Learn about operators, Eigen functions and Eigen values.

			<ul style="list-style-type: none"> • Understand the concepts of Photoelectric effect, Compton Effect, de- Broglie matter waves and Heisenberg Uncertainty Principle.
			<ul style="list-style-type: none"> • Understand the difference between amorphous and crystalline materials. Understand the topics Unit Cell, miller Indices, types of lattices, reciprocal lattice, Brillouin Zones and diffraction of X-rays by Crystals. Know about types of bondings in crystals and lattice energy of ionic crystals.
			<ul style="list-style-type: none"> • Determine the Planck's constant using Photo Cell. Determine the Energy gap of semi-conductor through experiments. Verify Photo electric effect with experiment.
			<ul style="list-style-type: none"> • Understand the stability of the nucleus, Law of radioactive decay; Mean life and half-life of nucleus; Alpha decay; Beta decay and Particle detectors.

**SEMESTER V
COMPUTATIONAL PHYSICS (DSE-1:Elective)**

			<p>Programming in C; Students able to understand Flow charts, algorithms, Integer and floating-point arithmetic, precision, variable types, arithmetic statements, input and output statements, control statements, executable and non-executable statements, arrays, Repetitive and Logical structures, Sub routines and functions, operation with files, operating systems, Creation of executable programs.</p>
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BS505	Computational Physics DSE-2E	4	<p>Numerical methods of Analysis Students are able to solve Solution of algebraic and transcendental equation, Newton Ramphan method, Solution of simultaneous linear equations. Matrix in version method, Interpolation, Newton and Lagrange formulas, Numerical differentiation. Numerical integration, Trapezoidal, Simpson and Gaussian quadrature methods, Least square curve fitting, Straight line and Polynomial fits.</p>
			<p>Numerical solution of ordinary differential equations Students are able to solve Eulars and Rungekutta methods, simulation. Generation of uniformly distributed random integers, statistical tests of randomness. Monte-Carlo evaluation of integrals and error analysis, Non-uniform probability distributions, Importance sampling, Rejection method.</p>
			<p>Computational methods Students are able to derive Metropolis algorithm, Molecular diffusion and Brownian motions, Random walk problems and their Montecarlo simulation. Finite element and Finite difference methods. Boundary value and initial value -- problems, density Functional methods.</p>

SEMESTER VI

PAPER-VI::(A)ELECTRONICS(DSE-2:ELECTIVE)

BS605	Electronics DSE-2F	4	<ul style="list-style-type: none"> • Students are able to understand the working principle of Bipolar junction Transistor-CB, CE and CC configurations, R-C coupled amplifier circuit, Concepts of Oscillators And phase shift oscillator circuit.
			<ul style="list-style-type: none"> • Students are able to study about different special purpose electronic devices like photo diode, solar cell, opto couplers, Shockley diode, UJT,SCR and FET.
			<ul style="list-style-type: none"> • Students are able to describe and demonstrate the circuits of OR, AND, NOT,NOR, NAND and EX-OR gates. Understand and verify De Morgan's Laws by doing experiments.
			<ul style="list-style-type: none"> • Students are able to understand Binary, Decimal and Hexadecimal number systems. Convert numbers from one system to another.
			<ul style="list-style-type: none"> • Students are able to draw the curves of V-I characteristics of p-n junction diode, Zener diode and transistor. Students determine the frequency of RC phase shift oscillator and study the frequency response of RC phase shift oscillator by doing Experiments.
			<ul style="list-style-type: none"> • Students are able to understand band theory of solids, intrinsic semiconductors, extrinsic semi-conductors (p-type & n-type),p-n junction diode, rectifier circuit, Zener diode and voltage regulator circuit.

SEMESTER VI

Paper-VI::(B)APPLIEDOPTICS(DSE-2:ELECTIVE)

BS605	Applied Optics DSE-2F	4	<ul style="list-style-type: none"> • Students are able to Principles of LASER principles, working and types of LASER
			<ul style="list-style-type: none"> • Students are able to Classify LASER Systems-Gas, Liquid and Solid Lasers such as He-Ne and Argon Lasers, their energy level schemes-Ruby Laser and YA Glaser, GA-As Laser and their Applications in various fields.
			<ul style="list-style-type: none"> • Students are able to understand basic principle of Holography- Recording of amplitude, phase, and concept of wave front and classification of holograms.
			<ul style="list-style-type: none"> • Students are able to understand Thin lens as phase transformation-thickness function-various types of lenses-Fourier transforming properties of lenses

		<ul style="list-style-type: none"> • Students are able to understand Non-Linear Optics: harmonic generation- phase matching condition. Optical mixing- parametric generation of Light- Self focusing of light.
		<ul style="list-style-type: none"> • Students are able to Optical Fibers, types and their structures. Step index and graded index fibers. Single mode and multi-mode fibers. Material dispersion, wave guide dispersion, inter modes Distortion and pulse broadening

Skill Enhancement Course- I
FUNDAMENTALS OF NANOTECHNOLOGY

BS301	Applied Optics SEC-1	4	Study comparatively the length scales in physics, 1D, 2D, 3D nano structures and their consequences
			know synthesis techniques of nano materials like chemical vapor deposition method, thermal decomposition, ball milling, e- beam evaporation, pulsed laser deposition, MBE growth of quantum dots
			know characterization techniques like X-Ray Diffraction, Scanning electron microscopy, Travelling electron microscopy, Scanning tunneling microscopy, atomic force microscopy
			know about columbic interactions and dielectric constant of nano structures, quasi particles and exactions and get comparative idea about the optical properties of hetero and nano structures
			Gets idea about carrier transporting nanostructures, blockade effect, tunneling & hoping conductivity.
			know the applications of nanostructures, CNT based transistor, quantum dots heterostructure lasers, optical witching and optical data storage, magnetic dots- magnetic data storage, micro electro mechanical systems (MEMS), nano electro mechanical systems (NEMS)

FACULTY WISE WORKLOAD

S.NO	Name of the Faculty	Theory (Hours)	Practical (Hours)	Total
1	M. NAGASRI	15/ Week	3/Week	18/ Week
2	Dr. B. PRAVALLIKA	18/ Week	6/Week	24/ Week
Grand Total				21 per week

CRITERION-II

TEACHING, LEARNING AND EVALUATION

CRITERIA II

TEACHING, LEARNING AND EVALUATION

The Department have been regularly conducting the following activities

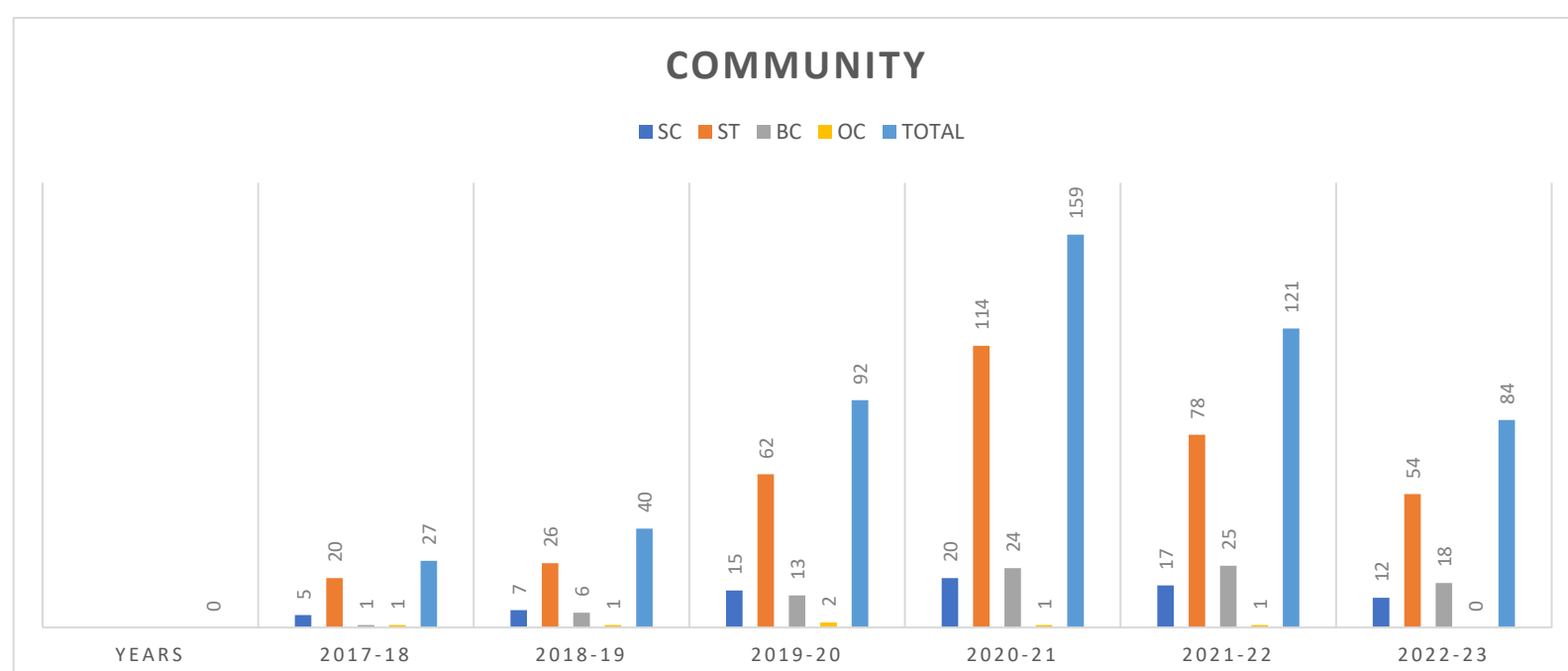
- ❖ Field Trips
- ❖ Student Class room Seminars
- ❖ Quiz Programs
- ❖ Group Discussions
- ❖ Student Assignments
- ❖ Extension Lectures

STUDENT ENROLLMENT & PROFILE

Table showing the details of B.Sc., Students Particulars Community and Gender wise

ACADEMIC YEARS	SC	ST	BC	OC	GRAND TOTAL
2017-18	05	20	01	01	27
2018-19	07	26	06	01	40
2019-20	15	62	13	02	92
2020-21	20	114	24	01	159
2021-22	17	78	25	01	121
2022-23	12	54	18	00	84
2023-24	09	36	11	00	56

CHART SHOWING THE COMMUNITY AND GENDER WISE STUDENTS



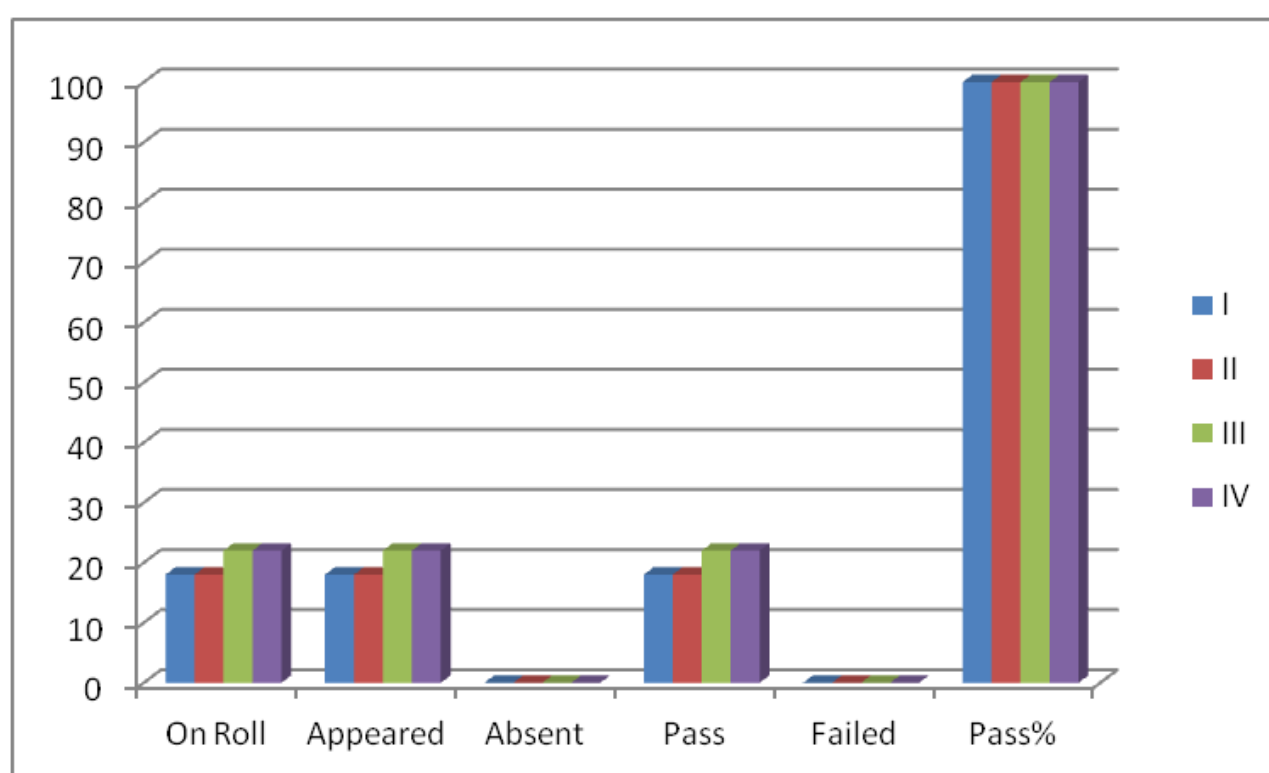
**TELANGANA TRIBAL WELFARE RESIDENTIAL
DEGREE COLLEGE (BOYS) MANUGURU**

DEPARTMENT OF PHYSICS

ACADEMIC YEAR 2018-19

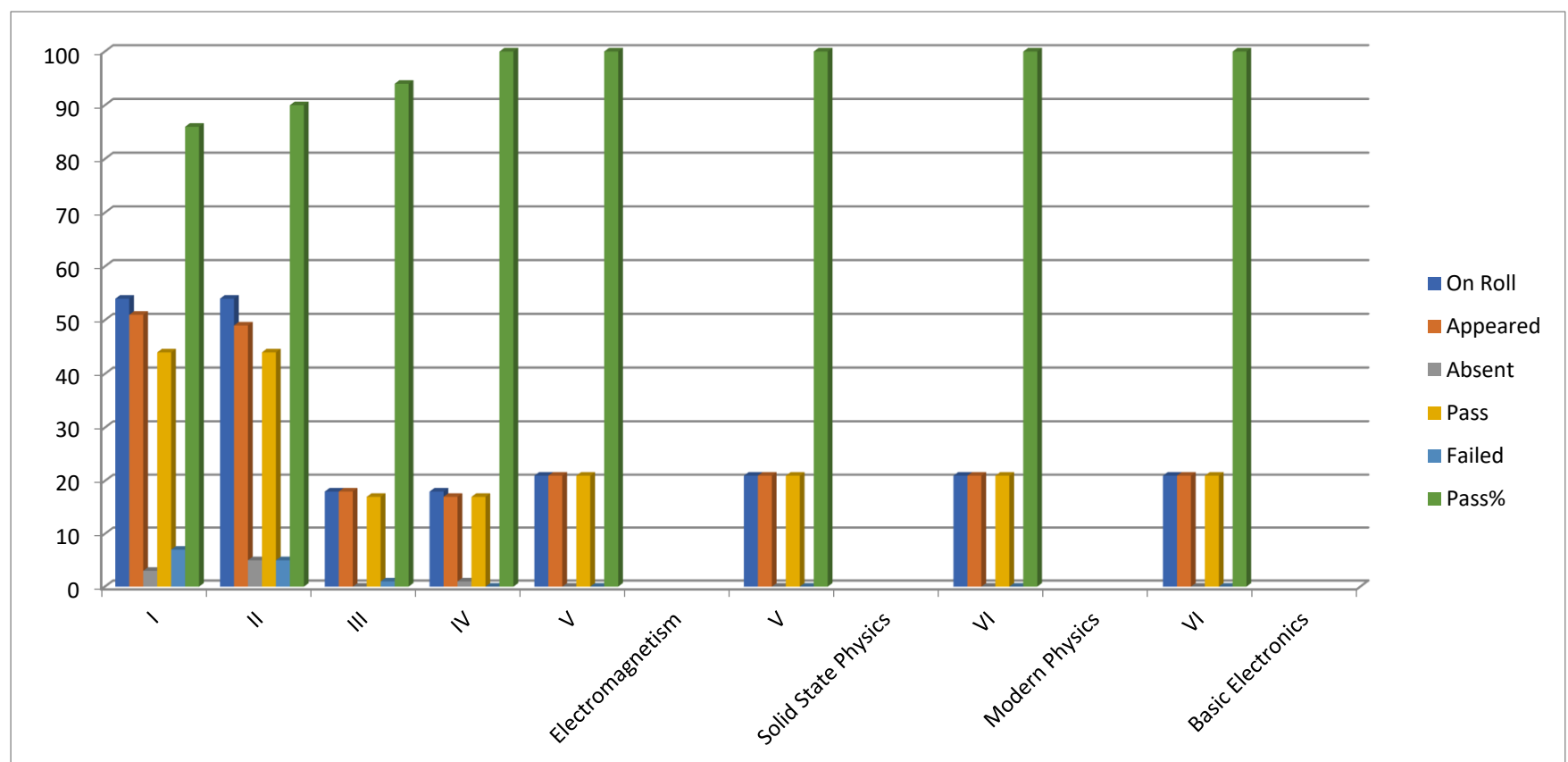
RESULT ANALYSIS

Semester	On Roll	Appeared	Absent	Pass	Failed	Pass%
I	18	18	0	18	0	100
II	18	18	0	18	0	100
III	22	22	0	22	0	100
IV	22	22	0	22	0	100



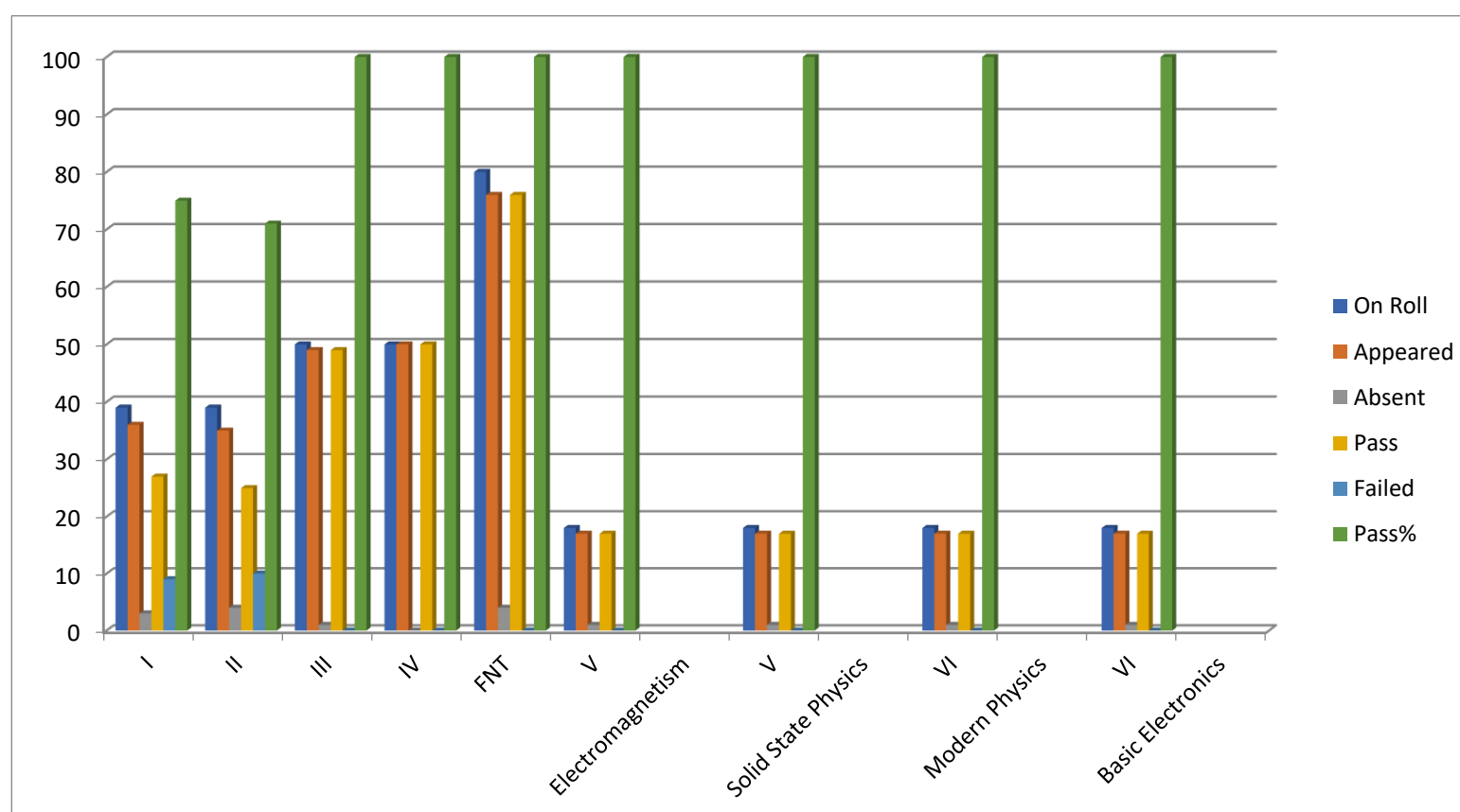
RESULT ANALYSIS
A.Y. 2019-20

Semester	On Roll	Appeared	Absent	Pass	Failed	Pass%
I	54	51	3	44	7	86
II	54	49	5	44	5	90
III	18	18	0	17	1	94
IV	18	17	1	17	0	100
V Electromagnetism	21	21	0	21	0	100
V Solid State Physics	21	21	0	21	0	100
VI Modern Physics	21	21	0	21	0	100
VI Basic Electronics	21	21	0	21	0	100



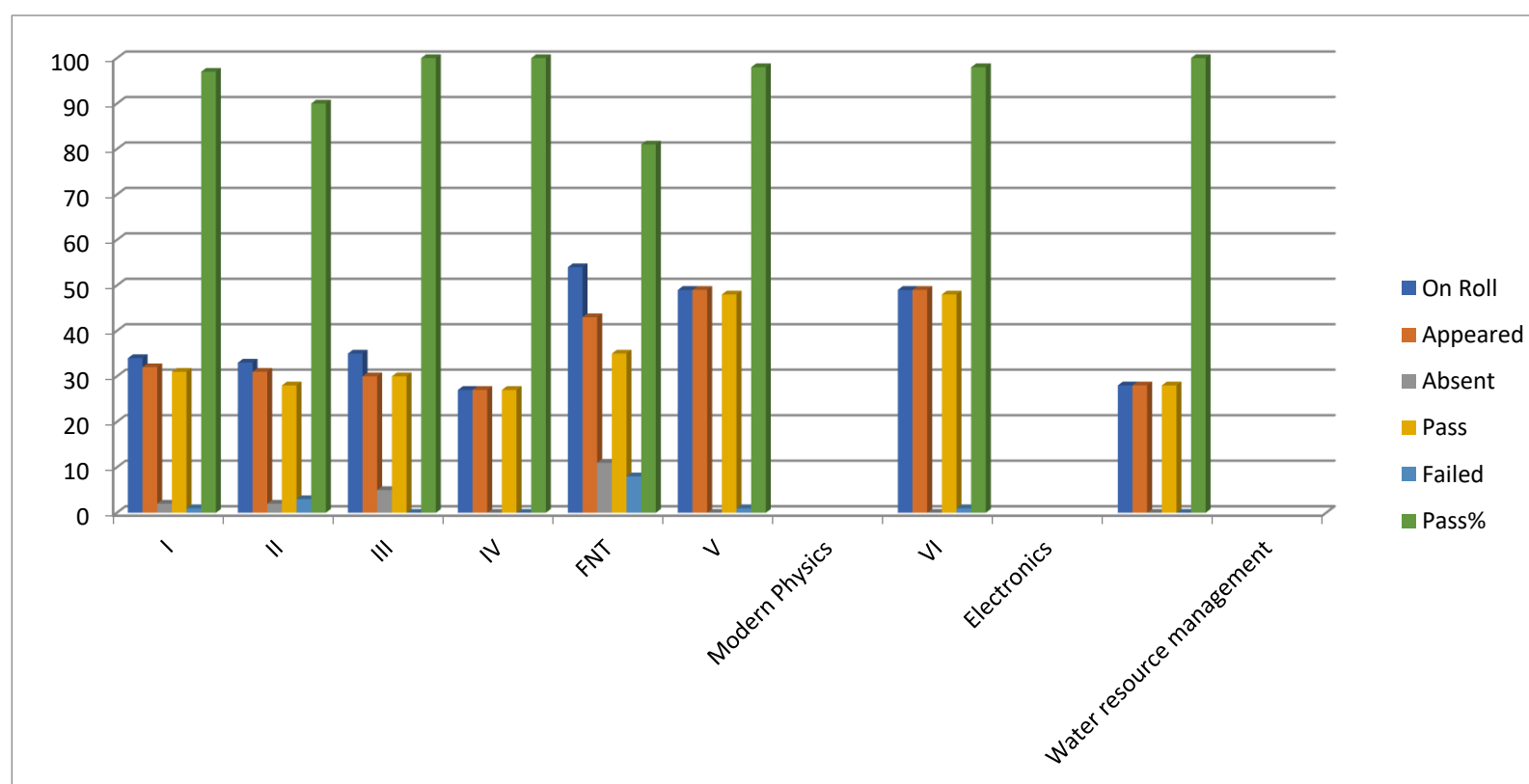
RESULT ANALYSIS
A.Y. 2020-21

Semester	On Roll	Appeared	Absent	Pass	Failed	Pass%
I	39	36	3	27	9	75
II	39	35	4	25	10	71
III	50	49	1	49	0	100
IV	50	50	0	50	0	100
FNT	80	76	4	76	0	100
V Electromagnetism	18	17	1	17	0	100
V Solid State Physics	18	17	1	17	0	100
VI Modern Physics	18	17	1	17	0	100
VI Basic Electronics	18	17	1	17	0	100



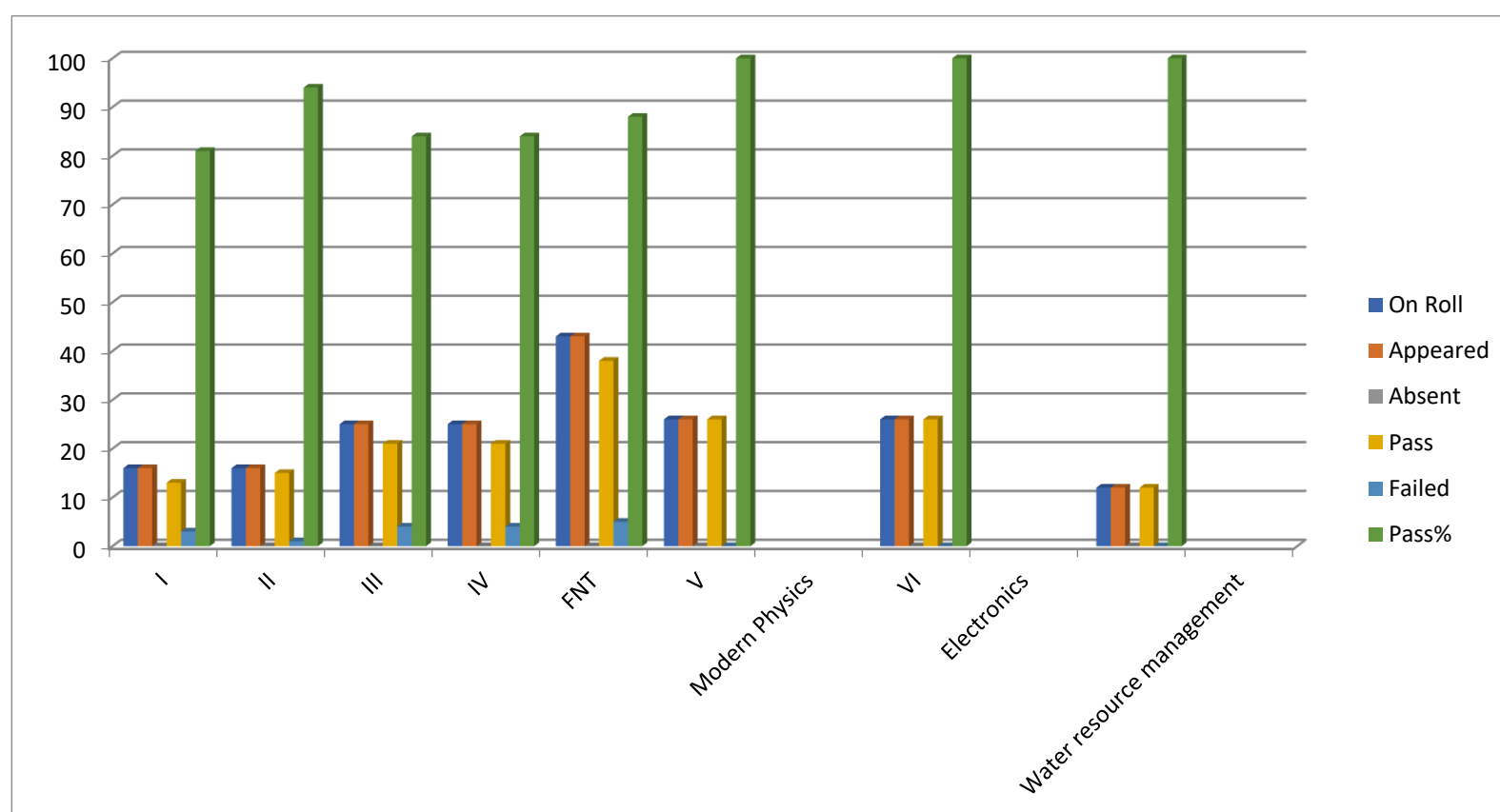
RESULT ANALYSIS
A.Y. 2021-22

Semester	On Roll	Appeared	Absent	Pass	Failed	Pass%
I	34	32	2	31	1	97
II	33	31	2	28	3	90
III	35	30	5	30	0	100
IV	27	27	0	27	0	100
FNT	54	43	11	35	8	81
V Modern Physics	49	49	0	48	1	98
VI Electronics	49	49	0	48	1	98
Water resource management	28	28	0	28	0	100



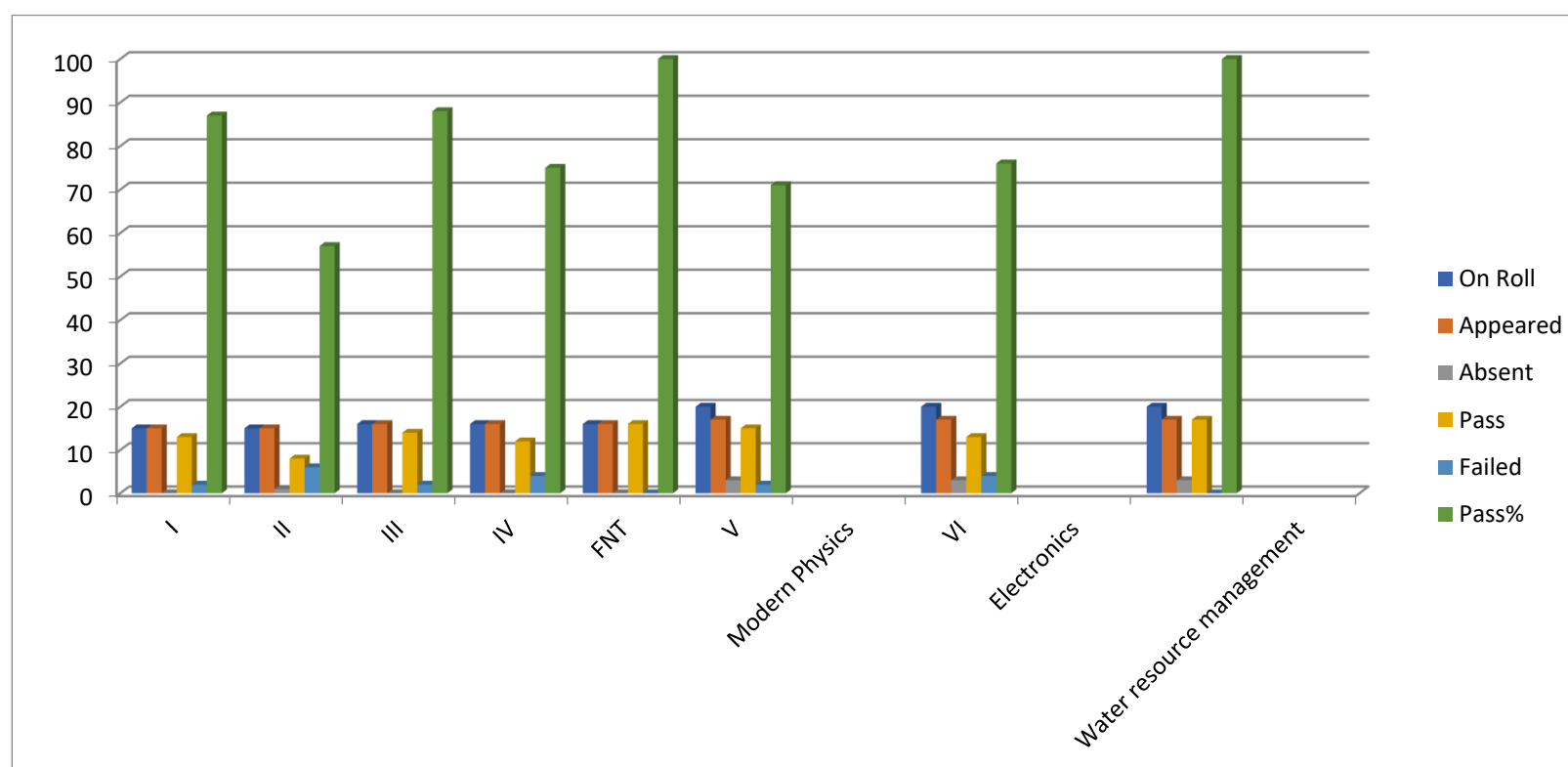
RESULT ANALYSIS
A.Y. 2022-23

Semester	On Roll	Appeared	Absent	Pass	Failed	Pass%
I	16	16	0	13	3	81
II	16	16	0	15	1	94
III	25	25	0	21	4	84
IV	25	25	0	21	4	84
FNT	43	43	0	38	5	88
V Modern Physics	26	26	0	26	0	100
VI Electronics	26	26	0	26	0	100
Water resource management	12	12	0	12	0	100



RESULT ANALYSIS
A.Y. 2023-24

Semester	On Roll	Appeared	Absent	Pass	Failed	Pass%
I	15	15	0	13	2	87
II	15	15	1	8	6	57
III	16	16	0	14	2	88
IV	16	16	0	12	4	75
FNT	16	16	0	16	0	100
V Modern Physics	20	17	3	15	2	71
VI Electronics	20	17	3	13	4	76
Water resource management	20	17	3	17	0	100



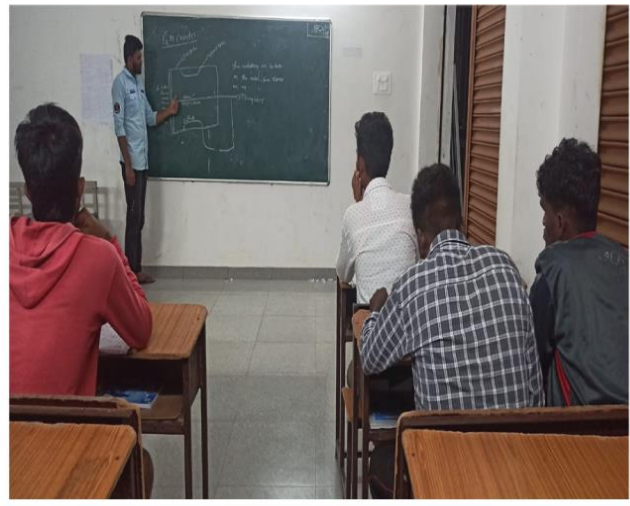
PIONEERS OF THE DEPARTMENT

S.NO	NAME OF THE FACULTY
1	D. VENKATESH
2	K. RAMESH
3	B. HARISH
4	M. BALAJI
5	M. MANGAVENI
6	M. NAGASRI
7	DR. B. PRAVALLIKA

STUDENT SEMINARS

The physics Department encourages students to participate in seminars to develop their presentation, communication, and critical thinking skills.

1. To enhance students' knowledge and understanding of physics concepts.
2. To develop presentation, communication, and critical thinking skills.
3. To foster a culture of academic excellence and research.

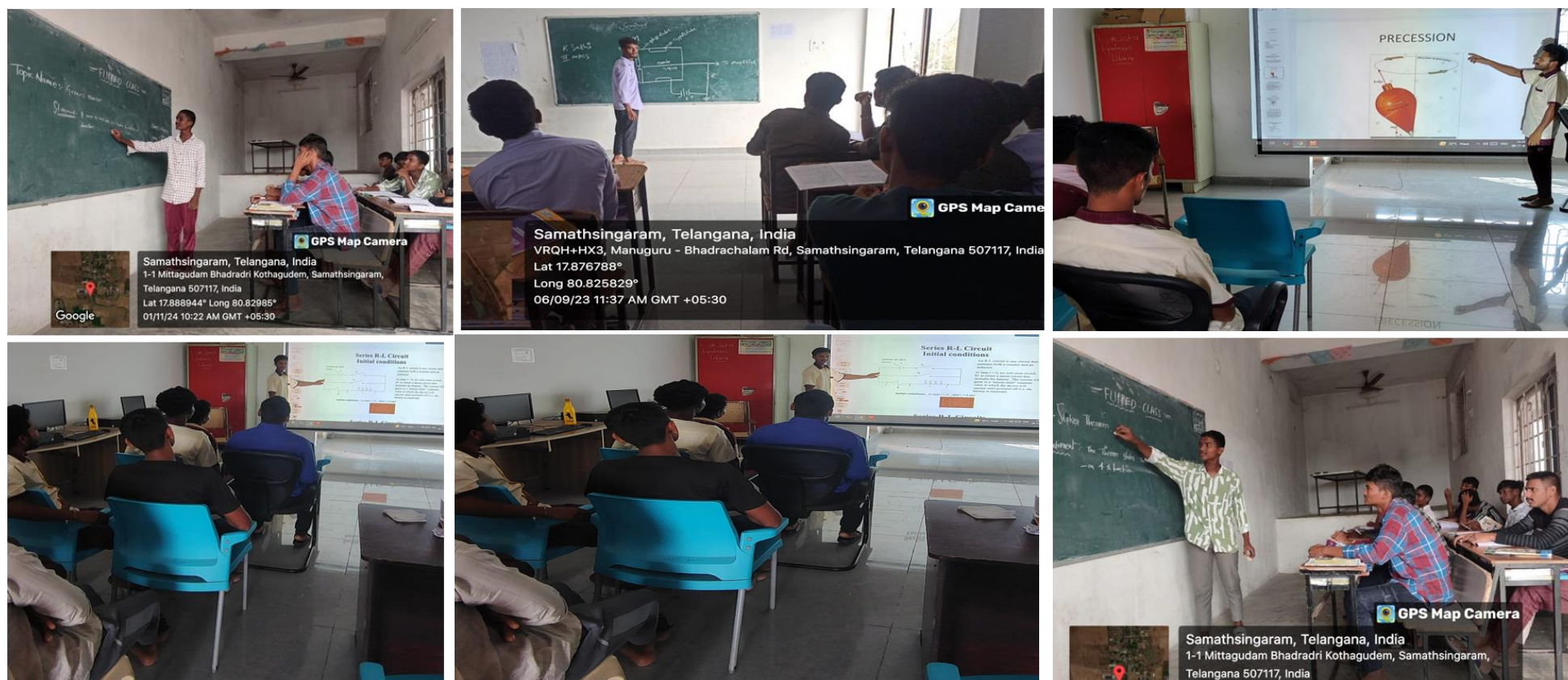


Samathingaram, Telangana, India
V9Q2+KX3, Maruguru - Bhadrachalam Rd, Samathingaram,
Telangana 507117, India
Lat: 17.676788°
Long: 80.825829°
24/03/23 02:35 PM GMT +05:30



Samathingaram, Telangana, India
V9Q2+KX3, Maruguru - Bhadrachalam Rd, Samathingaram,
Telangana 507117, India
Lat: 17.676788°
Long: 80.825829°





QUIZ PROGRAM

To assess undergraduate students' knowledge and comprehension of physics ideas, the physics Department held a quiz competition.

AIM

1. To evaluate students' comprehension and familiarity with physics subjects.
2. To encourage pupils to work together and engage in healthy competition.
3. To determine the areas in which pupils need more help and direction.



GROUP DISCUSSION



ICT CLASSES

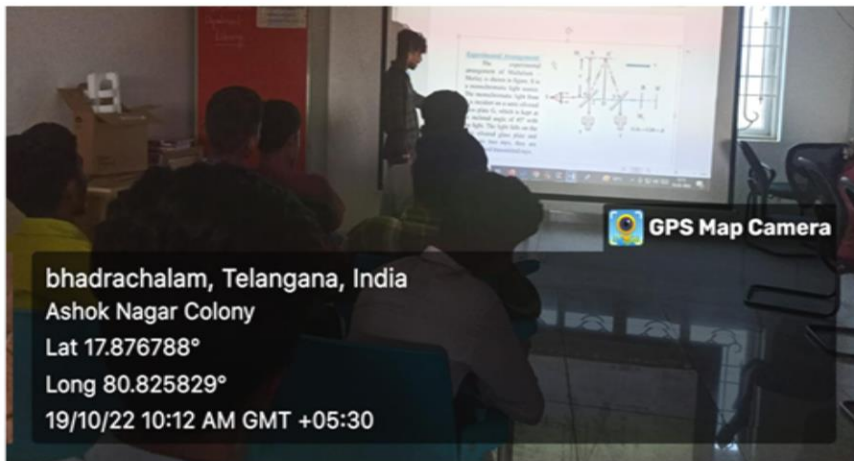
USE OF ICT TOOLS IN TEACHING

The department's faculty has done everything they can to use ICT in the classroom. Each employee in the department has received extensive training in ICT tools. New trends in the teaching and learning process have been made possible by the COVID-19 problem. Information and communication technology (ICT) has been successfully incorporated into the teaching-learning process in the physics department.

ONLINE CLASSES: Using the Zoom, Google Meet, and Microsoft Teams platforms, online classes are used to continue teaching and learning during the Corona pandemic lockdowns.

POWERPOINT PRESENTATIONS:

PPTs are designed to help students fill in the academic learning gaps that are left by traditional blackboard instruction, which only shows animated graphics and pictures.



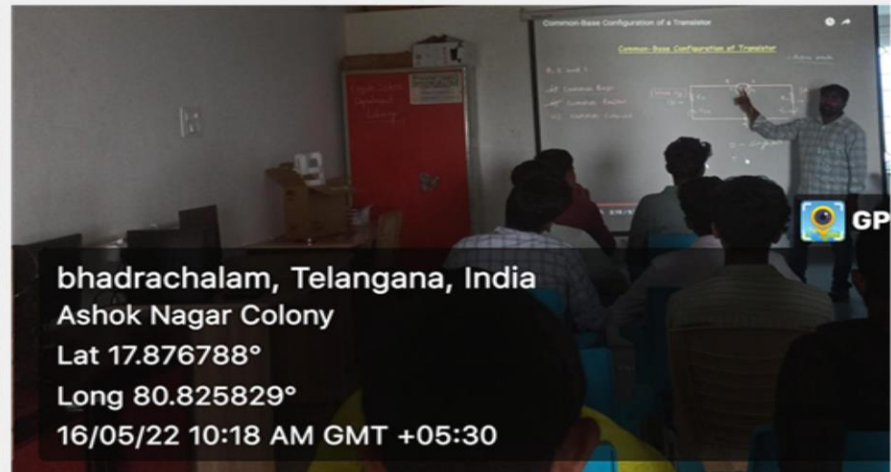
bhadrachalam, Telangana, India
Ashok Nagar Colony
Lat 17.876788°
Long 80.825829°
19/10/22 10:12 AM GMT +05:30



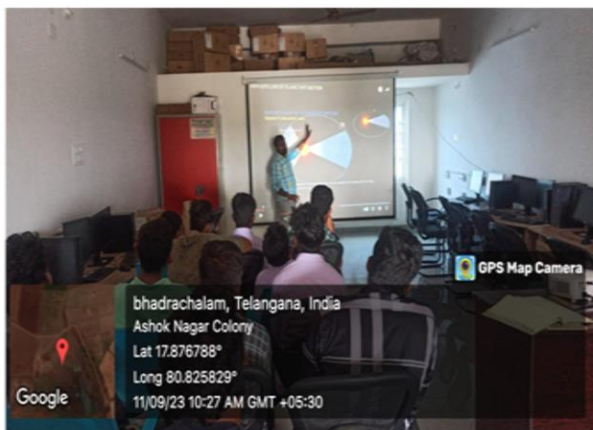
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Ashok Nagar Colony
Lat 17.876788°
Long 80.825829°
16/05/22 11:16 AM GMT +05:30



bhadrachalam, Telangana, India
Ashok Nagar Colony
Lat 17.876788°
Long 80.825829°
17/05/22 10:22 AM GMT +05:30

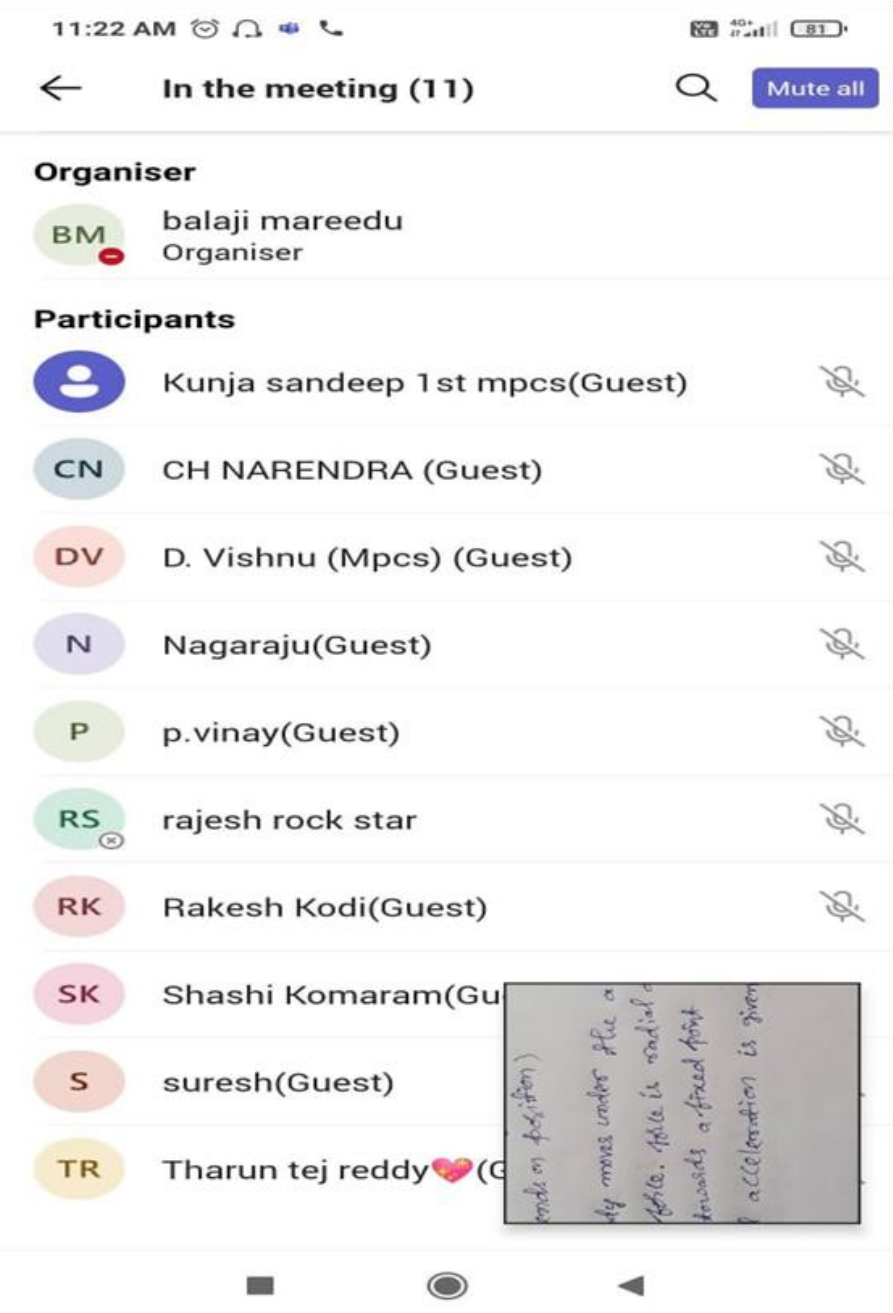
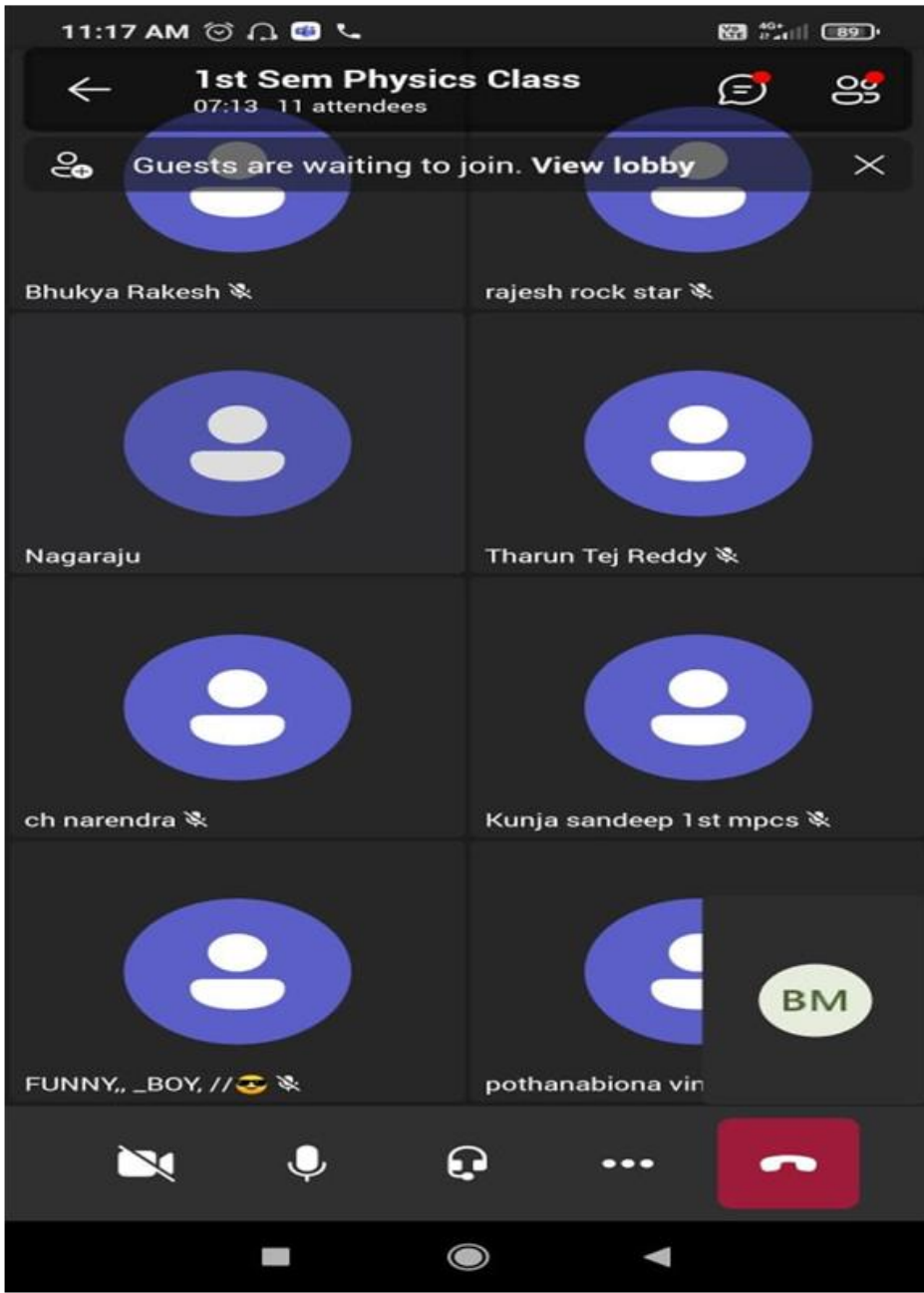


bhadrachalam, Telangana, India
Ashok Nagar Colony
Lat 17.876788°
Long 80.825829°
16/05/22 10:18 AM GMT +05:30



bhadrachalam, Telangana, India
Ashok Nagar Colony
Lat 17.876788°
Long 80.825829°
11/09/23 10:27 AM GMT +05:30





LAB ACTIVITIES



CRITERION III

RESEARCH, INNOVATION AND EXTENSION
ACTIVITIES

RESEARCH, INNOVATION AND EXTENSION ACTIVITIES

They function in co-ordination with one another to create and transfer knowledge, for monitoring and addressing the issues related to enhancement of research, innovation and entrepreneur skills among the faculty and students, thus fostering overall growth. The Institute has also followed research & development guidelines.

The faculties are empowered to take up research activities by utilizing the existing facilities provided by college like research journals, equipments, technical lab, computer lab, internet and library. Publication of research outcome in UGC recognized peer reviewed journals and above also upholding the ethics in research activities by avoiding plagiarism are our worth mentioning practices.

ITC FIELD TRIP AT BHADRACHALAM

The Physics Department organizes regular field trips to provide students with hands-on experience.

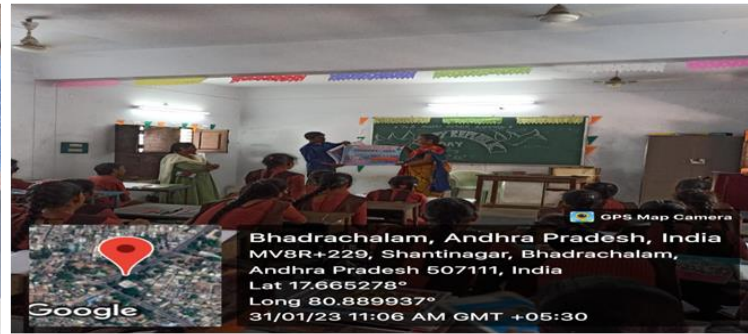
Objectives

1. To provide students with practical experience of machine running in paper plant
2. To enhance student understanding of Physics concepts in a real-world context
3. To develop observational, recording, and analytical skills among students



Extension activities

CAMPAIGNING



Departmental Activities

World Science Day



WORLD EARTH DAY



NATIONAL MATHEMATICS DAY



SIR CV RAMAN BIRTH ANNIVERSARY CELEBRATION



Energy Conservation day



World Science Day for Peace and Development



CRITERION- IV

INFRASTRUCTURE & LEARNING RESOURCES

INFRASTRUCTURE

Laboratory & Equipment

Department of physics has one laboratory and it has adequate equipment's to conduct practical's for UG students. List of equipments & furniture have given in the table.

S.No.	Name of Apparatus	Quantity	S. No.	Name of Apparatus	Quantity
1	Travelling microscope	2	60	Thermometer	10
2	p-n junction diode	2	61	Zener diode kit	2
3	Zener diode voltage regulator kit	2	62	And or not truth table kit	2
4	e/m magnetic focusing kit	2	63	Energy gap of intrinsic semi conductor kit	1
5	Logic gate kit (and or not)	1	64	Bifilar pendulum	2
6	Nand nor truth table kit	3	65	Thermistor kit	2
7	FET characteristic kits	3	66	RC phase shift oscillator	2
8	He- ne laser source	2	67	Photo electric cell kit	1
9	Photo detector	1	68	Photo cell	1
10	Intrinsic semi conductor	2	69	Led with different color	2
11	Single slit with stand	2	70	Double slit with stand	2
12	e/m solenoid method	1	71	Carey forsters	2
13	High resistance 10k	3	72	Battery eliminator	3
14	Standard resistance	2	73	Plug key	3
15	Galvanometer	3	74		2

				Super [position theorem	
16	Thevenin's kit	2	75	Norton's kit	2
17	RC couple amplifier	2	76	Connecting wires 10mm	1
18	Digital multimeter	3	77	Probes	10
19	Lee's disk apparatus	5	78	Wire gauge with asbestos	10
20	Thermal efficiency	5	79	Watch glass 3	10
21	Fly wheel	5	80	Meter scale	20
22	Sonometer	5	81	Slotted weight	10
23	Spectrometer	3	82	Slotted weight	10
24	Thermometer	5	83	Aspirator bottle 2.5 litres	5
25	Thermocouple	5	84	Capillary tube	5
26	Reading telescope	3	85	Sodium vapour lamp box wooden	1
27	Pendulum bobs iron	10	86	Sodium vapour lamp 35w transformer	1
28	Burette stand with clamp	20	87	Sodium vapour lamp 35W Philips	1
29	Stop clock	10	88	Air wedge set	2
30	Rubber cork	15	89	Magnifier torch	2
31	Runner hammer with wooden handle	10	90	Plane glass plate 75mmx12mm	4
32	Crew gauge with ratchet stop	10	91	Plane glass mirror	6
33	Vernier capiller with wheel	10	92	Convex lens	6
34	Spectrometer prism crown glass	5	93	Laser source-diode laser +holding stand -acculab	2
35	Compound pendulum	7	94	Diffraction grating	2
36	Torsion pendulum iron disc	5	95	Reading telescope and scale	1
37	Bifular pendulum wall braket	7	96	Stainless steel	1
38	Tuning fork welch type	5	97	Wire machine	1
39	Spring constant metal stand	5	98	Polarimeter	2

40	Pullfrich refractometer	5	99	Maximum transfer kit	2
41	Mirror strips	5	100	De sautys bridge	2
42	Convex lens	10	101	Anderson bridge	2
43	Pointed needle with rubber cork	10	102	Ballistic galvanometer	2
44	Diffraction grating	5	103	Mutual inductance	1
45	Sodium vapour lamp	2	104	Photo voltaic cell	2
46	Mercury vapour lamp	2	105	Piezo electric	1
47	Resolving power of telescope	3	106	Four probe method	1
48	Mercury 50 gm	1	107	b- h curve	2
49	Copper calorimeter	5	108	Dielectric constant kit	1
50	Beaker 100 ml	10	109	Power supply	2
51	Beaker 250 ml-borosilicate	10	110	Grating stand	2

52	Grating 15000 lines per inch	2	111	Wire bundles of thickness	1
53	Stand fitter with plane glass	2	112	Metal wire	1
54	Melde's experiment	2	113	Volume resonator	2
55	Spiral springs	4	114	Retard stand	2
56	Bushed clamps	2	115	Magnifying lens	2
57	Newton ring apparatus	2	116	Laser light	2
58	Spirit level	2	117	Polarimeter	1
59	Cubes	2			

Furniture

S.No	Name of the Infrastructure	Available Quantity	Remarks
1	Almirah	3	
2	Tables	4	
3	Stools	20	
4	Chairs	2	

LEARNING RESOURCES

DEPARTMENTAL LIBRARY

Department of physics has a Library with 12 Prescribed Books, 05 Post Graduation Entrance study material, 18 Reference Books, 9 P.G. standard books.

S.NO.	BOOKS	NO
1	Prescribed Books	12
2	Post graduation Entrance Study Material	05
3	Reference Books	18
4	P.G. standard books	09

CRITERION –V

STUDENT SUPPORT & PROGRESSION

STUDENT PROGRESSION

S. NO	NAME OF THE STUDENT	GRADUATE FROM	PG/B. Ed	YEAR	NAME OF THE INSTITUTE
1	D. Narendar	B.Sc.	M.Sc. Physics	2020-2021	Osmania University
2	K. Pradeep	B.Sc.	M.Sc. Physics	2020-2021	Kakatiya University
3	P. Pramod Kumar	B.Sc.	M.Sc. Physics	2020-2022	Central University of Hyderabad
4	P. Prem Kumar	B.Sc.	M.Sc. Physics	2020-2021	Kakatiya University
5	R. Vidya Sagar	B.Sc.	M.Sc. Physics	2020-2021	Kakatiya University
6	G. Vamshi	B.Sc.	M.Sc. Physics	2020-2021	Kakatiya University
7	D. Vijay	B.Sc.	M.Sc. Physics	2021-2022	Osmania University
8	B. Hanumanthu	B.Sc.	M.Sc. Physics	2022-2023	Osmania University
9	G. Naveen	B.Sc.	M.Sc. Physics	2022-2023	Kakatiya University
10	M. Prem Chand	B.Sc.	M.Sc. Physics	2022-2023	Osmania University
13	M. Prabhakar	B.Sc.	M.Sc. Physics	2023-2024	University college Saifabad
14	K. Shasi Devan Kumar	B.Sc.	M.Sc. Physics	2023-2024	Kakatiya University

CRITERION-VI

GOVERNANCE LEADERSHIP AND MANAGEMENT

DEPARTMENTAL MEATINGS

At the Department level, Department faculty members meet at necessary days to discuss academic matters like Distribution of the syllabus among the faculty, Review of coverage of syllabus, Result Analysis and Course Outcomes, important days to celebrate, ICT, NAAC Records, etc.

S. no.	Academic year	Name of the department Incharge	Designation
1	2017-18	D VENKATESH	GUEST
2	2018-19	K RAMESH	GUEST
3	2019-20	B HAREESH	LECTURER
4	2020-21	B HAREESH	LECTURER
5	2021-22	K RAMESH	GUEST
6	2022-23	K RAMESH	GUEST

CO-ORDINATOR/MEMBER OF VARIOUS COMMITTEES

Every faculty member is member of at least one committee. He/she does fulfill the work assigned by the coordinator of the committee. Following table depicts responsibilities taken up by Department faculty members

S.NO.	ACADEMIC YEAR	NAMEOF FACULTY	CO-ORDINATOR	COMMITTEES MEMBER
1	2017-18	D VENKATESH	---	1. DISCIPLINE COMMITTEE 2. ANTI RAGGING COMMITTEE
2	2018-19	K RAMESH	----	1. DISCIPLINE COMMITTEE
3	2019-20	B HAREESH K RAMESH	----	1. DISCIPLINE COMMITTEE 2. ANTI RAGGING COMMITTEE 3. ADMISSION COMMITTEE
4	2020-21	B HAREESH K RAMESH	---	1. DISCIPLINE COMMITTEE 2. ANTI RAGGING COMMITTEE 3. ADMISSION COMMITTEE
5	2021-22	K RAMESH M BALAJI	----	1. DISCIPLINE COMMITTEE 2. ADMISSION COMMITTEE 3. NSS
6	2022-23	N SATHISH KUMAR M BALAJI		1. DISCIPLINE COMMITTEE 2. ADMISSION COMMITTEE 3. NSS
7	2023-2024	M BALAJI		1. NSS
8	2024-2025	DR. B. PRAVALLIKA		1. EXAMINATION BRANCH 2. NSS
9	2024-2025	M. NAGASRI		1. EXAMINATION BRANCH 2. CELEBRATION COMMITTEE

Record of Student Representative /Monitoring Class

S. NO	YEAR	CLASS AND SECTION	NAME OF CLASS REPRESENTATIVE.	DURATION	REMRK
1	2017-18	B.Sc.(M) I Year	B RAHUL GANDHI	THREE YEAR	
2	2018-19	B.Sc.(M) I Year	G NAGABABU	THREEYEAR	
3	2019-20	B.Sc.(M) I Year	S SRINU & CH CHANTI	THREEYEAR	
4	2020-21	B.Sc.(M) I Year	M NARENDRA	THREEYEAR	
5	2021-22	B.Sc.(M) I Year	P RAJESH & CH NARENDER	THREE YEAR	
6	2022-23	B.Sc.(M) I Year	K VASU	TWO YEAR	

CRITERION VII

INSTITUTIONAL VALUES AND BEST PRACTICES

INSTITUTIONAL VALUES

To impart the vital skills and foundational knowledge of Physics.

- ❖ To deepen the skills gained through the course work.
- ❖ To critically understand the society and develop consciousness in order to motivate them to serve the mankind.
- ❖ It is an innovative initiation taken by the department of physics to promote a value-based education to the government school students in and around the college.
- ❖ The college motivates staff & students to actively participate in community service For the neighborhood school students.

PLASTIC FREE CAMPUS

As part of our commitment to environmental sustainability, our institution has launched an initiative to make our campus free from single-use plastic and reduce plastic waste.



SWACHHA GURUKUL PROGRAM



QUEST PROGRAM



HARITHAHARAM PROGRAM



NSS ACTIVITIES







Samathsingaram, Telangana, India
 VRQH+HX3, Manuguru - Bhadrachalam Rd, Samathsingaram, Telangana 507117,
 India
 Lat 17.876788°
 Long 80.825829°
 25/11/23 11:31 AM GMT +05:30





FUTURE PLANS

- ❖ To strengthen the department it is proposed to apply for sanction of well-equipped laboratory well established Departmental Library and supervisory ship.
- ❖ To develop inter disciplinary, add on courses.
- ❖ To intensify extracurricular activity in the department.
- ❖ Participation in Institutional Social Responsibility and Extension activities.
- ❖ For quick and accurate internal evaluation of the student performance.
- ❖ To give long term coaching for JAM, JUST, CUCET entrance exams.



TGTWRDC (BOYS), MANUGURU