KOTTAKKAL FAROOK ARTS AND SCIENCE COLLEGE

POST GRADUATE DEPARTMENT OF PHYSICS

ANNUAL REPORT

2020-21

20-21

MOTTAKKAL FAROOK ARTS & SCIENCE COLLEGE
PARAPPUR P.O. Pin: 676 503

Prof. M. ABDUL AZEEZ
PRINCIPAL
MOTTAKKAL FAROOK ARTS & SCIENCE COLLEGE
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DEPARTMENT OF PHYSICS - ANNUAL REPORT (2020-2021)

PG Department of Physics of our college offers UG (BSc. Physics) and PG (MSc. Physics)Courses. Our department is dedicated to providing a high-quality education that equips students with the knowledge and skills necessary to succeed in the dynamic and ever-changing world .

At our department, students can expect to engage with a diverse faculty that brings a wealth of experience and expertise in the areas of Physics .Our faculty members are committed to providing a comprehensive and challenging curriculum that prepares students for a wide range of career opportunities in the present world.

We also offer a range of extracurricular activities, including clubs, societies which provide students with the opportunity to develop their leadership, teamwork, and communication skills while pursuing their interests outside the classroom.

At our Physics UG Department, we believe in providing a holistic education that nurtures the intellectual, social, and personal development of our students. We are committed to fostering a culture of excellence, innovation, and lifelong learning that prepares our graduates to become leaders and change-makers in the business world and beyond.

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BSC. PHYSICS (CORE ,COMPLIMENTARY AND AUDIT) PROGRAMME DETAILS

Semester	Course Code	Course Title	Total hours	Hours / Week	Credits
I	A 01	Common Course I – English	72	4	4
	A 02	Common Course II – English	90	5	3
	A 07	Common Course III – Language other than English	72	4	4
	PHY1 B01	Core course I - Mechanics I	36	2	2
		Core Course V - Practical I	36	2	*
		1st Complementary Course I - Mathematics	72	4	3
		2nd Complementary Course I	36	2	2
		2nd Complementary Course Practical I	36	2	*
	EO1	Environment Studies	-	-	4**
		Total	450	25	18
	A 03	Common Course IV – English	72	4	4
	A 04	Common Course V – English	90	5	3

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2	A 08	Common Course VI – Language other than English	72	4	4
	PHY2 B02	Core Course II - Mechanics II	36	2	2
		Core Course V - Practical I	36	2	*
		1st Complementary Course II - Mathematics	72	4	3
		2nd Complementary Course II	36	2	2
		2nd Complementary Course Practical II	36	2	*
	E02	Disaster Management			4**
		Total	450	25	18
3	A 05	Common Course VI – English	90	5	4
	A 09	Common Course VIII - Language other than English	90	5	4
	PHY3 B03	Core Course III – Electrodynamics-I	54	3	3

		Core Course VI– Practical I	36	2	*
		1st Complementary Course III – Mathematics	90	5	3
		2nd Complementary Course III	54	3	2
		2nd Complementary Course Practical III	36	2	*
	E03	Human Rights or Intellectual Property Rights or			4**

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		Consumer protection			
		Total	450	25	16
4	A 06	Common Course IX – English	90	5	4
	A 10	Common Course X - Language other than English	90	5	4
	PHY4 B04	Core Course IV - Electrodynamics II	54	3	3
	PHY4 B05	Core Course Practical V – Practical I	36	2	5
		1st Complementary Course IV–Mathematics	90	5	3
		2nd Complementary Course IV	54	3	2
		2nd Complementary Course Practical IV	36	2	4
	E04	Gender studies or Gerontology			4**
		Total	450	25	25
5	PHY5 B06	Core Course VI - Computational Physics	54	3	3
	PHY5 B07	Core Course VII - Quantum Mechanics	54	3	3
	PHY5 B08	Core Course VIII - Optics	54	3	3
	PHY5 B09	Core Course IX- Electronics (Analog and Digital)	54	3	3
		Open Course – (course from other streams)	54	3	3
		Core Course Practical XIV - Practical II	72	4	*
		Core Course Practical XV- Practical III	72	4	*
		Core Course XVII Project/Research methodology	36	2	*

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		Total	450	25	15
6	PHY6 B10	Core Course X - Thermodynamics	54	3	3
	PHY6 B11	Core Course XI -Statistical Physics, Solid State Physics, Spectroscopy and Photonics	54	3	3
	PHY6 B12	Core Course XII - Nuclear Physics and Particle Physics	54	3	3
	PHY6 B13	Core Course XIII - Relativistic Mechanics and Astrophysics	54	3	3
	PHY6 B14	Core Course XIV (Elective:EL1 / EL2 / EL3)	54	3	3
	PHY6 B15	Core Course Practical XV – Practical II	72	4	5
	PHY6 B16	Core Course Practical XVI – Practical III	72	4	5
	PHY6 B17 (P/R)	Core Course XVII Project/Research methodology Tour report	36	2	2 1
		Total	450	25	28
Total Credits					120
	PHY6 B13	Core Course XIII - Relativistic Mechanics and Astrophysics	54	3	3
	PHY6 B14	Core Course XIV (Elective:EL1 / EL2 / EL3)	54	3	3
	PHY6 B15	Core Course Practical XV – Practical II	72	4	5
	PHY6 B16	Core Course Practical XVI – Practical III	72	4	5

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	PHY6 B17 (P/R)	Core Course XVII Project/Research methodology Tour report	36	2	2 1
		Total	450	25	28
Total Credits					120

M.SC PHYSICS PROGRAMME DETAILS

The duration of the M.Sc (Physics) programme shall be 2 years, split into 4 semesters. Each course in a semester has 4 credits (4C) with Practicals having 3 credits (3C). The total credits for the entire programme (Core &Elective) is 80. The credits for audit courses is 8. The Programme structure ,Courses and credit distribution summary are given below

The programme shall include three types of courses : Core courses, Elective courses and Audit Courses. In which there will be two Audit Courses (Ability Enhancement Course & Professional Competency Course) with 4 credits each. These have to be done one each in the first two semesters.

Semester	Course Title	Suggested Area	Details
I	Ability Enhancement Course (AEC)	internship / Seminar presentation / Publications / Industrial or Practical Training /Community linkage programme / Book reviews etc.	Seminar: Each student has to present a seminar on a selected topic in physics. A report has to be prepared and submitted before presenting the seminar. The abstract of the

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			seminar has to be sent to the head of the department through the teacher in charge. Or It can be a course related to any topic from the suggested areas.
2	Professional Competency Course (PCC)	To test the skill level of students like testing the application level of different soft wares such as Latex/Data visualization/ Python/Any software relevant to the programme of study /Translations etc.	The students in their second semester will be trained on the use of Latex scientific document preparation system. (The syllabus will be part of the second semester). The latex codes for preparing the following items will be developed. 1. A question paper 2. A review paper on a topic related to the seminar given in the first semester 3. A power point presentation Evaluation of this will be based on a multiple choice written examination and an internal practical exam. Or It can be a course

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			related to any topic from the suggested areas.

COURSES IN VARIOUS SEMESTERS

Semester – I (16C)

(PHY1C01) Classical Mechanics (4C)

(PHY1C02) Mathematical Physics – I (4C)

(PHY1C03) Electrodynamics and Plasma Physics (4C)

(PHY1C04) Electronics (4C) (PHY1L01)

General Physics Practical -I *

(PHY1L02) Electronics Practical – I**

(PHY1A01 Ability Enhancement Course (4C)

Semester – II (22C)

(PHY2C05) Quantum Mechanics –I (4C)

(PHY2C06) Mathematical Physics – II (4C)

(PHY2C07) Statistical Mechanics (4C)

(PHY2C08) Computational Physics (4C)

(PHY2L03) General Physics Practical - II (3C)*

(PHY2L04) Electronics Practical – II (3C)**

(PHY2A02 Professional Competency Course (4C)

*External Practical Exam for PHY1L01&PHY2L03 together will be conducted at the end of 2nd semester

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*External Practical Exam for PHY1L02&PHY2L04 together will be conducted at the end of 2nd semester.

Semester -III (16C)

(PHY3C09) Quantum Mechanics -II (4C)

(PHY3C10) Nuclear and Particle Physics (4C)

(PHY3C11) Solid State Physics (4C)

Elective -I (4C) - (PHY3E05) Experimental Techniques

Project

#(PHY3L05) Modern Physics Practical –I

Semester -IV (26C)

Elective -II (4C)- (PHY4E13) Laser Systems, Optical Fibers and Applications

Elective -III (4C)- (PHY4E20) Microprocessors, Microcontrollers and Applications

(PHY4P01) Project (4C)

(PHY4L06) Modern Physics Practical –II (3C)

(PHY4L07) Computational Physics Practical (3C)

Viva Voce (Comprehensive) (4C)

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Semester	No. of Theory Papers	Practicals	Theory		Practical		Project		Seminar/Tutorial	Viva Cred.	Total hours	Total Cred
			Hrs	Cred	Hrs	Cred	Hrs	Cred	Hrs			
I	4	1. Gen. Phys I 2. Electronics I	16	16	8	0	0	0	1	0	25	16
II	4	1. Gen. Phys II 2. Electronics II	16	16	8	6	0	0	1	0	25	22
III	4	1. Mod. Phys I	16	16	4	0	4	0	1	0	25	16
IV	3	1. Mod Phys II 2. Comp. Phys	12	12	8	6	4	4	1	4	25	26
Total Credits for the Programme												**80**

Certificate Course Curriculum

This section gives an overview of a list of certificate programmes conducted and new certificate courses introduced in the academic year, and the total number of students who benefitted from the programmes.

1)PHYCCMS01 : CERTIFICATE COURSE IN MATERIALS SCIENCE

Course Description:

Certificate Course in Materials Science is a short-term course designed to provide an overview of the fundamental principles and applications of materials science. The course covers the properties, processing, and characterization of materials, including metals, polymers, ceramics, and composites. It also explores the relationship between the structure of materials and their properties, and how these can be manipulated for specific applications.

Course Overview:

This course is designed to provide an introduction to the field of materials science, covering the fundamental principles and applications of materials science. The course is structured to provide an understanding of the properties, processing, and characterization of materials, including metals, polymers, ceramics, and composites. The course also covers the relationship between the structure of materials and their properties, and how these can be manipulated for specific applications.

Learning Objectives:

Upon completion of the course, participants will be able to:

Explain the fundamental principles of materials science and the relationship between the structure of materials and their properties.

Identify the properties of metals, polymers, ceramics, and composites and understand the processing techniques used to manufacture these materials.

Understand the role of microscopy and spectroscopy in characterizing materials.

Explain the use of materials in various applications, such as electronics, medicine, and aerospace.

Course Outcomes:

Upon completion of the course, participants will have a basic understanding of materials science and will be able to:

Identify the properties of different types of materials and understand how they can be manipulated for specific applications.

Understand the processing techniques used to manufacture different types of materials.

Use microscopy and spectroscopy techniques to characterize materials.

Understand the role of materials in various applications, such as electronics, medicine, and aerospace.

Syllabus:

Module 1: Introduction to Materials Science (2 hours)

Definition and scope of materials science

Relationship between structure and properties of materials

Classification of materials

Module 2: Structure of Materials (4 hours)

Atomic structure and bonding in materials

Crystal structure and defects

Amorphous materials

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Module 3: Properties of Materials (6 hours)

Mechanical properties

Thermal properties

Electrical properties

Magnetic properties

Optical properties

Module 4: Processing of Materials (8 hours)

Metals: casting, forging, rolling, extrusion, welding, and heat treatment

Polymers: polymerization, compounding, shaping, and processing

Ceramics: powder preparation, shaping, and sintering

Composites: types and processing

Module 5: Characterization Techniques (8 hours)

Optical microscopy

Electron microscopy

X-ray diffraction

Spectroscopy

Module 6: Applications of Materials (8 hours)

Electronics: semiconductors, superconductors, and optoelectronics

Medicine: biomaterials, implants, and drug delivery

Aerospace: composites and alloys

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REFERENCES

1.Solid State Physics"- A.J.Dekker (MacMillan India Ltd.- 1958)

2.Principles of the Solid State"- H. V.Keer (Wiley Eastern – 1993)

3.Solid State Physics: Structure and Properties of Materials"- M.A.Wahab (Narosa- 2007).

4.Materials Science and Processes" – S.K. Hajra Choudhury (Indian Book Publishing Co.-2009)

5.Nanotechnology "- Richard Booker, Earl Boysen (Wiley Publishing Inc. 2005).

2)PHYCCPP02 :CERTIFICATE COURSE IN PLASMA PHYSICS

Course Description:

Certificate Course in Plasma Physics is a 36-hour course designed to provide students with a comprehensive understanding of plasma physics. The course covers the basic concepts and principles of plasma physics, including the behavior of charged particles, plasma waves, and plasma instabilities. It also covers various applications of plasma physics, including fusion energy, space and astrophysical plasmas, and plasma processing.

Course Overview:

The course is divided into several modules that cover different aspects of plasma physics. The modules include an introduction to plasma physics, plasma waves and instabilities, magnetohydrodynamics (MHD), plasma confinement, fusion energy, space and astrophysical plasmas, and plasma processing. The course is taught through a combination of lectures, discussions, and practical exercises.

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Learning Objectives:

Upon completion of this course, students will be able to:

Understand the basic principles and concepts of plasma physics.

Explain the behavior of charged particles in plasma and the different plasma waves.

Describe the different plasma instabilities and their effects.

Apply the principles of MHD to explain plasma behavior.

Understand the principles of plasma confinement and describe the different confinement techniques.

Describe the basics of fusion energy and explain the different fusion reactions.

Understand the properties of space and astrophysical plasmas.

Understand the basics of plasma processing and its applications.

Course Outcomes:

Students will gain a comprehensive understanding of plasma physics.

Students will be able to explain the behavior of charged particles in plasma and the different plasma waves.

Students will be able to apply the principles of MHD to explain plasma behavior.

Students will understand the principles of plasma confinement and describe the different confinement techniques.

Students will understand the basics of fusion energy and explain the different fusion reactions.

Students will understand the properties of space and astrophysical plasmas.

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Syllabus:

Module 1: Introduction to Plasma Physics (4 hours)

Definition of plasma

Basic properties of plasma

Plasma parameters

Module 2: Plasma Waves and Instabilities (8 hours)

Plasma waves

Plasma instabilities

Landau damping

Particle acceleration in plasma

Module 3: Magnetohydrodynamics (MHD) (6 hours)

Magnetohydrodynamics equations

Magnetohydrodynamics waves

Magnetohydrodynamics instabilities

Module 4: Plasma Confinement (8 hours)

Plasma confinement techniques

Magnetic confinement

Inertial confinement

Laser-based confinement

Module 5: Fusion Energy (4 hours)

Fusion reactions

Fusion energy production

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Module 6: Space and Astrophysical Plasmas (4 hours)

Solar wind

Magnetosphere

Interstellar plasma

Module 7: Plasma Processing (6 hours)

Plasma etching

Plasma deposition

Plasma sterilization

REFERENCES

1.F. F. Chen, Introduction to Plasma Physics and Controlled Fusion, Volume I and II, Plenum Press, recent edition.

2. K.L. Goswami, Introduction to Plasma Physics – Central Book House, Calcutt

DEPARTMENT FACULTIES

NAME	QUALIFICATION	DESIGNATION
Mubarak N	MSc	Head of Department
JAYASREE P	.MSc. ,B.Ed , SET,KTET	Assistant Professor
RESHMA P	MSc	Assistant Professor
MUHAMMED ASHRAF PA	MSc,NET,SET	Assistant Professor
Muhammed Shameem K	MSc	Assistant Professor
Suhail k	MSc. ,B.Ed,SET	Assistant Professor
Sairabanu O	MSc.	Assistant Professor

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FUNCTIONING OF THE COMMITTEES

DEPARTMENTAL ACADEMIC COMMITTEE (BOARD OF STUDIES)

The Department Academic Committee is responsible for overseeing the academic programs and curricular activities. It made discussions on curriculum updates, faculty feedback, examination patterns, and the implementation of academic policies

Chairperson	MUHAMMED ASHRAF PA
Staff representatives	SAIRA BANU O RESHMA P MUHAMMED SHAMEEM K RESHMA P
External faculty	NUBLA (Assistant Professor: M E T Arts and Science College)
Office staff	SAMEERA K
Alumni representee	JITHINRAJ IJ (2017-2019 MSc.)
Student representees	Nida NAURIN A (1ST year BSc Physics) SHAHANA T (2nd year BSc Physics)

Internal Exam Committee

The Internal Examination Committee is responsible for evaluating students' performance in internal assessments and projects. It includes discussions on assessment methods, grading criteria, assessment schedules, and student performance analysis.

CHAIRPERSON : MUBARAK N

EXAM COORDINATOR : JAYASREE P

FACULTY MEMBERS : SUHAIL K, MUHAMMED ASHRAF PA

Grievance Redressal Cell

The Grievances and Redressal Committee deals with student grievances and ensures their timely resolution. During committee meetings a discussion made on grievances raised, actions taken, and decisions made to address student concerns

Chairperson : MUBARAK N

Coordinator : MUHAMMED ASHRAF PA

Faculty members : JAYASREE P,RESHMA P

Tour/ IV Committee

The Tour or Industrial Visit (IV) Committee is responsible for organizing educational tours and industrial visits for students. It gave an outline of the planning, budgeting, and execution of such tours/IV

Chairperson : MUBARAK N

Tour coordinator : MUHAMMED SHAMEEM

EXPERIENTIAL LEARNING COMMITTEE

Experiential Learning Committees oversee the implementation of experiential learning programs that provide practical exposure to students. physics Department has conducted Experiential Learning Projects during the academic year of 2020-2021. It has planned to give different topics related on theoretical physics and experimental physics among students in each semesters. Every students in each semesters submitted their projects on time

Chairperson : MUBARAK N

Coordinator : RESHMA P

Faculty members : MUHAMMED ASHRAF PA, SAIRABANU O

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EXPERIENTIAL LEARNING PROJECT 2020-2021

Class	Name of giude	Project title	Assigned date	Objective	No. of students submitted
1st Bsc Physics	Suhail K	A SURVEY ON PHOTOELECTRIC EFFECT AND ITS IMPORTANCE IN PHYSICS	09-10-2020	TO CONDUCT A THOROUGH INVESTIGATION INTO THE PHOTOELECTRIC EFFECT, EXPLORING ITS UNDERLYING PRINCIPLES, HISTORICAL SIGNIFICANCE, AND ITS CRUCIAL ROLE IN SHAPING THE FOUNDATIONS OF MODERN PHYSICS.	35
2nd Bsc Physics	Reshma P	CHAOS	18-07-2020	TO EXPLORE AND ANALYZE THE CONCEPT OF CHAOS THEORY, INVESTIGATING ITS PRINCIPLES, MANIFESTATIONS, AND APPLICATIONS IN VARIOUS SCIENTIFIC DISCIPLINES.	30
	Suhail K	MAGNETISM: AN OVERVIEW	18-01-2021	TO PROVIDE A COMPREHENSIVE EXPLORATION OF MAGNETISM, COVERING ITS FUNDAMENTAL PRINCIPLES,	29

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				TYPES OF MAGNETS, MAGNETIC FIELDS, AND PRACTICAL APPLICATIONS.	
3rd BSc Physics	Mohammed shameem	THE EVERYDAY FORCES OF PHYSICS	09-08-2020	TO EXPLORE AND ANALYZE THE FORCES THAT INFLUENCE OUR DAILY LIVES, PROVIDING A PRACTICAL UNDERSTANDING OF FUNDAMENTAL PHYSICS PRINCIPLES IN VARIOUS EVERYDAY SCENARIOS.	35
	Jayasree P	DAMPED HARMONIC OSCILLATOR: PYTHON PROGRAMMING	20-01-2021	TO ENHANCE PYTHON PROGRAMMING SKILLS BY IMPLEMENTING NUMERICAL SOLUTIONS FOR THE DAMPED HARMONIC OSCILLATOR EQUATION	36

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ROLES AND RESPONSIBILITIES ALLOTTED TO THE FACULTY

DEPARTMENT HEAD	Mubarak n
DEPARTMENT COORDINATOR	Jayasree p
LIBRARY COMMITTEE	Muhammed ashraf pa
DEPARTMENT EXAM COORDINATOR	Reshma p
PROGRAM COORDINATOR	Muhammed shameem k
CLASS ADVISORS	**B.sc. Programme**
	I semester :sairabanu
	Ii semester: sairabanu
	Iii semester: reshma p
	Iv semester : reshma p
	V semester: muhammed shameem k
	Vi semester: muhammed shameem k
	M.sc.programme
	I semester :suhail k
	Ii semester: suhail k
	Ii semester:muhammed ashraf pa
	Iv semester :muhammed ashraf pa
MENTOR MENTEE FOR VARIOUS CLASSES	I year : sairabanu
	Ii year: reshma p
	Iii year:muhammed shameem k
COLLEGE COUNCIL	Mubarak n
ANTI RAGGING SQUAD	Mubarak n
ANTI RAGGING COMMITTEE	Suhail k
TOUR CO-ORDINATOR	Muhammed shameem k
LAB IN CHARGE	B.sc.first year :sairabanu B.sc secondyear: muhammed shameem B.sc final year : jayasree p B.sc complimentary first year:mubarak

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	n B.sc complimentary second year: :muhammed ashraf pa M.sc first year : suhail k M.sc second year : reshma p
ALUMNI COORDINATOR	Sairabanu
COMPLAINTS AND GRIEVANCE CELL	Muhammed ashraf pa
FILE IN CHARGE (NAAC)	**Mubarak n** : advisors list year wise question papers year wise time table minutes book year wise details of teachers
	Jayasree p: Photo album Year wise external marks Teachers examination duty Year wise duty chart Year wise annual report
	Muhammed ashraf pa Alumni register department alumni report annual report of study tour Reportofseminar,workshop.... Year wise details of teachers attended examination duty
	Sairabanu Year wise report of bridge course Visual media ,print media, video graphs clippings and cuttings Complaint redressel and grievances cell files Course out line Digital content
	Reshma p Details of teacher evaluation by students Details of programme evaluation by pass out students alumni.... Details of online class conducted-

	content developed by staff
	Muhammed shameem k: Updated biodata of faculty members Progression to higher studies Progression to employment Year wise details of net\slet\jrf\set\ca and similar qualifying examination files
	Suhail k: Year wise details of advanced learners Year wise details of slow learners Annual report of extension activities Teachers diary Stock register department Certificate course developed by department

WEBINAR ORGANIZED BY THE DEPARTMENT OF PHYSICS

The collaborative webinar on "*Career Opportunities in Science*" held on March 3, 2021, through Google Meet, featured Dr. Basheer MC, an esteemed Assistant Professor at PSMO College Thirurangadi. The programm started with Welcome Speech Mr. Mubarak N HOD,Dept of Physics, And program presided by Prof.M.Abdul Azeez Principal KFASC, Profile Presentation of chief guest was done by Nida Naurin 1st sem , Bsc Physics .The programm were inaugurated Dr. Basheer MC Dept Chemistry PSMO college Thirurangadi, He provided a comprehensive overview of various career avenues in science, covering both traditional and emerging fields. Emphasis was placed on the continuous expansion and relevance of science in contemporary society. The program ended with vote of thanks from Reshma p Asst. Professor, Dept of Physics.

The event aimed to enlighten students about diverse career paths within the field of science and guide them in making informed decisions about their future .. Practical applications of science in solving real-world problems were discussed, with examples showcasing the impact of scientific research and innovations in technology, healthcare, and other sectors.

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An interactive question and answer session allowed students to actively engage with Dr. Basheer MC, seeking clarification on specific career paths, educational qualifications, and emerging trends in the scientific field. Dr. Basheer MC shared motivational insights, including personal experiences and success stories, encouraging students to pursue their passion in science with dedication. The speaker emphasized the exploration of interdisciplinary opportunities and thinking beyond conventional career choices.

The webinar witnessed a commendable turnout, with active participation from students across various academic levels. The Q&A session demonstrated students' enthusiasm and appreciation for Dr. Basheer MC's valuable insights.

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PG DEPARTMENT OF PHYSICS

INTERNATIONAL WEBINAR

Resource Person :- Dr. Basheer MC

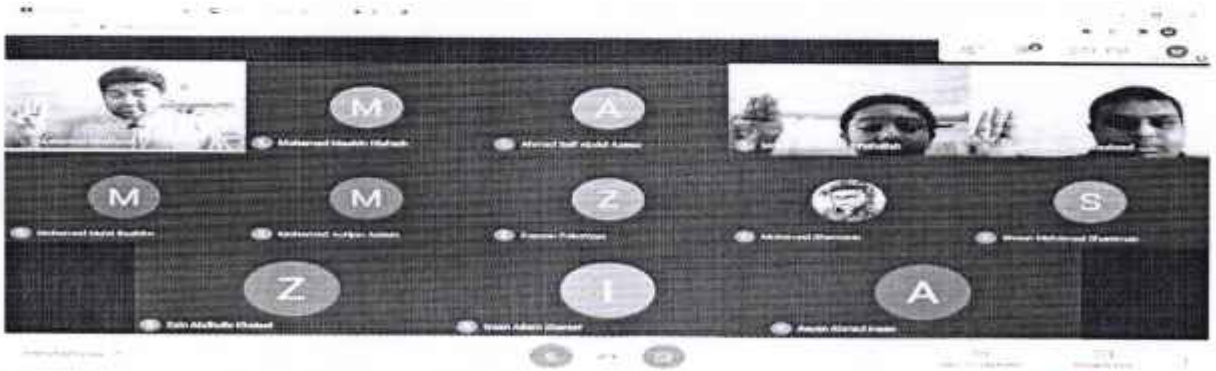
Topic:-Career Opportunities in Science

Google meet:- https://meet.google.com/bbn-ceah-pec

Date :-01/03/2021

Time- 10.30am

Welcome



Dr.Basheer MC interact with the students on 'carrier opportunity in science'

FAROOK ARTS & SCIENCE COLLEGE PARAPPUR P.O. Pin: 676 503

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FACULTY LEARNING FORUM

It is an internal sit-together discussion forum of faculty members scheduled casually or a casual sit-together on a particular day, or say Friday's last hour or week's last working day if Saturday happens to be. This forum's objectives are to discuss aspects of daily work schedules, happenings, problems related to academics, and discipline issues. It is to explore various pedagogies in higher education, to provide a platform for professional dialogues on new developments in the realm of commerce, and to encourage and foster the research culture amongst faculty members

Topics discussed in the Learning Circles during the year:

- Assessment tied with course goals
- Teaching mistakes in a classroom
- Sharing the best practices in teaching and learning in online
- Effective handling in lab class
- How to make qualitative project FOR undergraduate students
- How does student-teacher & student-student interaction affect learning

FACULTY PROFESSIONAL DEVELOPMENT PROGRAMMES

The Faculty Professional Development programs are held on the last Friday of every month and are coordinated and conducted by representatives from the Department of physics and attended by all faculties in the department. Mr suhail K facilitated as the faculty coordinator for the Department of physics. The various topics came under the discussion are:

- A talk based on the implementation of certificate courses and its curriculum
- Virtual classroom facilities
- Orientation programmes for newly joined faculty members on Mastersoft, LMS, SOP etc.

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• Scope, flexibility and availability of digital resources

• Effective implementation of mentor-mentee policies

STUDENTSHIP

This section carries information about students, academic monitoring to ensure timely handling of classes, learner-centric initiatives taken by the department, and student development and support services. The cultural and extracurricular activities, the industrial and village visits, and extension activities are also mentioned.

1) **ACADEMIC MONITORING**

- Timely handling/ delivery of classes/ topics
- Coverage of topics Semester- wise within stipulated time.
- Result Analysis
- Action Taken for time-bound semester plan coverage (extra hours handled on online classes, study materials supplied, group learning (supplemental learning)
- Upkeep of teacher Diary
- student attendance monitoring and mentoring by class teachers

2) LEARNER CENTRIC INITIATIVES

1) **ADVISORY SYSTEM**

Class advisory sessions are an integral part of the academic support system and play a vital role in the holistic development of students. The class advisor or tutor is an experienced faculty member assigned to a specific group of students to provide academic and personal guidance. They act as mentors and facilitators, ensuring the overall well-being and academic success of their assigned students.

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FIRST YEAR M.Sc PHYSICS :	SUHAIL K
SECOND YEAR M.Sc PHYSICS :	MUHAMMED ASHRAF PA
THIRD YEAR B.SC PHYSICS :	MUHAMMED SHAMEEM
SECOND YEAR B.SCPHYSICS :	RESHMA P
FIRST YEAR B.SC PHYSICS :	SAIRABANU

2) SLOW LEARNER-CENTRIC CLASSES

Department of physics conducted an Induction programme and a test based on it to find out slow learners and advanced learners. This ten days programme gave a picture of these two categories. Identification Process for Slow Learners: Department also conducted periodic assessments to track students' academic progress and identify those who may be struggling to keep up with the pace of the curriculum. Our teachers closely observe students' performance in class, their engagement level, and participation to identify signs of slow learners.

ACTION TAKEN REPORT FOR SLOW LEARNERS

Once identified, slow learners are provided with additional support through remedial classes, tutoring, or special education programs tailored to their individual needs. Department implemented various learning support systems, such as study groups and peer tutoring, to assist slow learners in catching up with their peers. Department created personalized learning plans for each identified slow learner to address their specific learning challenges and set achievable goals. Progress of slow learners is regularly monitored, and adjustments are made to their learning plans as needed to ensure steady improvement.

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ADVANCED LEARNER-CENTRIC ACTIVITIES:

Identification Process for Advanced Learner

The process of identifying and assessing slow and advanced learners is crucial in creating an inclusive educational environment that caters to the diverse needs of students. This report outlines the criteria and methodology employed in the identification and assessment process, as well as the classification of students into slow and advanced learners.

Identification and Assessment Criteria:

1. **Class Test Result (Weightage 50%):** An examination was conducted, either offline or online, consisting of at least fifty objective type questions based on the higher secondary syllabus and bridge classes covered till date. This assessment carries the highest weightage of 50%.
2. **Preceding Examination Overall Result (Weightage 25%):** The performance of students in their preceding higher secondary board examination was considered, carrying a weightage of 25%. This provides insight into their academic history and baseline performance.
3. **Class Observation of Subject Teacher (Weightage 25%):** Each subject teacher evaluated students on a scale of 1 to 10, considering their classroom behavior and participation. This qualitative assessment contributes 25% to the overall evaluation.

Assessment and Classification:

Based on the assessment parameters and their respective weightage, the total assessment percentage for each student was calculated. Students securing marks below 40% were categorized as Slow Learners, indicating a need for additional support and personalized attention. Conversely, students scoring above 70% were classified as Advanced Learners, signifying their proficiency and potential for further enrichment.

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The identification and assessment process outlined in the College Process Manual for Slow Learners and Advanced Learners provides a systematic approach to recognize students' academic abilities and learning needs. By utilizing a combination of objective and subjective assessment measures, educators can effectively tailor instruction and support to maximize each student's potential for success.

Supplemental learning

Supplemental learning physics Department implemented supplemental learning system to provide additional support and enrichment to students. There are two essential components of the system: peer tutoring and the role of advanced learners in facilitating supplemental learning. These initiatives aim to foster a conducive learning environment that caters to the diverse needs of students and promotes collaborative learning within the department.

Peer Tutoring

The physics Department has established a peer tutoring program to enable students to receive academic assistance from their peers who excel in specific subjects or skills. Peer tutors are carefully selected based on their academic achievements, communication skills, and willingness to help others. The peer tutoring sessions provide one-on-one or small group support to struggling students, enabling them to overcome challenges and improve their understanding of course material.

Role of Advanced Learners in Supplemental Learning

Advanced learners in the physics Department play a vital role in the supplemental learning system. They act as mentors and facilitators, supporting their fellow students' academic growth through various means.

Mentoring Slow Learners

Advanced learners assist slow learners by providing additional explanations, sharing study strategies, and offering constructive feedback on their assignments. This peer-to-peer support empowers slow learners and helps them build confidence in their abilities.

Leading Study Groups

Advanced learners organize and lead study groups where students collaboratively discuss and analyze course material. These study sessions encourage active participation and promote a deeper understanding of the subject matter.

ONLINE CLASSES

The COVID-19 pandemic necessitated a swift transition from traditional Face to face instruction to online classes, presenting numerous challenges and opportunities for the academic community

Many faculty and students encountered challenges related to technology access and proficiency, exacerbating existing disparities. Maintaining student engagement in virtual classes proved challenging, with distractions at home and potential feelings of isolation.

Departments faced logistical challenges in coordinating the adoption of virtual platforms, necessitating training sessions and technical support for faculty. Ensuring a standardized approach to online teaching across departments posed challenges, requiring collaborative efforts to maintain quality and consistency.

Zoom emerged as a cornerstone in facilitating real-time interactions, maintaining the essence of face-to-face communication through features like video conferencing, breakout rooms, and screen sharing. Zoom's user-friendly interface contributed to the flexibility of scheduling classes, accommodating diverse time zones and individual preferences.

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Traditional assessment methods were disrupted, requiring a re-evaluation of evaluation strategies to ensure fairness and academic integrity. And Departments adapted assessment methods to the online format, incorporating open-book exams, project submissions, and continuous evaluation. The integration of plagiarism detection tools and secure online exam platforms became essential for maintaining academic integrity.

The shift to online classes necessitated the diversification of digital resources, including e-books, online journals, and multimedia content. Digital resources enhanced accessibility, allowing students to engage with materials at their own pace and providing a repository for supplementary learning.

The transition to online classes during the COVID-19 academic era posed multifaceted challenges, from technological barriers to pedagogical adjustments. Departments faced coordination hurdles but demonstrated resilience in adapting to virtual platforms. The importance of Zoom in facilitating interactive learning was evident, and the flexibility of digital resources played a pivotal role in ensuring continued academic progress. The experiences during this period underscore the need for ongoing adaptation, professional development, and a collective commitment to navigating the evolving landscape of education

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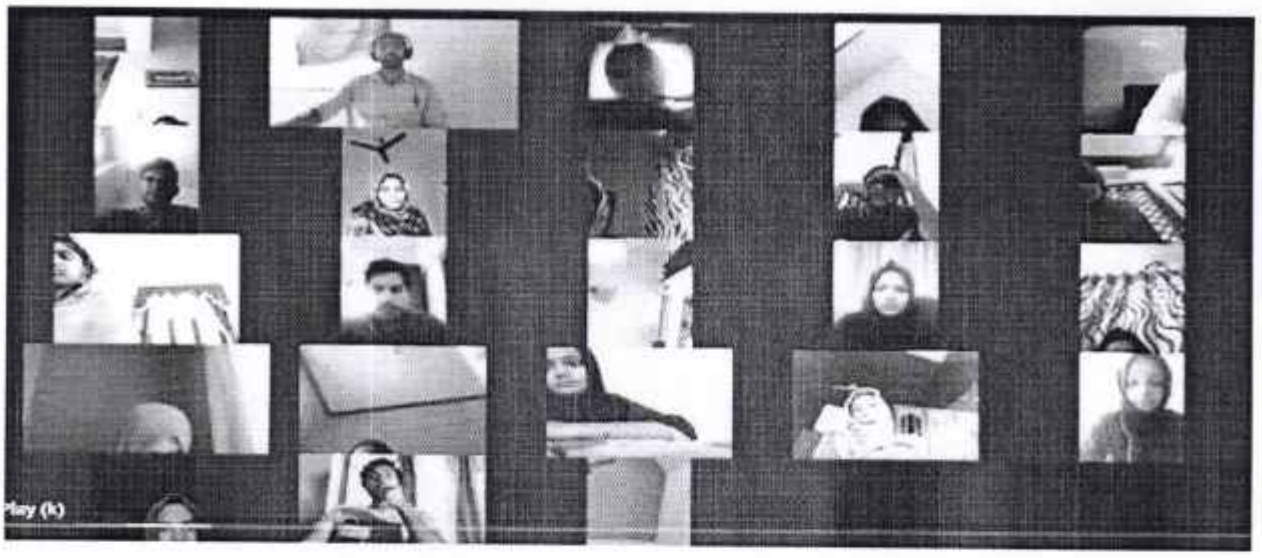

STUDENT SUPPORT AND DEVELOPMENT ACTIVITIES

The student support and student development initiatives that have been undertaken in this academic year are presented.

Mentoring for students

Bridge /orientation program

Digital Textbook Support

Physics lab

Project Skilling Orientation for 5th Sem UG& 3rd Sem PG.

Placement workshops for students

Student Placement Information

Class wise Placement Statistics

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MENTORING

Special mentoring done

Extra time for Exams- The special students who needed extra time were mentored and with the help of the office of examinations extra time was provided both for mid-semester and end-semester exams

Mentoring for weak subjects

The students were continuously mentored regarding their academics. They were motivated and continuously encouraged to seek help from the teachers of the subjects in which they are weak

Encouragement to participate in association and cultural activities

The students were constantly encouraged to participate in all the co-curricular and inter-class events to help them develop self-confidence. One of the special students is also a member of the Theatre Club of the department

Mid semester result analysis

Result analysis of Mid-semester exams of the special students was done separately to know their performance. It was found that compared to the first year, the second-year students fared betterIn the weekly departmental meetings issues related to these students were discussed

The teachers were requested to go a little slow while speaking to these students as they found it difficult to grasp. In another instance, the teachers were requested to give extra time for the completion of written assignments to first-year students who had problems comprehending and articulating using the English language. This was observed more in the case of Malayalam medium students.

The students of the first semester found the subject of mathematics and physics to be tough. After speaking to them it was concluded that lack of practice and not being able to grasp fast during the lecture hours were the main reasons for not being able to cope with the subject. The teachers teaching the subject were met in person and were requested to take a few one-to-one sessions for these students.

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An effort was made to bring them together to study problem-based papers on campus with assistance from teachers and a few senior students (supplemental learning) who were good at the subject. It was observed that this group study helped them in looking at each other's notes and getting their doubts cleared. Buddies were identified from their own classes to help them with any doubts regarding the subjects or any other thing. They became friendly with their seniors during meetings and so took help from them too. At the end of each semester their scores in all subjects were taken note of and they were advised and helped accordingly. Students who had attendance issues were constantly monitored and mentored and helped to sort out the same

MENTOR –MENTEE FILE 2020-2021

	MENTOR-MUHAMMED SHAMEEM		
SL NO.	**NAME OF THE STUDENT**	**REGISTER NUMBER**	**CONTACT NUMBER**
1.	SHAMNA T T	FPAUSPH015	9847996248
2.	SHIFA V K	FPAUSPH016	9037664950
3.	ALAMEEN P I	FPAUSPH017	7736904743
4.	MOHAMMED SANAH	FPAUSPH026	9207869706
5.	FATHIMA RAEZA P C	FPAUSPH018	8129044249
6.	FATHIMA UMAIRA	FPAUMPH007	9061009983
7.	SHADIYA FEBIN	FPAUMPH017	9846269411

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Sl.No	Name of student	Class	Register No.	Phone No.
1	ADILA SAHANA E	BSc	FPAUSPH001	8714175050
2	AFRAH K M	BSc	FPAUSPH002	7025559297
3	AYISHA FARWI KK	BSc	FPAUSPH003	9633828644
4	FATHIMA HUDA SHIRIN	BSc	FPAUSPH005	9496827007
5	MASHOORA FARVIN KP	MSc	FPAUMPH010	8594023109
6	HIBA UMMER C P	MSc	FPAUMPH008	9747819355

	MENTOR-JAYASREE P		
Sl No	NAME OF THE STUDENT	REGISTER NO	PHONE NO
1	SHAMEELA FAHMI	FPAVSPH005	8714507135
2	MOHAMMED FASAL	FPAVSPH013	7994277209
3	BASIMA NAJLA	FPAVMPH002	9846209505
4	MIDHUN T	FPAVMPH017	8606694781

ORIENTATION PROGRAMMES FOR FIRST YEARS

A ten-day departmental-level orientation for the first semester physics students was organized with a special timetable before the commencement of regular sessions. The main objective was to orient the students to KFASC academic culture with a focus on presentation , writing and reference skill. This is a time for everyone students, parents, faculty, and staff- to meet one another, talk about the college, and articulate some of the ideals that define us as a place of learning and growth. it give basic idea of subject and lab skill.

On the first-year students were given a college-level induction program in the main auditorium along with the PTA gathering. Here the students were briefed about the rules and regulations of the department with respect to dress- code, discipline, attendance, the various clubs, associations, and other

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activities. This was clubbed with the Fresher's "welcome program" organized by the senior students.

SCHEDULE OF INDUCTION AND BRIDGE COURSES

On 19/09/2021, the first-year students were given a college-level induction program in the main auditorium along with the PTA gathering. Here the students were briefed about the rules and regulations of the department with respect to dress- code, discipline, attendance, the various clubs, associations, and other activities. This was clubbed with the Freshers" welcome program" organized by the senior students.

The following are the activities proposed under this Programme in which the student would be fully engaged throughout the days for the entire duration of the programme. The activities during the Induction Program would have an Initial Phase, a Regular Phase and a Closing Phase. The Initial and Closing Phases would be two days each. Normal classes start only after the induction program is over

The Induction Program is designed with objects:

Planned event to educate the new entrants about the environment of the college, and connect them with the people in it. The incumbents learn about the institutional policies, processes, practices, culture and values. To make the newly joined students feel comfortable in their new environment. Create confidence to slow learners that they are supported continually. To give a summary of the program outcomes, program specific outcomes and course outcomes. To bridge the gap between previous knowledge and the course opted. Set a healthy daily routine. Develop awareness, sensitivity and understanding of the self, about people around them, about society at large, and nature. Sensitize them towards exploring their academic interests and activities. Reducing competition and making them work for excellence, and to achieve skills. Promote bonding within them. Build relations between teachers and students. Form a broader view of life, and building of character. Vision, mission and values of the college.

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The time during the Induction Program is:

1) To identify slow learners and advanced learners.

2) Used to overcome deficiency in English Communication.

3) Periods can be used to overcome some critical lacunas that students might have, in their main subjects by running crash courses, so when the normal courses start after the induction program, the student can overcome the lacunas substantially.

4) Campus rules and regulations, attendance leave, discipline uniform rules, etiquette, exam rules, hall ticket, canteen, parking rules, anti-ragging initiatives etc.

5) Provision of anti-ragging cell/squad, complaints grievances redressal cell, etc.

6) Familiarization to Dept., /digital library/sports /arts facilities clubs/student support activities.

7) Familiarization of student activities in various areas.

8) The students are oriented on the system environment followed in the college (ERP, LMS, MAILING&MESSAGING, online exams etc).

9) Method of study of coaching and guidance offered and what they want to acquire additionally. (add on courses)

10) Importance of writing exams and completion of the course in time, to mend their future.

11) They are also shown the laboratories, & other facilities in the campus.

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Student's Induction thus could cover a number of different aspects (SAGE):

Socializing: Meeting other new students, senior students, student's union, Lectures by Eminent People.

Associating: Visits to college premises, visits to Dept./Branch/ Programme of study & important places on campus,local area, and city and so on.

Governing: Rules and regulations, student support etc.

Experiencing: Subject lectures, study skills, small-group activities, physical activity, creative and performing arts, literary activities

DEPARTMENT OF PHYSICS INDUCTION PROGRAMME 2021-2022

Department of physics Student Induction Programme aims to ensure that students feel welcomed, supported, and prepared to begin their studies in the physics Department.

The objectives of the Department of physics Student Induction Programme are:

1. To introduce students to the faculty, staff, and resources available within the physics Department.
2. To provide students with an overview of the academic programs and courses offered by the physics Department.
3. To familiarize students with the expectations and requirements for successful study in the physics Department.
4. To help students develop the skills necessary to succeed academically, including critical reading, writing, and research skills.

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5. To provide students with information about academic and professional opportunities available to them within the physics Department, as well as outside of the department.
6. To encourage students to become active members of the physics Department community and to participate in departmental events and activities.
8. To provide students with the support and guidance necessary to achieve their

INDUCTION PROGRAMM SCHEDULE

DATE	TIME	RESOURCE PERSON	SUBJECT
01-12-2020	10.00 AM -11.00 AM 12.00 PM-1.00 PM 2.00 PM-3.00 PM	Reshma P Suhail K Jayasree P	Intro to maths Into the World of Python Quantum World
02-12-2020	10.00 AM -11.00 AM 12.00 PM-1.00 PM 2.00 PM-3.00 PM	Sairabhanu O Muhammed Shameem K	Mechanics Electrodynamics Classical Mechanics Introduction

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		Mubarak N	
03-12-2020	10.00 AM -11.00 AM 12.00 PM-1.00 PM 2.00 PM-3.00 PM 2.00 PM-3.00 PM	Jaseena RV Reshma P Suhail K	Physical Chemistry Where Math Meets Physics Introduction of Electronics
04-12-2020 04-12-2020	10.00 AM -11.00 AM 12.00 PM-1.00 PM 2.00 PM-3.00 PM	Suhail KP Jayasree P Sairabhanu O	Limits Continuity & Differentiation Familiarisation of CRO Relativity
07-12-2020	10.00 AM -11.00 AM 12.00 PM-1.00	Muhammed Shameem K	Familiarisation of Modern Physical Equipment

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	PM 2.00 PM-3.00 PM	Mubarak N Jaseena RV	Optics Organic chemistry
08-12-2020	10.00 AM -11.00 AM 12.00 PM-1.00 PM 2.00 PM-3.00 PM	Suhail KP Sairabhanu O Suhail K	Sets Newtonian Mechanics Describing the Motion of Macroscopic Objects
09-12-2020	10.00 AM -11.00 AM 12.00 PM-1.00 PM 2.00 PM-3.00 PM	Raihanath Labeeb M Beena Mol	Universal Human Values
10-12-2020	10.00 AM -11.00 AM 12.00 PM-1.00 PM 2.00 PM-3.00 PM	Shamseer Haneefa Aswathi KT	Health, Fitness and Wellness
11-12-2020	10.00 AM -11.00 AM 12.00 PM-1.00	Reshma P	Mentor meets Mentee

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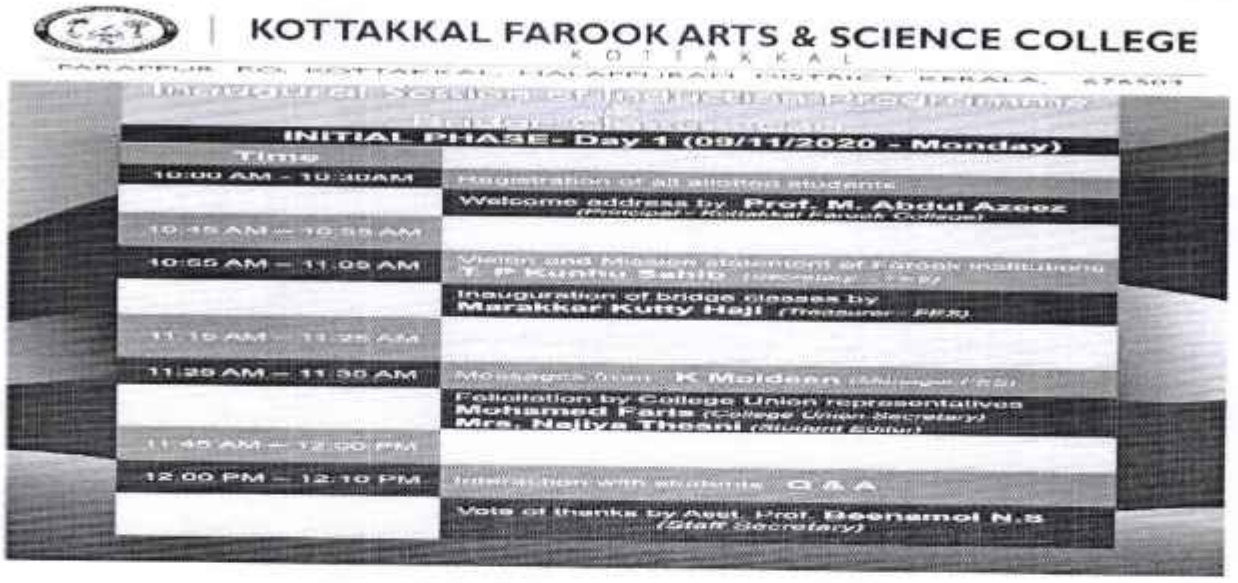
	PM 2.00 PM-3.00 PM	Suhail K Jayasree P	



DIGITAL TEXTBOOK SUPPORT

The Department of physics provides digital textbooks to the students of the department to broaden their intellectual horizons and to aid in their regular classroom teachings. The list of textbooks is given in DSPACE and students can download or read a book, either prescribed or recommended from their home or a place of their ease. Free textbook references are available at D Space.

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LABORATORY FACILITIES IN DEPARTMENT OF PHYSICS

General Physics Experiments:

The most common types of labs in a physics department. They are used for introductory physics courses and cover a wide range of topics, from mechanics and electromagnetism to optics and thermodynamics. These experiments are equipped with basic equipment like optics benches, oscilloscopes, and data acquisition systems, cantilever, prism etc..

Optics and Laser Experiments:

The experiments focus on experiments related to optics, lasers, and photonics. They may have high-power lasers, optical tables, and various optical components for experiments in optics and laser physics.

Electronics experiments:

The experiments are equipped for designing and building electronic circuits and instrumentation. Students can work on projects related to the development of scientific instruments and data acquisition systems. These experiments are equipped with various electronics component and devices like Transistor, resistors, CRO, function generator, DSO..et

Nuclear and Particle Physics Laboratories:

The labs are equipped for experiments related to nuclear and particle physics, including GM counter, ESR, detectors, and associated infrastructure.

Condensed Matter Physics experiments:

The experiments are focused on the study of solid and soft matter, including the use of various techniques such as diffraction, electron microscopy, and spectroscopy.

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Computational Physics Facilities:

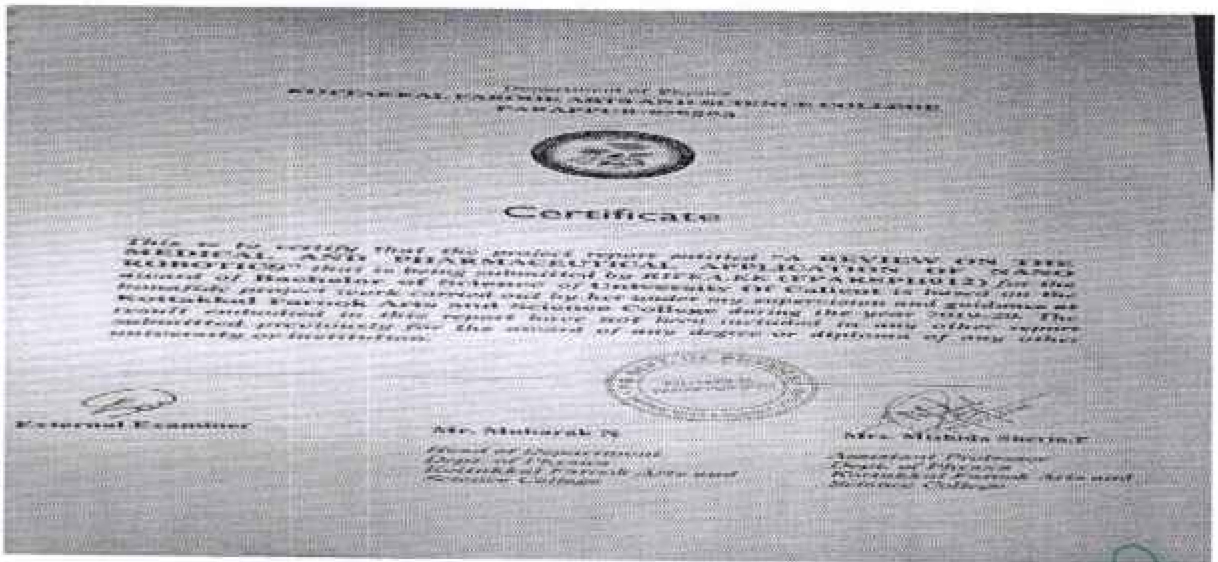
Physics departments also have computational physics facilities use highperformance computers for simulations of python programs. These labs often have clusters of computers and access to software for numerical simulations.

PROJECT SKILLING ORIENTATION FOR FIFTH SEMESTER B.Sc PHYSICS AND THIRD SEMESTER MSc PHYSICS

Physics Department offered project orientation programmes to the final year UG and PG students. These initiatives aim to enhance students' research and analytical skills, encourage independent thinking, and provide practical exposure to real-world applications of different branches of physics. There are various project orientation programmes implemented by the physics Department.

PROJECT CERTIFICATION

The final year Project undertaken by our students revolves around the central theme of improving educational quality through innovative initiatives. The project aligns with the mission of our institution to foster holistic development and academic excellence


Certificate

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M.SC PROJECT DETAILS 2020-2021

Roll No	REG.NO	NAME	PROJECT TOPIC	RESEARCH THRUST AREA	PROJECT ADVISOR
1	FPATMPH001	ANJANA K	STUDY OF CENTRAL INTENSITY RATIO OF BULGE DOMINATED GALAXIES	ASTROPHYSICS	DrC D Ravikumar, University of calicut
2	FPATMPH002	ASWATHY H	STUDY OF CENTRAL INTENSITY RATIO OF DISC DOMINATED	ASTROPHYSICS	DrC D Ravikumar, University of

			GALAXIES		calicut
3	FPATMPH 003	AVINASH KRISHNA N AP	VERIFICATION OF MORPHOLOGY - DENSITY RELATION USING DIFFERENT GALAXY CLUSTERS	ASTROPHYSICS	NAJIYA MARYAM ,PSMO college Tirurangadi
4	FPATMPH 004	AYISHA SHAIJI MN	STRUCTURE,MAGNETIC,AND THERMODYNAMIC PROPERTIES OF GD10CO20SI70 ALLOY	MAGNETISM	Dr Rashid TP,PSMO Tirurangadi
5	FPATMPH 008	GOPIKA K	EFFECT OF ANNEALING TEMPERATURE ON THE STRUCTURAL AND OPTICAL PROPERTIES OF MGO-ZNO NANOCOMPOSITE	NANOTECHNOLOGY	Dr.Suneesh P U,MES college of Engineering Kuttippuram
6	FPATMPH 009	ASNA A K	A THEOROTICAL STUDY ON NON LINEAR PULSE PROPAGATION IN PHOTONIC LIEB LATTICE WITH METAMATERIALS	NON LINEAR OPTICS	Dr Shafeeque Ali A K , Bharathiar university
7	FPATMPH 010	K KEERTHANA	GREEN SYNTHESIS OF ZINC OXIDE NANO PARTICLES USING ARECA CATECHU NUT FLESH	NANOTECHNOLOGY	Dr S Sharmila ,karpagam academy of higher education ,coim

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					batore
8	FPATMPH 011	NIMSHE ERA KP	FROM OPTICAL INTERFEROMETRY TO ATOM INTERFEROMETRY	OPTICS	Dr Prajith Chandran , Govt College Malappuram
9	FPATMPH 012	SHAMEE M RASI K	VIBRATIONAL SPECTROSCOPIC INVESTIGATIONS,DFT COMPUTATIONS AND NON LINEAR OPTICAL PROPERTIES OF 7-HYDROXY COUMARIN	SPECTROSCOPY	Dr Shiney A ,PSMO College Tirurangadi

B..Sc PROJECT DETAILS 2020-2021

ROLL NO.	Reg. No	Name	Project Topic	Research thrust area	Project advisor
1.	FPASSPH 001	FATHIMA SHAHNA T	QUANTUM ENTANGLEMENT	QUANTUM MECHANICS	MOHAMMED SHAMEEM K
2.	FPASSPH 002	LIYANA T	THE MYSTERY OF DARK ENERGY AND SOME REVOLUTIONS	ASTROPHYSICS	JAYASREE P
3.	FPASSPH 004	NAJMA THASNI	RUBBER AS AN AID TO TEACH THERMODYNA	THERMODYNAMICS	SAIRABANU O

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			MICS		
4.	FPASSPH 005	NAJMUNNISA K K	A STUDY ON FOUCAULT'S PENDULUM	MECHANICS	RESHMA P
5.	FPASSPH 006	NAJVA K	BRACHISTOCHRONE -THE PATH OF QUICKEST DESCENT	CLASSICAL MECHANICS	RESHMA P
6.	FPASSPH 007	NASLA THASNI	OBSERVATION ON THE DECAY OF HEAVY MESONS	PARTICLE PHYSICS	MOHAMMED SHAMEEM K
7.	FPASSPH 008	RISANA THASNI K	COMMUNICATION THROUGH OPTICAL FIBRE	OPTICS	RESHMA P
8.	FPASSPH 009	SHAHALA M P	ANALYTICAL EVOLUTION OF CESIUM EMISSION LINES USING LASER INDUCED BREAKDOWN SPECTROSCOPY	SPECTROSCOPY	MOHAMMED SHAMEEM K
9.	FPASSPH 010	BILSHA	ITER:MOVIG TOWARDS INDUSTRIAL FUSION ENERGY	NUCLEAR PHYSICS	JAYASREE P
10.	FPASSPH 011	FATHIMA HIBA A C	HIGHER HARMONIC INSTABILITY OF ELECTROSTATIC ION CYCLOTRON BASE	ELECTROSTATICS	MOHAMMED SHAMEEM K
11.	FPASSPH 012	FATHIMA RIFA	PYTHON PROGRAM ON PARTICLE IN A BOX	COMPUTATIONAL PHYSICS	JAYASREE P
12.	FPASSPH 013	NASEERA M	DISCOVERY AND PROPERTIES OF FLUORESCENCE	OPTICS	SAIRABANU O
13.	FPASSPH 014	NASMA A	RADIATION IN MEDICAL APPLICATIONS	RADIATION PHYSICS	SAIRABANU O

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14.	FPASSPH 015	SABEELA T K	CARBON NANOTUBES	NANO SCIENCE	MOHAMMED SHAMEEM K
15.	FPASSPH 016	SAFA C V	POINT AND SPACE GROUP OF GRAPHENE	NANO SCIENCE	
16.	FPASSPH 017	SAFNA K	EXPANDING UNIVERSE WITH DARK ENERGY	ASTROPHYSICS	MOHAMMED SHAMEEM K
17.	FPASSPH 018	SAMEELA T K	MAGNETIC LEVITATION	MAGNETISM	SAIRABANU O
18.	FPASSPH 019	SANA K M	DARK ENERGY	ASTROPHYSICS	JAYASREE P
19.	FPASSPH 020	SHAHNA RAHIM	QUANTUM DOTS	NANO SCIENCE	MUBARAK N
20.	FPASSPH 021	DANISH MOHAMMED THOOMBATH	CLASSIFICATION OF STARS BASED ON SURFACE TEMPERATURE	ASTROPHYSICS	RESHMA P
21.	FPASSPH 022	MOHAMMED ISMAIL C	AGE-DEPENDENCE OF ELECTROMAGNETIC POWER AND HEAT DEPOSITION IN NEAR-SURFACE TISSUES IN EMERGING 5G BANDS	ELECTRO MAGNETISM	MOHAMMED SHAMEEM K
22.	FPASSPH 023	SREERAJ A H	TOKIYONS	PHOTONICS	SAIRABANU O
23.	FPASSPH 024	UMER MUQTHAR A	TUNABLE FLUORESCENCE FROM NATURAL CARBON SOURCES	OPTICS	MUBARAK N
24.	FPASSPH	BASIMA	POSITIVE ASPECTS	NUCLEAR PHYSICS	SAIRABANU O

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	025	NAJLA A C	OF NUCLEAR ENERGY OTHER THAN ATOMIC BOMB		
25.	FPASSPH 026	DHANUSREE O K	"HOW DOES AN INTERACTING MANY BODY SYSTEM TUNNEL THROUGH A POTENTIAL BARRIER TO OPEN SPACE"	QUANTUM MECHANICS	MUBARA K N
26.	FPASSPH 027	FATHIMA HATHIRA C M	SQUID INSTRUMENTS AND APPLICATIONS	SOLIDSTATE STATE PHYSICS	SUHAIL K
27.	FPASSPH 028	NIDHA RAHMAN K	STUDY THE DOPPLER EFFECT WITH SOUND WAVES AND ITS APPLICATIONS IN VARIOUS FIELDS	MODERN PHYSICS	MUBARA K N
28.	FPASSPH 029	SANIYA THASNIM A C	3D printing	Nano Technology	Reshma p
29.	FPASSPH 030	SHIFLA SANAM K K	Understanding what causes surface tension		Mubarak N
30.	FPASSPH 031	SNEHA P	Large Hadron Collider	Nuclear Physics	Suhail K

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31.	FPASSPH 032	SREELAKSHMI C P	Study on rutherford scattering experiment using Python programming	Computational Physics	Reshma p
32.	FPASSPH 033	THASJIDA BASHEER M	Bouncing ball simulation using Python programming	Computational Physics	Jayasree P
33.	FPASSPH 034	VINAYA P	Method of solving different problems in physics using artificial neural network	Optics	Mubarak N
34.	FPASSPH 035	VISHNUPRIYA K	A review of Michelson interferrometre experiment	Relativistic mechanics	Reshma p
35.	FPASSPH 036	MOHAMED IRSHAD V P	GAIA:The 3D milky way mapper	Astrophysics	Jayasree P
36.	FPASSPH 037	VISHNUPRASAD C	Nuclear fusion and research	Nuclear Physics	Jayasree P

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CO-CURRICULAR, CULTURAL AND EXTRACURRICULAR ACTIVITIES, THE INDUSTRIAL AND VILLAGE VISITS, AND EXTENSION ACTIVITIES

REPORT ON VIRTUAL TOUR: WEBINAR SERIES BY ALL KERALA PHYSICS TEACHERS IN ASSOCIATION WITH THE BOARD OF STUDIES OF PHYSICS, UNIVERSITY OF CALICUT (ACADEMIC YEAR 2020-2021)

In response to the challenges posed by the COVID-19 pandemic during the academic year 2020-2021, the Department of Physics organized a virtual tour for students. The tour, facilitated through a 3 days webinar series on national institutes by Academy Of Physics Teachers in collaboration with the Board of Studies of Physics, University of Calicut, aimed to provide students with valuable insights and academic enrichment in a virtual learning environment.

Introduction

Amidst the pandemic conditions, the virtual tour was conceived as an innovative solution to ensure the continuity of academic engagement for physics students. This report outlines the key components and outcomes of the virtual tour.

Webinar Series Overview

- **Collaborators:** All Kerala Physics Teachers and the Board of Studies of Physics, University of Calicut.
- **Duration:** 26/01/2021,30/01/2021,15/01/2021
- **Themes:** The series covered the national institutes IIST Trivandrum, Inter University Accelerator Centre, New Delhi, National Center For Radio Astrophysics, Pune, aligning with the curriculum and exploring contemporary developments in physics

Objectives

The virtual tour aimed to achieve the following objectives:

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1. **Academic Enrichment:** To provide students with in-depth insights into selected physics institutes.
2. **Professional Development:** To foster an understanding of the practical applications of theoretical concepts.
3. **Interaction:** To facilitate interaction between students and experienced physics educators.

Webinar Highlights

- **Distinguished Speakers:** Eminent physicists and educators were invited to deliver lectures and presentations.
- **Q&A Sessions:** Interactive sessions allowed students to pose questions and engage in discussions

- **Hands-On Demonstrations:** Some webinars included virtual experiments and demonstrations, enhancing the practical learning experience.
- **Day-1 (26/01/2021)**
- WEBINAR - I NATIONAL CENTRE FOR RADIO ASTROPHYSICS (NCRA),PUNE Resource Person: Dr. ISHWARA CHANDRA CH (Associate Professor –NCRA) DATE: 26-01-2021, TUESDAY; Time :10 AM Inauguration: Dr. M. K. Jayaraj (Vice Chancellor, University of Calicut)
- **Day-2 (30/01/2021)**
- WEBINAR - II INTER-UNIVERSITY ACCELERATOR CENTRE (IUAC), NEW DELHI Resource Person: Dr. Sugathan Pullanhiotan (Scientist-H,IUAC) DATE: 30-01-2021, SATURDAY; Time :10 AM
- **Day-3 (15/02/2021)**
- WEBINAR - III Indian Institute of Space Science and Technology (IIST), Trivandrum Resource Persons: 1. Dr.Anand Narayanan (Astronomy & Astrophysics) , 2. Dr. Rajesh VJ (Geosciences) , 3. Dr. Govindan Kutty (Atmospheric Sciences) 4. Dr. K B Jinesh (Sold state physics) DATE: 15-02-2021, Friday; Time :2.30 PM

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Conclusion

The virtual tour, conducted through the webinar series by All Kerala Physics Teachers in collaboration with the Board of Studies of Physics, University of Calicut, successfully addressed the challenges posed by the pandemic. It not only provided students with academic enrichment but also facilitated meaningful interactions within the physics community. The Department of Physics expresses gratitude to all collaborators, speakers, and participants for making this virtual tour a valuable and successful endeavor

37 physics students actively participated in the webinar series. Collected feedback indicated a high level of satisfaction among students, highlighting the effectiveness of the virtual tour in supplementing their understanding of physics concepts.