KOTTAKKAL FAROOK ARTS AND SCIENCE COLLEGE

POST GRADUATE DEPARTMENT OF PHYSICS

ANNUAL REPORT

2019-20

19-20

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

Prof. M. ABDUL AZEEZ
PRINCIPAL
KOTTAKKAL FAROOK ARTS & SCIENCE COLLEGE
PARAPPUR(P.O) - 676 503

DEPARTMENT OF PHYSICS - ANNUAL REPORT (2019-2020)

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
1	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
	A 08	Common Course VI – Language other than English	72	4	4
	PHY2 B02	Core Course II - Mechanics II	36	2	2

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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 Consumer protection			4**
		Total	450	25	16
	A 06	Common Course IX – English	90	5	4

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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	*
		Total	450	25	15
	PHY6 B10	Core Course X - Thermodynamics	54	3	3
	PHY6 B11	Core Course XI -Statistical Physics, Solid	54	3	3

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6		State Physics, Spectroscopy and Photonics			
	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
	PHY6 B17 (P/R)	Core Course XVII Project/Research methodology Tour report	36	2	2 1
		Total	450	25	28

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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
1	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 seminar has to be sent to the head of the department through the

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			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

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			practical exam. Or It can be a course 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

*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

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(PHY4P01) Project (4C)

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

(PHY4L07) Computational Physics Practical (3C)

Viva Voce (Comprehensive) (4C)

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.

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TWO COURSES

1)PHYCCMP01:CERTIFICATE COURSE IN MEDICAL PHYSICS

Course Description:

Certificate Course in Medical Physics is a 36-hour course designed to provide fundamental knowledge of medical physics to students and professionals who wish to work in the healthcare industry. The course covers the basic principles of radiation physics, imaging modalities, radiation protection, and quality assurance in medical imaging and therapy. The program aims to provide a comprehensive understanding of medical physics, its principles and applications in healthcare, and its role in patient care

Course Overview:

The course is divided into various modules that cover essential topics in medical physics. The program is delivered through a combination of lectures, practical exercises, and case studies. The course also includes interactive sessions to encourage student participation and engagement. The final evaluation will be based on a written examination that will test the students' knowledge and understanding of the course material.

Learning Objectives:

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

- Understand the basic principles of radiation physics
- Describe the different imaging modalities and their applications in healthcare
- Demonstrate knowledge of radiation protection and safety measures in medical imaging and therapy
- Explain the quality assurance procedures in medical imaging and therapy
- Recognize the importance of medical physics in patient care

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Course Outcomes:

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

- Understand the role of medical physics in the healthcare industry
- Identify and describe the different imaging modalities and their applications
- Demonstrate knowledge of radiation protection and safety measures in medical imaging and therapy
- Apply quality assurance procedures in medical imaging and therapy
- Explain the importance of accurate dose measurement and management in radiation therapy

Syllabus:

Module 1: Introduction to Medical Physics (4 hours)

- Definition and scope of medical physics
- Role of medical physicists in healthcare
- Historical development of medical physics

Module 2: Radiation Physics (10 hours)

- Atomic structure and radiation types
- Interaction of radiation with matter
- Dosimetry and dose measurement
- Radiation safety and protection

Module 3: Imaging Modalities (10 hours)

- X-ray imaging and computed tomography (CT)
- Magnetic resonance imaging (MRI)

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- Ultrasound imaging
- Nuclear medicine imaging

Module 4: Quality Assurance in Medical Imaging and Therapy (8 hours)

- Image quality and image analysis
- Equipment calibration and testing
- Radiation therapy quality assurance
- Patient safety and quality management

Module 5: Radiobiology and Radiation Therapy (4 hours)

- Biological effects of radiation
- Principles of radiation therapy
- Dose calculation and treatment planning

Module 6: Case Studies and Practice Exercises (4 hours)

REFERENCES

1)"Introduction to Medical Physics" by Hendee and Ritenour.

2)"The Essential Physics of Medical Imaging" by Bushberg, Seibert, Leidholdt, and Boone.

3)"Introduction to Radiological Physics and Radiation Dosimetry" by Frank Herbert Attix.

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2) PHYCCRE02:CERTIFICATE COURSE IN RENEWABLE ENERGY

Course Description:

The Certificate Course in Renewable Energy is designed to provide participants with a comprehensive understanding of the renewable energy sector. The course will cover topics such as solar, wind, hydro, and geothermal energy, as well as energy storage systems and grid integration. Participants will also learn about the policy and regulatory frameworks that shape the renewable energy market.

Course Overview:

The course will be delivered through a combination of lectures, case studies, and group exercises. Participants will have the opportunity to engage with industry experts and network with their peers. By the end of the course, participants will have gained a deep understanding of renewable energy technologies, their applications, and the challenges associated with their deployment.

Learning Objectives:

1. To understand the principles of renewable energy technologies and their applications.
2. To gain knowledge of the policy and regulatory frameworks that shape the renewable energy market.
3. To develop an understanding of the challenges associated with the deployment of renewable energy technologies.
4. To gain insight into energy storage systems and grid integration.

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Course Outcomes:

1. Participants will be able to identify the different types of renewable energy technologies and their applications.
2. Participants will have a deep understanding of the policy and regulatory frameworks that shape the renewable energy market.
3. Participants will be able to identify the challenges associated with the deployment of renewable energy technologies and propose solutions to overcome them.
4. Participants will have an understanding of energy storage systems and grid integration

Syllabus:

Module 1: Introduction to Renewable Energy (2 hours)

- Overview of renewable energy technologies
- Importance of renewable energy

Module 2: Solar Energy (6 hours)

- Solar photovoltaic technology
- Solar thermal technology
- Applications of solar energy

Module 3: Wind Energy (6 hours)

- Wind turbines and generators
- Wind farm design and optimization
- Applications of wind energy

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Module 4: Hydro Energy (4 hours)

- Hydroelectric power plants
- Small hydropower systems
- Applications of hydro energy

Module 5: Geothermal Energy (4 hours)

- Geothermal power plants
- Direct use of geothermal energy
- Applications of geothermal energy

Module 6: Energy Storage Systems (6 hours)

- Battery storage systems
- Pumped hydro storage systems
- Thermal storage systems

Module 7: Grid Integration (4 hours)

- Integration of renewable energy into the grid
- Smart grid technologies
- Power system stability and control

Module 8: Policy and Regulatory Frameworks (4 hours)

- International policies and regulations
- National policies and regulations
- Incentive schemes and subsidies

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REFERENCES

1.Renewable Energy: Power for a Sustainable Future" by Godfrey Boyle, Stephen Peake, and Janet

2.Ramage Introduction to Renewable Energy" by Vaughn C. Nelson

3. Solar Energy Engineering: Processes and Systems" by Soteris A. Kalogirou

DEPARTMENT FACULTIES

NAME	QUALIFICATION	DESIGNATION
Mubarak N	MSc	Head of Department
Devika rani	MSc	Assistant Professor
RESHMA P	MSc	Assistant Professor
Salu	MSc	Assistant Professor
Mishida sherin	MSc	Assistant Professor
Suhail k	MSc. ,B.Ed,SET	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	SUHAIL K
Staff representatives	DEVIKA RANI K RESHMA P MISHIDA SHERIN P SALU K
External faculty	NUBLA (Assistant Professor: M E T Arts and Science College)
Office staff	SAMEERA K
Alumni representee	BASILA AC (2015-2017 BSc Physics)
Student representees	Fathima Wafa NK (1ST year BSc Physics) Najmunnisa K K (2nd year BSc Physics)

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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	:	SUHAIL K
FACULTY MEMBERS	:	SALU,MISHIDA SHERIN

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	:	MISHIDA SHERIN
FACULTY MEMBERS	:	SALU,DEVIKA RANI

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	: SUHAIL K

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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 2019-2020. 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 : DEVIKA RANI,SALU

EXPERIENTIAL LEARNING PROJECT 2019-2020

Class	Name of giude	Project title	Assigned date	Objective	No. of students submitted
1st BSc Physics	Mubarak N	STUDY OF SIMPLE PENDULUM	09-10-2019	TO INVESTIGATE AND ANALYZE THE FUNDAMENTAL PRINCIPLES GOVERNING THE MOTION OF A SIMPLE PENDULUM.	30
	Devika Rani	DIFFRACTION METHODS	18-12-2019	TO EXPLORE, UNDERSTAND, AND APPLY DIFFRACTION TECHNIQUES IN THE STUDY OF	30

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				WAVE PHENOMENA.	
2nd Bsc Physics	Salu K	SOURCE OF ENERGY AND ENERGY CONSERVATION	18-07-2019	TO EXPLORE AND ANALYZE VARIOUS SOURCES OF ENERGY, EMPHASIZING THE IMPORTANCE OF SUSTAINABLE AND RENEWABLE ENERGY SOLUTIONS, AND TO INVESTIGATE EFFECTIVE STRATEGIES FOR ENERGY CONSERVATION.	34
	Reshma P	INTRODUCTION TO ELECTROMAGNETISM	20-01-2020	TO PROVIDE A COMPREHENSIVE EXPLORATION AND UNDERSTANDING OF THE FUNDAMENTAL PRINCIPLES OF MAGNETISM.	36
3rd BSc Physics	Suhail K	APPLICATION OF JOULES EFFECT	21-07-2021	TO PROVIDE A COMPREHENSIVE UNDERSTANDING OF JOULE'S EFFECT, AND EXPLORE THE APPLICATION OF JOULE'S EFFECT IN COMMON HOUSEHOLD APPLIANCES	32

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ROLES AND RESPONSIBILITIES ALLOTTED TO THE FACULTY

DEPARTMENT HEAD	Mubarak n
DEPARTMENT COORDINATOR	Suhail k
LIBRARY COMMITTEE	Mishida sherin
DEPARTMENT EXAM COORDINATOR	Reshma p
PROGRAM COORDINATOR	Jaseena r
CLASS ADVISORS	**B.sc. Programme**
	I semester :reshma
	Ii semester: reshma
	Iii semester: Mishida sherin
	Iv semester : Mishida sherin
	V semester: Suhail k
	Vi semester: Suhail k
	M.sc.programme
	I semester :salu k
	Ii semester: salu k
	Ii semester: Devika rani
	Iv semester : Devika rani
MENTOR MENTEE FOR VARIOUS	I year : salu

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CLASSES	Ii year: reshma p
	Iii year:suhail k
COLLEGE COUNCIL	Mubarak n
ANTI RAGGING SQUAD	Mubarak n
ANTI RAGGING COMMITTEE	Suhail k
TOUR CO-ORDINATOR	Suhail k
LAB IN CHARGE	B.sc.first year :reshma B.sc secondyear: reshma ,devika rani B.sc complimentary first year:mubarak n B.sc complimentary second year: :devika rani M.sc first year : suhail k M.sc second year : reshma p
ALUMNI COORDINATOR	salu
COMPLAINTS AND GRIEVANCE CELL	reshma
FILE IN CHARGE (NAAC)	**Mubarak n** : advisors list year wise question papers year wise time table minutes book year wise details of teachers
	Suhail k

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	Photo album Year wise external marks Teachers examination duty Year wise duty chart Year wise annual report
	Mishida sherin Alumni register department alumni report annual report of study tour Reportofseminar,workshop.... Year wise details of teachers attended examination duty
	Devika rani 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 students alumni....

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	Details of online class conducted-content developed by staff
	Salu 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
	Jaseena r 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

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ASSOCIATION PROGRAM INAUGURATION AND SEMINAR PRESENTATION

The inauguration of the "COMET -20" Association Program, coupled with an illuminating seminar, was held at Kottakkal Farook Arts & Science College on January 14, 2020. The event showcased active participation from students, setting the tone for an intellectually stimulating session. The program commenced with the inauguration of the "COMET -20" Association, signifying the beginning of a platform aimed at promoting scientific discussions and explorations within the academic sphere. The active involvement of students underscored their enthusiasm and interest in academic pursuits.

The inauguration of the "COMET -20" Association Program started with welcome speech by MUBARAK N(Head,department of physics),. The programm iaugurated by Dr. Rashid TP (Asst. professor in physics,PSMO college , Thirurangadi) ,the Presidential Address was done prof. M. Abdul Azeez (Principal KFASC).The program ended with vote of thanks Reshma P (Asst. Professor, Dept of Physics)

The participation and enthusiasm displayed by the students during the seminar underscored their interest in advancing their understanding of scientific principles. Dr. Rashid TP's enlightening presentation left a lasting impression on attendees, inspiring further exploration and study in the realm of optics

The inauguration of the "COMET -20" Association and the seminar on the "Application of Optics" served as a catalyst for fostering a culture of academic excellence and inquiry at Kottakkal Farook Arts & Science College, exemplifying the commitment of the PG Department of Physics to enriching the academic experience of its students.

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KOTTAKKAL FAROOK ARTS AND SCIENCE COLLEGE

PG DEPARTMENT OF PHYSICS

Association Inagurution & Seminar Presentation

Resource Person :- Dr. Rashid TP

Date :- 10/01/2020

Time- 10.30am

Welcome

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

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- 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.
- 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.

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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.

FIRST YEAR M.Sc PHYSICS	:	SALU K
SECOND YEAR M.SC PHYSICS	:	DEVIKA RANI
THIRD YEAR B.SC PHYSICS	:	SUHAIL K
SECOND YEAR B.SCPHYSICS	:	MISHIDA SHERIN
FIRST YEAR B.SC PHYSICS	:	RESHMA

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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.

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.

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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.

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.

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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.

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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

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

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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. The teachers obliged and some students even managed to get help during study holidays

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

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accordingly. Students who had attendance issues were constantly monitored and mentored and helped to sort out the same

MENTOR-MENTEE FILE 2019-2020

MENTOR SALU K

SL NO.	NAME OF THE STUDENT	REGISTER NUMBER	CONTACT NUMBER
1.	FARHANA P	FPATSPH001	9526953120
2.	JAMSHEERA TK	FPATSPH002	8281334350
3.	LUBNA V	FPATSPH003	9037558786
4.	MUSHRIFA OP	FPATSPH004	9995272025
5.	NAJIYA PM	FPATSPH005	9048902828
6.	RISNA MP	FPATSPH006	9846573398
7.	SAMIBAN	FPATSPH007	8590917474
8.	ANJANA K	FPATMPH001	9061820129
9.	ASWATHY H	FPATMPH002	9746175504
10.	AVINASH KRISHNAN AP	FPATMPH003	8281706873

MENTOR-RESHMA

SL NO	NAME OF THE STUDENT	REGISTER NO	PHONE NO
1	ASNA SHERIN K	FPATSPH029	7012979912
2	HRIDIKA KP	FPATSPH030	7012634012
3	JUMANA JEBIN V K	FPATSPH031	9846574114
4	MUHSINA THESNI T	FPATSPH032	7034569428
5	NASEEMA M	FPATSPH033	9746362743

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6	FWANA AK	FPATSPH034	9747304209
7	SAHANA AHAMEDUL KABEER RP	FPATSPH035	8714479236

MENTOR-DEVIKA RANI

SL NO	NAME OF THE STUDENT	REGISTER NO	PHONE NO
1	SHAHANA SHERIN MK	FPATSPH008	9656328617
2	SHAHNA CP	FPATSPH009	9605282530
3	SHAMIL NAZAR KK	FPATSPH010	8111878701
4	SUMAYYA BANU MP	FPATSPH011	9745657534
5	AYISHA NASRA P	FPATSPH012	8089401142
6	RIYA MARIYAM M	FPATSPH013	8547189841
7	RIZWANA MOHAMED HANEEFA P	FPATSPH014	7034638112
8	AYISHASHAIJI MN	FPATMPH004	7510170695
9	FAMNA MANGALATH	FPATMPH006	8111829422
10	FARIS BABU KP	FPATMPH007	8592816425

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

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

SCHEDULE OF INDUCTION AND BRIDGE COURSES

On 05/08/2019, 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.

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)

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

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, universal human values,etc

DEPARTMENT OF PHYSICS INDUCTION PROGRAMME 2019-2020

PG 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

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study in the physics Department.

4. To help students develop the skills necessary to succeed academically, including

critical reading, writing, and research skills.

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.

7. To provide students with the support and guidance necessary to achieve their

INDUCTION PROGRAMM SCHEDULE

INITIAL PHASE (5-8-2019)	
Time	**Activity**
10 .00 am	Registration of students
10:30 am	Prayer
10:35 am – 11:00 am	Welcome address by the Principal **Prof. Abdul Azeez**
11:00 am –11:15 am	Induction address by President Farook Educational Society. **Jb. P. Usman Kutty**.
11:15 am –11:30 am	Inauguration of bridge and orientation classes: **jb. M.K Abdulkareem** (Vice president Farook Educational Society)

11:30 am-11.45 am	Vision and Mission statement of Farook institutions by **T.P KunhuSahib** (Secretary Farook Educational Society)
11:45am – 12.00 pm	Felicitation address by **Marakkar Kutty Haji** (Treasurer)
12.00 pm-12.15pm	Messages from: **K. Moideen** (Manager FES)
12:15 am – 12:30 pm	Address by the vice principal and Presentation on the schedule of forth coming sessions, Induction & Bridge Classes by **Mohammed Labeeb** (Vice – Principal)
12.30pm-12.45pm	Interaction with students Q&A
12:45 am – 01:00 pm	Vote of thanks by Staff Secretary Asst Prof.Mubarak N
Early dismissal on first day	

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SECOND PHASE		
DAY	**TIME**	**ACTIVITY**
06-08-2019	10 :00AM to 11:30AM	Familiarization of system environment followed in the campus **Mr. Rashid** (System admin)
	11 :30AM to 01:00 PM	Introduction of ERP, LMS, CIMS, ITLE and student areas of concern **Mr. Haneefa** ssystem manager

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07-08-2019	02 :00 PM to 04:00 PM	Know your college profile, Campus rules and regulations, attendance leave, discipline uniform rules, etiquette, exam rules, hall ticket, canteen, parking rules, anti-ragging initiatives etc., **Prof: Abdul Azeez** (Principal)

DEPARTMENTAL BRIDGE COURSES 2019-20

DATE	TIME	RESOURCE PERSON	SUBJECT
Monday **16-09-2019**	10 am – 11 am 12 pm – 1 pm 2 pm – 3 pm	Mubarak N	Course Outline CBCSS Regulations Syllabus
Tuesday **17-09-2019**	10 am – 11 am 12 pm – 1 pm 2 pm – 3 pm	Suhail KP Reshma P Salu K	Sets Where Math Meets Physics Through the World of Alpha, Beta&Gamma
Wednesday	10 am – 11 am 12 pm – 1 pm	Jaseena RV Mishidha Sherin	Physical Chemistry Relativity

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18-09-2019	2 pm – 3 pm	Devika Rani	Electro Magnetic Induction
Thursday **19-09-2019**	10 am – 11 am 12 pm – 1 pm 2 pm – 3 pm	Salu K Mishidha Sherin Devika Rani	Does the combination of Light always give More Brightness Classical Mechanics Introduction Intro of Electronics
Friday **20-09-2019**	10 am – 11 am 12 pm – 1 pm 2 pm – 3 pm	Suhail K Reshma P Mubarak N	In to the World of Python Electrodynamics- A union of Four Realms of Mechanics Quantum World
Monday **23-09-2019**	10 am – 11 am 12 pm – 1 pm 2 pm – 3 pm	Suhail KP Suhail K Jaseena RV	Limits Continuity & Differentiation Describing the Motion of Macroscopic Objects Organic Chemistry
Tuesday **24-09-2019**	10 am – 11 am 12 pm – 1 pm 2 pm – 3 pm	Mishidha Sherin Suhail K Devika Rani	Familiarisation of Modern Physical Equipment Familiarisation of CRO Newtonian Mechanics

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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.

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.

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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.

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

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Certificate

This is to certify that the project report entitled "A REVIEW ON DIE MEDICAL AND PHARMACEUTICAL APPLICATION OF NANO ROBOTICS" that is being submitted by RIFKA ALK (PAAUSPH012) for the award of Bachelor of Science of University Of Calicut is based on the bonafide project work carried out by her under my supervision and guidance at Kottakkal Farook Arts and Science College during the year 2019-20. The result embodied in this report have not been included in any other report submitted previously for the award of any degree or diploma of any other university or institution.

External Examiner

Mr. Mubarak N
Head of Department
Dept. of Physics
Kottakkal Farook Arts and Science College

Mrs. Nishida Sherin.P
Assistant Professor
Dept. of Physics
Kottakkal Farook Arts and Science College

Department of Physics
KOTTAKKAL FAROOK ARTS AND SCIENCE COLLEGE
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Certificate

This is to certify that the project report entitled "A GM COUNTER TO FIND OUT THE OPERATING VOLTAGE AND TO STUDY THE DISTRIBUTION LAW GOVERNING THE RADIOACTIVE DECAY" that is being submitted by FATHIMA NAHILA. T (PAAUSPH013) for the award of Bachelor of Science of University Of Calicut is based on the bonafide project work carried out by her under my supervision and guidance at Kottakkal Farook Arts and Science College during the year 2019-20. The result embodied in this report have not been included in any other report submitted previously for the award of any degree or diploma of any other university or institution.

External Examiner

Mr. Mubarak N
Head of Department
Dept. of Physics
Kottakkal Farook Arts and Science College

Mrs. Nishida Sherin. P
Assistant Professor
Dept. of Physics
Kottakkal Farook Arts and Science College

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M.SC PROJECT DETAILS 2019-2020

Roll No	Reg.No	Name	Project Topic	Research thrust area	Project advisor
1	FPASMPH001	AISWARYA K	A Non Linear Model For Control Of Cancer Cell Growth	Non Linear Dynamics	Dr. A Rajan Nambiar, Retired Associate Professor In Physics
2	FPASMPH002	ANAMIKA TP	Synthesis Structural And Magnetic Properties Of Titanium Doped Magnesium Zinc Ferrite	Crystal Physics	Dr.Suneesh P U,MES College Of Engineering Kuttippuram
3	FPASMPH003	ANJANA ANAND	Structural,Spectral,FMO And Molecular Docking Analysis Of Pindolol	Spectroscopy	Mr Aboo Thahir Afsal , Govt Arts &Science College Calicut
4	FPASMPH004	APARNA P	Synthesis And Characterisation Of Cdo-Zno Nano Particles By Honey-Assisted Combustion Method And Analysis Of Antibacterial Activity	Nanotechnology	Dr.Suneesh P U,MES College Of Engineering Kuttippuram

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5	FPASMPH005	ATHIRA PRAKASH	Zno Nanoparticles Synthesis In The Presence Of Curcuma Aromatica Salisb,Root Extract	Nanotechnology	Dr. Abdul Kareem Thottoli,PSMO Tirurangadi
6	FPASMPH006	AYSHA RISHDAA	Structural,Spectral, Homo-Lumo And MEP Surface Analysis Of Glibenclamide	Spectroscopy	Mr Aboo Thahir Afsal , Govt Arts &Science College Calicut
7	FPASMPH007	MUHASIN MUBARAK K P	Zno Nanoparticles Synthesis In The Presence Of Tamarindus Indica L.Seed Coat Tannin	Nanotechnology	Dr. Abdul Kareem Thottoli,PSMO Tirurangadi
8	FPASMPH008	NAHLA V	Laboratory Environmental Monitoring Using Smart Sensors	Digital Electronics	Dr.KN Madhusoodanan CUSAT
9	FPASMPH010	SHAHNAS KOLLARKUZHIYIL	Preparation Of Magnesium Zinc Ferrite And Analysis Of Structural And Magnetic Property	Crystal Physics	Dr.Suneesh P U,MES College Of Engineering Kuttippuram

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B.Sc PROJECT DETAILS 2019-2020

ROLL NO.	Reg. No	Name	Project Topic	Research thrust area	Project advisor
1.	FPARSPH001	ASMILA SHERIN	A Study Of The Brachistochrone Problem	Classical Mechanics	Salu K
2.	FPARSPH003	FATHIMA SAHLA T	GM Counter- To Find Out The Operating Voltage And Thus To Study The Distribution Law Governing Radio Active Decay	Nuclear Physics	Devika Rani K
3.	FPARSPH005	HAJARA POTHUVATH	Applications Of Ic555	Electronics	Suhail K
4.	FPARSPH007	JASEELA PARVEEN. KK	A Comparison Study On Diffraction Grating Using Cds And Dvds And Some Basic Applications Of	Optics	Mubarak N

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			Laser		
5.	FPARSPH009	LUBABA CT	A Study Of The Brachistochrone Problem	Classical Mechanics	Salu K
6.	FPARSPH010	MOHAMMED JUNAID P	GM Counter- To Find Out The Operating Voltage And Thus To Study The Distribution Law Governing Radio Active Decay	Nuclear Physics	Devika Rani K
7.	FPARSPH011	NAILA P K H	Applications Of Ic555	Electronics	Suhail K
8.	FPARSPH012	RIFKA KK	A Review On The Medical And Pharmacuetical Application Of Nano Robotics	Nano Technology	Mishida Sherin P
9.	FPARSPH013	RISHAVANA SHERIN K	Applications Of Ic555	Electronics	Suhail K
10.	FPARSPH014	SHAHID V P	A Review On The Medical And Pharmacuetical Application Of Nano Robotics	Nano Technology	Mishida Sherin P

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11.	FPARSPH015	SUHAIR K	A Comparison Study On Diffraction Grating Using Cds And Dvds And Some Basic Applications Of Laser	Optics	Mubarak N
12.	FPARSPH016	SUNBULAH ZUBAIR	Applications Of Ic555	Electronics	Suhail K
13.	FPARSPH017	THASNIM PACHAYI	A Study Of The Brachistochrone Problem	Classical Mechanics	Salu K
14.	FPARSPH018	ZAINUL ABID.K	GM Counter- To Find Out The Operating Voltage And Thus To Study The Distribution Law Governing Radio Active Decay	Nuclear Physics	Devika Rani K
15.	FPARSPH019	ASHIQUE P	Applications Of Ic555	Electronics	Suhail K
16.	FPARSPH020	BASILA BANU K	A Review On The Medical And Pharmacuetical Application Of	Nano Technology	Mishida Sherin P

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			Nano Robotics		
17.	FPARSPH021	DILSHA ALI	Study Of Particle Physics And Higgs Boson	Particle Physics	Reshma P
18.	FPARSPH022	FATHIMA KHAIRIYA	Study Of Particle Physics And Higgs Boson	Particle Physics	Mubarak N
19.	FPARSPH024	FATHIMA RIYA K	A Comparison Study On Diffraction Grating Using Cds And Dvds And Some Basic Applications Of Laser	Optics	Mubarak N
20.	FPARSPH025	HRITHIK DAS M	A Study Of The Brachistochrone Problem	Classical Mechanics	Salu K
21.	FPARSPH026	RASLY MOL N	GM Counter- To Find Out The Operating Voltage And Thus To Study The Distribution Law Governing Radio Active Decay	Nuclear Physics	Devika Rani K

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22.	FPARSPH027	REEFATH P T	A Comparison Study On Diffraction Grating Using Cds And Dvds And Some Basic Applications Of Laser	Optics	Mubarak N
23.	FPARSPH028	RISHANA RAHIM	A Study Of The Brachistochrone Problem	Classical Mechanics	Salu K
24.	FPARSPH029	RISWANA THASNEEM K	GM Counter- To Find Out The Operating Voltage And Thus To Study The Distribution Law Governing Radio Active Decay	Nuclear Physics	Devika Rani K
25.	FPARSPH030	SAFEERA	Study Of Particle Physics And Higgs Boson	Particle Physics	Reshma P
26.	FPARSPH031	SHAHNA C K	A Review On The Medical And Pharmacuetical Application Of Nano Robotics	Nano Technology	Mishida Sherin P

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27.	FPARSPH032	ADITH PRADEEP	A Comparison Study On Diffraction Grating Using Cds And Dvds And Some Basic Applications Of Laser	Optics	Mubarak N
28.	FPARSPH033	BIBIN K B	Study Of Particle Physics And Higgs Boson	Particle Physics	Reshma P
29.	FPARSPH034	FASLIYA VEERASSERY	A Review On The Medical And Pharmacuetical Application Of Nano Robotics	Nano Technology	Mishida Sherin P
30.	FPARSPH036	MUHSINA P K	GM Counter- To Find Out The Operating Voltage And Thus To Study The Distribution Law Governing Radio Active Decay	Nuclear Physics	Devika Rani K
31.	FPARSPH037	NAHEEDA A C	Study Of Particle Physics And Higgs	Particle Physics	Reshma P

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			Boson		
32.	FPARSPH038	NAYANA K	A Comparison Study On Diffraction Grating Using Cds And Dvds And Some Basic Applications Of Laser	Optics	Mubarak N
33.	FPARSPH039	RASHEELA	Study Of Particle Physics And Higgs Boson	Particle Physics	Reshma P

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

B.Sc PHYSICS INDUSTRIAL VISIT REPORT

The Department of Physics, Kottakkal Farook Arts and Science College conducted its annual study tour to Cochin University of Science And Technology, aiming to enhance students' practical understanding and foster academic collaboration. The tour spanned 13/01/2020 -14/01/2020 and included visits to key academic and cultural sites. A total of 37 students and 3 faculty members from the Physics Department participated in the study tour.

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The study tour itinerary included visits to various departments, laboratories, and research centers within CUSAT. Engagements with Cochin University faculty enriched students' understanding of current research trends and provided a platform for knowledge exchange. Workshops and lectures -covered

non linear dynamics, fibre optic sensor, Bio photonics and some instruments like NMR spectrometer, XRD etc. -fostering intellectual growth.

Visits to Department of photonics, Nano-photonics and optoelectronics laboratory, Nano functional material laboratory and Department of physics exposed students to cutting-edge scientific environments. Notable highlights included understanding the working of UV-Visible-Near Infrared spectrophotometer, AFM(Atomic Force Microscope) High resolution XRD, NMR spectrometer, Thermo Scientific Exactive high resolution mass spectrometer with UHPLC, contributing significantly to their academic development

The study tour resulted in several outcomes and achievements, including Enhanced practical skills through hands-on laboratory experiences. Strengthened academic ties and potential collaborations with Cochin University of Science and Technology. Broadened perspectives and insights gained from exposure to diverse research projects.

The study tour to Cochin University of Science and Technology proved instrumental in broadening students' perspectives and strengthening the department's academic ties. We express gratitude to all contributors and anticipate continued success in future initiatives.

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EXTENSION ACTIVITIES

TOPIC
1.Physics of music.
2.Astrophotography
3.Renewable energy exploration
4.Introduction to quantum mechanics.

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DEPARTMENT OF PHYSICS EXTENSION ACTIVITIES

TOPIC
1.Physics of music.
2.Astrophotography
3.Renewable energy exploration
4.Introduction to quantum mechanics.

Physics of Music Workshop (June 20, 2019)

The "Physics of Music" workshop aimed to elucidate the physics principles underlying music, focusing on sound waves, resonance, harmonics, and the Doppler effect. Thirty-five fifth-semester students and twenty residents from Ward 14, Parappur Panchayath participated. Through theoretical instruction and hands-on activities, participants built simple musical instruments and analyzed acoustics in various environments. Key demonstrations included tuning forks and glassware for resonance, and string instruments and pipes for harmonics. Participants actively engaged in building flutes and drums, fostering a deeper appreciation for the science behind music. The workshop enhanced community engagement and collaboration, receiving positive feedback for its practical application of harmonics and real-world examples of the Doppler effect.

Programme Outcomes:

- Enhanced understanding of acoustic principles and practical application.
- Strengthened community engagement and student-resident collaboration.

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2. Astrophotography Workshop (August 5, 2019)

This workshop introduced participants to astrophotography, integrating principles of light, optics, and photography. Forty-two third-semester students and thirty-five residents from Ward 14, Parappur Panchayath attended. Participants learned to set up and use telescopes and cameras to capture celestial images. Lectures covered astronomical phenomena like star formation and planetary motion. Demonstrations on image processing techniques taught attendees to enhance astrophotographs. Interactive Q&A sessions addressed technical aspects of telescope use and image processing. The workshop successfully combined theoretical learning with practical application, deepening participants' appreciation for astronomy and photography.

Programme Outcomes:

- Improved skills in astrophotography and image processing.
- Increased knowledge and appreciation of astronomy.

3.Renewable Energy Exploration Workshop (December 12, 2019)

The workshop aimed to educate participants on renewable energy sources, including solar, wind, and hydroelectric power. Forty-two first-semester students and thirty-five residents from Ward 14, Parappur Panchayath attended. Hands-on activities, field trips to solar farms and wind turbine installations, and experiments with small-scale renewable systems provided practical exposure. Discussions highlighted environmental impact and sustainability. The workshop enhanced understanding of renewable energy technologies and their benefits, encouraging further studies or careers in the field.

Programme Outcomes:

- Enhanced understanding and practical knowledge of renewable energy technologies.
- Increased awareness and interest in renewable energy and sustainability.

4) Introduction to Quantum Mechanics Workshop (January 10, 2020)

Designed to demystify quantum mechanics, this workshop introduced twenty-five fourth-semester students and thirty-five residents from Ward 14, Parappur Panchayath to wave-particle duality, quantum superposition, and entanglement. The event included lectures, demonstrations, and hands-on activities, such as the double-slit experiment. Presentations highlighted real-world applications of quantum mechanics, sparking interest in its technological implications. Interactive Q&A sessions allowed for deep engagement with instructors. The workshop successfully combined theoretical and practical learning, fostering a greater appreciation for quantum physics.

Programme Outcomes:

- Foundational understanding of quantum mechanics.
- Increased interest and engagement in quantum physics.

5.The Physics of Everyday Life Workshop (March 2, 2020)

This workshop aimed to demonstrate the practical application of physics principles in daily life. Forty-two students and thirty-five residents from Ward 14, Parappur Panchayath attended. The event included interactive demonstrations of gravity, motion, electricity, and magnetism using everyday objects, hands-on experiments, and discussion sessions explaining phenomena like why the sky is blue and how refrigerators work. Participants gained practical understanding and enhanced comprehension of basic physics principles. The workshop effectively combined theoretical learning with practical application, fostering a greater interest in physics.

Programme Outcomes:

- Practical understanding of physics in daily life.
- Increased curiosity and appreciation for physics.

These workshops at Kottakkal Farook Arts and Science College successfully combined theoretical knowledge with practical application, fostering

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community engagement and enhancing participants' understanding and appreciation of various physics topics.

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