

MAHENDRA ARTS & SCIENCE COLLEGE

(Autonomous)

Affiliated to Periyar University, Salem.

**Accredited by NAAC with 'A' Grade & Recognized u/s 2(f) and 12(B) of the UGC Act 1956
Kalippatti - 637 501, Namakkal (Dt), Tamil Nadu.**



DEPARTMENT OF PHYSICS

COURSE OUTCOMES (COs)

B.Sc. PHYSICS

PRINCIPAL

**MAHENDRA ARTS & SCIENCE COLLEGE
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Kalippatti (PO) - 637 501, Namakkal (Dt)

**For the students
admitted from the
Academic Year 2019-2020 onwards**

Core – I	B.Sc. Physics	2019 - 2020
M19UPH01	PROPERTIES OF MATTER AND SOUND	
Credit: 5		

Objectives

Matters are classified into three types based on their atomic arrangements. The present title provides the basic knowledge about the three states of matter and will offer the properties.

Course outcomes

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

- Understand the various types of matters based on their atomic arrangements
- Know the physical properties involved to explore the nature of the materials
- Familiar with the optimum conditions of the each matter
- Study the properties in various atmospheric conditions

Core – II	B.Sc.Physics	2019 - 2020
M19UPH02	MECHANICS	
Credit: 5		

Objectives

Mechanics are classified into two types statics and dynamics. The present course deals the nature of the systems in these two conditions and gives elaborate ideas about the mechanisms for various dimensional systems.

Course outcomes

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

- Understand the concepts of statics and dynamics
- Know the equations of motions to full fill the systems of the equations at various conditions
- Familiar with the boundary conditions and constrains
- Study the properties in various atmospheric conditions

Core – III	B.Sc. Physics	2019 - 2020
M19UPH03	HEAT AND THERMODYNAMICS	
Credit: 5		

Objectives

Three laws of thermodynamics along with the properties of heat and its transfer will be dealt clearly in this title. The applications of heat energy with mechanics for day to day life are also involved in this course.

Course outcomes

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

1. Understand the concepts of thermodynamics laws
2. Having knowledge about the relation between volume, pressure and temperature
3. Familiar with the concepts of low temperature physics
4. Study the properties of the systems at various temperature levels with mechanics.

SEC – I	B.Sc. Physics	2019 - 2020
M19UPHS01	SOLAR ENERGY	
Credit: 2		

Objectives

This course elaborates the types of energy sources. Gives the brief ideas about renewable and non renewable sources. Also deals the types of solar cells, parameter and increasing the efficiency of the solar cells.

Course outcomes

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

1. The difference between renewable and non renewable energysources
2. Semiconductors used for solar cells
3. Physical parameters involving in determining the properties of thesolar cells
4. Fabrication of the solar cells

CORE – IV	B.Sc. Physics	2019 - 2020
M19UPH04	WAVE AND OPTICS	
Credit: 5		

Objectives

The course titled wave and optics gives basic ideas about the properties of light and their behaviors in various conditions and medium. Optics deal the designing of lens based on their medium of refractive index and materials used.

Course outcomes

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

1. Familiar with the properties of light and types of lens
2. Understand the different types of aberrations
3. Having the basic ideas about the fabrication of lens
4. Introduce the technical knowledge about fiber optical communications

SEC – II	B.Sc. Physics	2019 - 2020
M19UPHS02	OPTICAL INSTRUMENTATION	
Credit: 2		

Objectives

The course titled optical instrumentation will be the continuation of previous course. Optics and instrumentations based on their fabrications deal the designing of lens based on their medium of refractive index and materials used.

Course outcomes

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

1. Familiar with the properties of Optical properties
2. Know the applications of optics in day to day life
3. Having the basic ideas about structures of human eye with others
4. Understand technical knowledge about optical instrumentations

CORE – V	B.Sc.Physics	2019 - 2020
M19UPH05	ATOMIC AND MOLECULAR SPECTROSCOPY	
Credit: 5		

Objectives

All the matters are composed of atoms and molecules. The structure of the atoms and molecules will give a basic ideas about the structures of the chemical compounds. This present course gives a brief ideas about atoms with the help of spectroscopy.

Course outcomes

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

1. Understand the structure of the atoms
2. Familiar with the theories of atoms and molecules
3. Know the interaction of energy with matter
4. Understand the relationship between energy and matter during interaction

CORE – VI	B.Sc. Physics	2019 - 2020
M19UPH06	BASIC ELECTRONICS	
Credit: 5		

Objectives

Semiconducting materials play a major role in day to day applications. These semiconducting materials classified based on their transport of the electrons. This course gives basic ideas of the transports of electrons through physical laws.

Course outcomes

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

1. Identify the role of electrons in semiconductors
2. Familiar with Ohms and Kirchof's laws
3. Know the Positive and negative temperature coefficients
4. Understand the transport of electrons in transistors, rectifiers and amplifiers

CORE – VII	B.Sc. Physics	2019 - 2020
M19UPH07	NUMERICAL METHODS	
Credit: 5		

Objectives

Numerical methods play a major role in day to day applications in order to understand the physics through programs and mathematical interpretations.

Course outcomes

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

1. Identify the role of Mathematical functions for Physics
2. Familiar with Matrices and programs
3. Know the different curve fitting methods
4. Understand the Numerical integration methods

CORE – VIII	B.Sc. Physics	2019 - 2020
M19UPH08	SOLID STATE PHYSICS	
Credit: 5		

Objectives

The students will be familiarized with the basic concepts of crystals and their respective lattice arrangements. In addition with the above the students are able to understand the physical properties such as dielectric, magnetic, electric, etc., through this course.

Course outcomes

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

1. Understand the three states of matter
2. Enhance the crystallographic nature of the systems
3. Know the physical properties involved in the systems
4. Explain the modern engineering materials through the above said properties

ELECTIVE – I	B.Sc. Physics	2019 - 2020
M19UPHE01	MATHEMATICAL PHYSICS	
Credit: 4		

Objectives

Mathematical Physics deals the applications of various mathematical theories to understand the physical mechanisms with the help of the equations derived by various methods.

Course outcomes

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

1. Apply various suitable equations to explore physical phenomenon
2. Analyze the matrices for quantum mechanical treatment
3. Know the suitable derivatives for fluid mechanics such as differential equations
4. Understand the integrals, matrices, etc., to solve the puzzles of Physics

SEC – II	B.Sc. Physics	2019 - 2020
M19UPHS02	OPTICAL INSTRUMENTATION	
Credit: 2		

Objectives

The course titled optical instrumentation will be the continuation of previous course. Optics and instrumentations based on their fabrications deal the designing of lens based on their medium of refractive index and materials used.

Course outcomes

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

5. Familiar with the properties of Optical properties
6. Know the applications of optics in day to day life
7. Having the basic ideas about structures of human eye with others
8. Understand technical knowledge about optical instrumentations

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

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7. Know the interaction of energy with matter
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Objectives

Semiconducting materials play a major role in day to day applications. These semiconducting materials classified based on their transport of the electrons. This course gives basic ideas of the transports of electrons through physical laws.

Course outcomes

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

1. Identify the role of electrons in semiconductors
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4. Understand the transport of electrons in transistors, rectifiers and amplifiers

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1. Know the suitable derivatives for fluid mechanics such as differential equations
1. Understand the integrals, matrices, etc., to solve the puzzles of Physics

SEC – III	B.Sc. Physics	2019 - 2020
M19UPHS03	BIO PHYSICS	
Credit: 2		

Objectives

This course presents the applications of various Physical Laws towards biological applications.

Course outcomes

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

1. Apply Physics laws for biological applications
2. Understand the Mechanism of organs and their relation with Physical parameters
3. Know the techniques available to explore the nature of the biosystems
4. Familiar with diagnosis techniques.

CORE – IX	B.Sc. Physics	2019 - 2020
M19UPH09	ELECTRICITY AND MAGNETISM	
Credit: 5		

Objectives

This course provides the basic understanding the relation between electricity and magnetism. The relation between the electricity and magnetism will be highly helpful to unleash the puzzles of Physical laws in the universe.

Course outcomes

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

1. Understand the relation between electricity and magnetism through Maxwell's equations.
2. Familiar with the applications of capacitors
3. Know the techniques available to explore thermoelectric materials
4. Explore the knowledge in various types of current flows

CORE – X	B.Sc. Physics	2019 - 2020
M19UPH10	NUCLEAR PHYSICS	
Credit: 5		

Objectives

This course presents the rich knowledge about the structures of the nucleus and the theories that supports to understand the nature of the nucleus present inside the atoms

Course outcomes

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

1. Understand the structure of the nucleus
2. Familiar with the models that supports for nucleus
3. Know the techniques available to determine the force of the nucleus
4. Explore the knowledge in nuclear reactors


Head of the Department

Dr. V. HARIHARAN, M.Sc., M.Phil., Ph.D.,
Asst. Professor & Head,
Department of Physics,
Mahendra Arts & Science College,
Kalipatti-637 501.


Principal

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DEPARTMENT OF PHYSICS

PROGRAMME OUTCOMES (POs) OF B.Sc. PHYSICS

Academic year 2020-2021

PO1: Ability to identify problem solving skills in the field of theoretical and experimental Physics.

PO2: Ability to engage in life-long learning and be able to demonstrate a knowledge of contemporary issues.

PO3: Ability to design a system, component to meet desired needs.

PO4: Ability to communicate scientific observations effectively in oral and written form.


Head of the Department

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PROGRAMME SPECIFIC OUTCOMES (PSOs) OF B.Sc. PHYSICS

Academic year 2020-2021

PSO 1: Technical Proficiency: Obtaining successful employment to their respective interests, education and to become socially responsible physicist

PSO 2: Professional growth: Developing life long learning, higher education and research in their respective areas of specialization

PSO 3: Management growth: Improving leadership quality through innovative manner

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