FATIMA COLLEGE (AUTONOMOUS), MADURAI – 625018

NAME OF THE PROGRAMME: B.SC. PHYSICS **PROGRAMME CODE: UAPH**

PROGRAMME OUTCOMES:

The learners will be able to

PO1: Apply acquired scientific knowledge to solve complex issues.

PO2: Attain Analytical skills to solve complex cultural, societal and environmental issues.

PO3: Employ latest and updated tools and technologies to analyse complex issues.

PO4: Demonstrate Professional Ethics that foster Community, Nation and Environment Building Initiatives.

Programme Specific Outcomes:

Students will

PSO1: Acquire thorough knowledge of the basic concepts of the frontier areas of Physics comprising Mechanics, Properties of matter, Electromagnetism, Electronics, Thermodynamics, Modern Physics, optics, Medical Physics and Opto electronics.

PSO2: Understand and solve the physics problems in everyday life using the acquired basic knowledge.

PSO3: develop skills to perform experiments based on the theoretical understanding

PSO4: Apply the knowledge acquired to analyse and design models in the versatile realm of physics.

PSO5: Equip with the essential foundations for higher education and research in physics.

2019 - 2020

COURSE CODE	COURSE TITLE	NATURE OF THE COURSE (LOCAL/ NATIONAL/ REGIONAL/ GLOBAL)	COURSE DESCRIPTION	COURSE OUTCOMES
19P1CC1	Mechanics and Properties of Matter	National	The objective of this course is to understand the basic properties of matter and mechanics of fluids	CO 1: To understand in depth the gravitational force, field, potential and energy. CO 2: To study the acceleration due to gravity at various positions CO 3:To gain knowledge about the properties of matter and compute the same CO 4:To discuss the mechanics of fluid motion and its applications
19P1CC2	Thermal Physics	National	The course provides a conceptually based exposure to the	CO 1: Students will be able to analyse a microscopic approach and seek to account for the macroscopic

			fundamental principles and processes of significant topics of thermal physics like Kinetic theory of gases, Transport phenomena in gases and Liquefaction of gases.	properties of a gas in terms of properties of its molecules CO 2: Students will be able to explain the classical Maxwell's distribution law of velocity and its inference. CO 3: Students will be able to describe molecular collisions and its mean free path , understand the process of thermal conductivity, viscosity and diffusion in gases CO 4: Students will be able to depict the manner in which the energy changes takes place and outline the different methods to produce low temperature CO 5: Students will be able to demonstrate the liquefaction of gases and explain the nature of

				gases in the neighbourhood of absolute zero temperature.
19M3ACP1 /19C1ACP1 /19G3ACP1	Allied Physics - I	National	The course provides a conceptually based exposure to the fundamental principal and processes of significant topics of physics like Waves and Oscillations, Properties of matter, Electricity and Magnetism and Geometrical Optics.	CO 1: Define and discuss about the simple harmonic waves and its oscillations and laws of transverse vibrations of strings. CO 2: Classify and describe the properties of matter such as electricity, viscosity and surface tension. CO 3: Summarise the basic concepts of thermal physics and apply the laws of thermodynamics in higher learning concepts such as entropy and its reversible and irreversible process. CO 4: Explain the principles and laws used in electricity and magnetism those are useful in

				defining the energy of a capacitor and magnetic effect of electric current. CO 5: Demonstrate the properties of geometrical optics and explain the refraction and dispersion through a prism.
19P1NME/ 19P2NME	Physics in everyday Life	National	Aim of this course is to enable the student to understand the physics concepts in day today life.	CO 1: Discuss and illustrate the importance of paying attention to the basic units of physical quantities and the standards accepted for their measurement, describe the motion in terms of particle's position, velocity and acceleration and analyse the cause of motion CO 2: Understand the concepts of heat, waves, sound, electricity, magnetism and explore their

				nature.
19B1ACP1	Digital Principles and Applications	National	Aim of this course is to enable the students to understand digital principles and applications	On completion of the course, students will be able to CO 1: Define the different types of number systems and explain the basic and universal logic circuits CO 2: Simplify the logic expressions using Boolean laws and Kmap CO 3: describe the principles behind the data processing and arithmetic circuits CO 4: explain the working of basic flipflops and design master slave flipflops CO 5: Understand the working of shift registers and counters describe D/A and A/D conversion

				techniques
19P2CC4	Oscillations and Waves	National	To understand waves, oscillations and its applications in human ear, musical instruments. To know about Doppler effect, Ultrasonic and various applications of them	CO 1: To understand simple harmonic motion CO 2: To understand Principle of Superposition and apply to derive mathematical representation of stationary waves, interference waves and beats. Determine the conditions for the same. CO 3: To understand the Doppler effect in acoustics and apply the same and solve problems CO 4: To distinguish the different range of acoustic waves. CO 5: To study the ultrasonic waves generation and application of the same

19P2CC5	Applied Mechanics	National	The course enables the students to understand the fundamental and advanced concepts of Central force, Projectile motion, interrelationship between energy and work, linear momentum and angular momentum	CO 1: Students will be able to demonstrate an understanding of central forces and explain Kepler's laws of Planetary motion CO 2: Students will be able to compute the path of projectile launched with horizontal and vertical velocity components in the Earth's gravity CO 3: Students will be able to evaluate the interrelationship between energy and work CO 4: Students will be able to describe the motion of the center of mass of an object, state the conservation principles involving momentum and explore its applications, analyse collisions

				between two objects CO 5: Students will be able to apply law of conservation angular momentum appropriately in rigid body rotations, relate the rotational and translational parameters based on rotational kinematics.
19M4ACP3/ 19C2ACP3/ 19G4ACP3	Allied Physics- II	National	The course provides a conceptually based exposure to the fundamental principal and processes of significant topics of physics like geometrical Optics, Atomic Physics, Nuclear Physics and Electronics.	CO 1: Students will be able to categorize and clarify the different optical phenomena of interference, diffraction, polarization. CO 2: Students will be able to explain the atom model and calculate the total energy of an atom and account for the spectral series of hydrogen atom.

				CO 3: Students will be able to elucidate the models of nuclear structure and to learn the principle behind atom bomb, nuclear reactors. CO 4: Students will be able to summarize the working principle of p-n junction diode in forward and reverse biasing, its V-I characteristics, the Zener Diode, n-p-n transistor in common emitter characteristics. CO 5: Students will be able to classify the number system and demonstrate the skill in conversion of Number systems, Boolean algebra and its associated laws.

COURSE CODE	COURSE TITLE	NATURE OF THE COURSE (LOCAL/NATIONAL/ REGIONAL/GLOBAL)	COURSE OBJECTIVE
P3CC6	Electromagnetism	National	• This course imparts a sound knowledge in electromagnetism.
M3ACP1/ G3ACP1	Allied Physics I	National	• The course provides a conceptually based exposure to the fundamental principal and processes of significant topics of physics like Waves and Oscillations, Properties of matter, Electricity and Magnetism and Geometrical Optics
P3SB1	Biomechanics	National	• This course aims to introduce the Biomechanical concepts and to give an idea about the anatomic pulleys and lever systems
P4CC7	Electronics	National	• The aim of this course is to provide a basic

			knowledge in semiconductor, transistor, amplifier, oscillator and digital electronics
P4CC8	Major Practicals-II	National	• This laboratory course explores the basic principles of electricity and magnetism, basic elements of electric circuits through experiments
M4ACP2/ G4ACP2	Allied Physics II	National	• The course provides a conceptually based exposure to the fundamental principal and processes of significant topics of physics like geometrical Optics, Atomic Physics, Nuclear Physics and Electronics
M4ACP3/ G4ACP3	Allied Practicals	National	• This course enables the student to develop broad array of basic skills and tools of experimental physics
P4SB2	Physics of Stars	National	• This course briefly explains the life cycle of a star. It throws light on various nuclear reactions taking place in a star. It explains

			about the mysterious objects of the universe. It creates passion for Astronomy among the students
P5CC9	Electronics and Communication	National	• This course aims at the fundamentals of digital electronics, flip-flops, registers, counters and D/A & A/D converters. It also exposes the students to modulation, satellite communication and fibre optics communication
P5CC10	Optics	National	• This course aims at giving a detailed study of interference, diffraction, polarization, Holography, Laser and Maser
P5SB3	Physics of Measuring Instruments-1	National	• This course enable the students to learn the principles behind thermo dynamical measurements and mechanical and electrical measurements.
P5SB4	Physics of Medical	National	• To enable the student learn the physics

	Instruments-I		principles behind the medical instruments used for diagnosis especially pressure, sound, light and electricity
P6CC11	Thermodynamics and Statistical Mechanics	National	• The aim of this course is to deal with thermodynamics, entropy and thermodynamic potentials. This course also deals with statistical thermodynamics and applications of statistics to gases.
P6CC12	Modern Physics	National	• This course deals with the wave properties of particles and fundamentals of Quantum Mechanics. Nuclear models and special relativity are dealt with in detail.
P6CC13	Major Practicals-III	National	• This laboratory course explores the basic principles of electronics through experiments
P6CC14	Major Practicals-IV	National	• This laboratory course explores the basic principles of non-electronics through experiments

P6ME1/2	Microprocessor/Medical Physics	National	• **Microprocessor:** This course explores the assembly language program codes and simple microprocessor programs • **Medical Physics:** This course deals with the applications of electricity and magnetism in medicine, light in medicine, nuclear medicine, radiation protection in medicine and computers in medicine
P6ME2/3	Opto Electronics/Energy Physics	National	• **Optoelectronics:** Optoelectronics is a recent field. This course aims at giving an idea about fibre optics systems and communication. This course also deals with the LEDs and stimulated emission in intrinsic semiconductors, photo detectors and modulation methods. • **Energy Physics:** This course covers the different sources of renewable energy sector and its applications.

P6SB5	Physics of Measuring Instruments - II	National	• This course enable the students to learn the physics principles behind astronomical measurements, electron microscopes and X-ray diffraction measurements
P6SB6	Physics of Medical Instruments-II	National	• This course enables the students to learn the working principles of medical instruments used in radiography and nuclear medicine.

2018 - 2019

COURSE CODE	COURSE TITLE	NATURE OF THE COURSE (LOCAL/NATIONAL/ REGIONAL/GLOBAL)	COURSE OBJECTIVE
P1CC1	Mechanics and Properties of Matter	National	• The objective of this course is to understand the basic properties of matter and mechanics of fluids

P1CC2	Thermal Physics	National	• This course deals with molecular properties of gases, Maxwellian Distribution of speeds in an Ideal gas, transport phenomena and production of very low temperatures.
C1ACP1	Allied Physics-I	National	• This course provides a conceptually based exposure to the fundamental principal and processes of significant topics of physics like Waves and Oscillations, Properties of matter, Electricity and Magnetism and Geometrical Optics.
P1NME1	Physics in Everyday Life	National	• Aim of this course is to enable the student to understand the physics concepts in day today life.
B1ACP1	Digital Principles and Applications	National	• Aim of this course is to enable the students to understand digital principles and applications
P2CC3	Oscillations, Waves and Fluid Dynamics	National	• This course enables to understand waves, oscillations and its applications in human ear,

			musical instruments and to know about Doppler effect, Ultrasonic and various applications of them.
P2CC4	Advanced Mechanics	National	• This course deals with understanding of central force, Projectile motion, work and kinetic energy linear momentum, collision and angular momentum.
P2CC5	Major Practicals-I	National	• The course provides hands on training to determine the properties of materials relevant to the theory learnt in core courses.
C2ACP2	Allied Physics II	National	• The course provides a conceptually based exposure to the fundamental principal and processes of significant topics of physics like geometrical Optics, Atomic Physics, Nuclear Physics and Electronics.
C2ACP3	Allied Practicals	National	• This course enables the student to develop broad array of basic skills and tools of

			experimental physics.
P2NME2	Physics in Everyday Life	National	• Aim of this course is to enable the student to understand the physics concepts in day today life.
P3CC6	Electromagnetism	National	• This course imparts a sound knowledge in electromagnetism.
M3ACP1/ G3ACP1	Allied Physics I	National	• The course provides a conceptually based exposure to the fundamental principal and processes of significant topics of physics like Waves and Oscillations, Properties of matter, Electricity and Magnetism and Geometrical Optics
P3SB1	Biomechanics	National	• This course aims to introduce the Biomechanical concepts and to give an idea about the anatomic pulleys and lever systems
P4CC7	Electronics	National	• The aim of this course is to provide a basic

			knowledge in semiconductor, transistor, amplifier, oscillator and digital electronics
P4CC8	Major Practicals-II	National	• This laboratory course explores the basic principles of electricity and magnetism, basic elements of electric circuits through experiments
M4ACP2/ G4ACP2	Allied Physics II	National	• The course provides a conceptually based exposure to the fundamental principal and processes of significant topics of physics like geometrical Optics, Atomic Physics, Nuclear Physics and Electronics
M4ACP3/ G4ACP3	Allied Practicals	National	• This course enables the student to develop broad array of basic skills and tools of experimental physics
P4SB2	Physics of Stars	National	• This course briefly explains the life cycle of a star. It throws light on various nuclear reactions taking place in a star. It explains

			about the mysterious objects of the universe. It creates passion for Astronomy among the students
P5CC9	Electronics and Communication	National	• This course aims at the fundamentals of digital electronics, flip-flops, registers, counters and D/A & A/D converters. It also exposes the students to modulation, satellite communication and fibre optics communication
P5CC10	Optics	National	• This course aims at giving a detailed study of interference, diffraction, polarization, Holography, Laser and Maser
P5SB3	Physics of Measuring Instruments-1	National	• This course enables the students to learn the principles behind thermo dynamical measurements and mechanical and electrical measurements.
P5SB4	Physics of Medical	National	• To enable the student learn the physics

	Instruments-I		principles behind the medical instruments used for diagnosis especially pressure, sound, light and electricity
P6CC11	Thermodynamics and Statistical Mechanics	National	• The aim of this course is to deal with thermodynamics, entropy and thermodynamic potentials. This course also deals with statistical thermodynamics and applications of statistics to gases.
P6CC12	Modern Physics	National	• This course deals with the wave properties of particles and fundamentals of Quantum Mechanics. Nuclear models and special relativity are dealt with in detail.
P6CC13	Major Practicals-III	National	• This laboratory course explores the basic principles of electronics through experiments
P6CC14	Major Practicals-IV	National	• This laboratory course explores the basic principles of non-electronics through experiments

P6ME1/2	Microprocessor/Medical Physics	National	• **Microprocessor:** This course explores the assembly language program codes and simple microprocessor programs • **Medical Physics:** This course deals with the applications of electricity and magnetism in medicine, light in medicine, nuclear medicine, radiation protection in medicine and computers in medicine
P6ME2/3	Opto Electronics/Energy Physics	National	• **Optoelectronics:** Optoelectronics is a recent field. This course aims at giving an idea about fibre optics systems and communication. This course also deals with the LEDs and stimulated emission in intrinsic semiconductors, photo detectors and modulation methods. • **Energy Physics:** This course covers the different sources of renewable energy sector and its applications.

P6SB5	Physics of Measuring Instruments - II	National	• This course enable the students to learn the physics principles behind astronomical measurements, electron microscopes and X-ray diffraction measurements
P6SB6	Physics of Medical Instruments-II	National	• This course enables the students to learn the working principles of medical instruments used in radiography and nuclear medicine.

2017 – 2018

COURSE CODE	COURSE TITLE	NATURE OF THE COURSE (LOCAL/NATIONAL/REGIONAL/GLOBAL)	COURSE OBJECTIVE
P1CC1	Mechanics and Properties of Matter	National	• The objective of this course is to understand the basic properties of matter and mechanics of fluids
P1CC2	Thermal Physics	National	• This course deals with molecular properties of gases, Maxwellian Distribution of speeds

			in an Ideal gas, transport phenomena and production of very low temperatures.
C1ACP1	Allied Physics-I	National	• This course provides a conceptually based exposure to the fundamental principal and processes of significant topics of physics like Waves and Oscillations, Properties of matter, Electricity and Magnetism and Geometrical Optics.
P1NME1	Physics in Everyday Life	National	• Aim of this course is to enable the student to understand the physics concepts in day today life.
B1ACP1	Digital Principles and Applications	National	• Aim of this course is to enable the students to understand digital principles and applications
P2CC3	Oscillations, Waves and Fluid Dynamics	National	• This course enables to understand waves, oscillations and its applications in human ear, musical instruments and to know about

			Doppler effect, Ultrasonic and various applications of them.
P2CC4	Advanced Mechanics	National	• This course deals with understanding of central force, Projectile motion, work and kinetic energy linear momentum, collision and angular momentum.
P2CC5	Major Practicals-I	National	• The course provides hands on training to determine the properties of materials relevant to the theory learnt in core courses.
C2ACP2	Allied Physics II	National	• The course provides a conceptually based exposure to the fundamental principal and processes of significant topics of physics like geometrical Optics, Atomic Physics, Nuclear Physics and Electronics.
C2ACP3	Allied Practicals	National	• This course enables the student to develop broad array of basic skills and tools of experimental physics.

P2NME2	Physics in Everyday Life	National	• Aim of this course is to enable the student to understand the physics concepts in day today life.
P3CC6	Electromagnetism	National	• This course imparts a sound knowledge in electromagnetism.
M3ACP1/ G3ACP1	Allied Physics I	National	• The course provides a conceptually based exposure to the fundamental principal and processes of significant topics of physics like Waves and Oscillations, Properties of matter, Electricity and Magnetism and Geometrical Optics
P3SB1	Biomechanics	National	• This course aims to introduce the Biomechanical concepts and to give an idea about the anatomic pulleys and lever systems
P4CC7	Electronics	National	• The aim of this course is to provide a basic knowledge in semiconductor, transistor,

			amplifier, oscillator and digital electronics
P4CC8	Major Practicals-II	National	• This laboratory course explores the basic principles of electricity and magnetism, basic elements of electric circuits through experiments
M4ACP2/ G4ACP2	Allied Physics II	National	• The course provides a conceptually based exposure to the fundamental principal and processes of significant topics of physics like geometrical Optics, Atomic Physics, Nuclear Physics and Electronics
M4ACP3/ G4ACP3	Allied Practicals	National	• This course enables the student to develop broad array of basic skills and tools of experimental physics
P4SB2	Physics of Stars	National	• This course briefly explains the life cycle of a star. It throws light on various nuclear reactions taking place in a star. It explains about the mysterious objects of the universe.

			It creates passion for Astronomy among the students
P5CC9	Electronics and Communication	National	• This course aims at the fundamentals of digital electronics, flip-flops, registers, counters and D/A & A/D converters. It also exposes the students to modulation, satellite communication and fibre optics communication
P5CC10	Optics	National	• This course aims at giving a detailed study of interference, diffraction, polarization, Holography, Laser and Maser
P5SB3	Physics of Measuring Instruments-1	National	• This course enable the students to learn the principles behind thermodynamical measurements and mechanical and electrical measurements.
P5SB4	Physics of Medical Instruments-I	National	• To enable the student learn the physics principles behind the medical instruments

			used for diagnosis especially pressure, sound, light and electricity
P6CC11	Thermodynamics and Statistical Mechanics	National	• The aim of this course is to deal with thermodynamics, entropy and thermodynamic potentials. This course also deals with statistical thermodynamics and applications of statistics to gases.
P6CC12	Modern Physics	National	• This course deals with the wave properties of particles and fundamentals of Quantum Mechanics. Nuclear models and special relativity are dealt with in detail.
P6CC13	Major Practicals-III	National	• This laboratory course explores the basic principles of electronics through experiments
P6CC14	Major Practicals-IV	National	• This laboratory course explores the basic principles of non-electronics through experiments

P6ME1/2	Microprocessor/Medical Physics	National	• **Microprocessor:** This course explores the assembly language program codes and simple microprocessor programs • **Medical Physics:** This course deals with the applications of electricity and magnetism in medicine, light in medicine, nuclear medicine, radiation protection in medicine and computers in medicine
P6ME2/3	Opto Electronics/Energy Physics	National	• **Optoelectronics:** Optoelectronics is a recent field. This course aims at giving an idea about fibre optics systems and communication. This course also deals with the LEDs and stimulated emission in intrinsic semiconductors, photo detectors and modulation methods. • **Energy Physics:** This course covers the different sources of renewable energy sector and its applications.

P6SB5	Physics of Measuring Instruments - II	National	• This course enable the students to learn the physics principles behind astronomical measurements, electron microscopes and X-ray diffraction measurements
P6SB6	Physics of Medical Instruments-II	National	• This course enable the students to learn the working principles of medical instruments used in radiography and nuclear medicine.

2016 – 2017

COURSE CODE	COURSE TITLE	NATURE OF THE COURSE (LOCAL/NATIONAL/ REGIONAL/GLOBAL)	COURSE OBJECTIVE
P1CC1	Mechanics And Properties Of Matter	National	• The objective of this course is to understand the basic properties of matter and mechanics of fluids

P1CC2	Thermal Physics	National	• This course deals with molecular properties of gases, Maxwellian Distribution of speeds in an Ideal gas, transport phenomena and production of very low temperatures.
C1ACP1	Allied Physics-I	National	• This course provides a conceptually based exposure to the fundamental principal and processes of significant topics of physics like Waves and Oscillations, Properties of matter, Electricity and Magnetism and Geometrical Optics.
P1NME1	Physics In Everyday Life	National	• Aim of this course is to enable the student to understand the physics concepts in day today life.
B1ACP1	Digital Principles and Applications	National	• Aim of this course is to enable the students to understand digital principles and applications
P2CC3	Oscillations, Waves and	National	• This course enables to understand waves,

	Fluid Dynamics		oscillations and its applications in human ear, musical instruments and to know about Doppler effect, Ultra Sonics and various applications of them.
P2CC4	Advanced Mechanics	National	• This course deals with understanding of central force, Projectile motion, work and kinetic energy linear momentum, collision and angular momentum.
P2CC5	Major Practicals-I	National	• The course provides hands on training to determine the properties of materials relevant to the theory learnt in core courses.
C2ACP2	Allied Physics II	National	• The course provides a conceptually based exposure to the fundamental principal and processes of significant topics of physics like geometrical Optics, Atomic Physics, Nuclear Physics and Electronics.
C2ACP3	Allied Practicals	National	• This course enables the student to develop

			broad array of basic skills and tools of experimental physics.
P2NME2	Physics in Everyday Life	National	• Aim of this course is to enable the student to understand the physics concepts in day today life.
P3CC6	Electromagnetism	National	• This course imparts a sound knowledge in electromagnetism.
M3ACP1/ G3ACP1	Allied Physics I	National	• The course provides a conceptually based exposure to the fundamental principal and processes of significant topics of physics like Waves and Oscillations, Properties of matter, Electricity and Magnetism and Geometrical Optics
P3SB1	Biomechanics	National	• This course aims to introduce the Biomechanical concepts and to give an idea about the anatomic pulleys and lever systems

P4CC7	Electronics	National	• The aim of this course is to provide a basic knowledge in semiconductor, transistor, amplifier, oscillator and digital electronics
P4CC8	Major Practicals-II	National	• This laboratory course explores the basic principles of electricity and magnetism, basic elements of electric circuits through experiments
M4ACP2/ G4ACP2	Allied Physics II	National	• The course provides a conceptually based exposure to the fundamental principal and processes of significant topics of physics like geometrical Optics, Atomic Physics, Nuclear Physics and Electronics
M4ACP3/ G4ACP3	Allied Practicals	National	• This course enables the student to develop broad array of basic skills and tools of experimental physics
P4SB2	Physics of Stars	National	• This course briefly explains the life cycle of a star. It throws light on various nuclear

			reactions taking place in a star. It explains about the mysterious objects of the universe. It creates passion for Astronomy among the students
P5CC9	Electronics and Communication	National	• This course aims at the fundamentals of digital electronics, flip-flops, registers, counters and D/A & A/D converters. It also exposes the students to modulation, satellite communication and fibre optics communication
P5CC10	Optics	National	• This course aims at giving a detailed study of interference, diffraction, polarization, Holography, Laser and Maser
P5SB3	Physics of Measuring Instruments- 1	National	• This course enable the students to learn the principles behind thermo dynamical measurements and mechanical and electrical measurements.

P5SB4	Physics of Medical Instruments-I	National	• To enable the student learn the physics principles behind the medical instruments used for diagnosis especially pressure, sound, light and electricity
P6CC11	Thermodynamics and Statistical Mechanics	National	• The aim of this course is to deal with thermodynamics, entropy and thermodynamic potentials. This course also deals with statistical thermodynamics and applications of statistics to gases.
P6CC12	Modern Physics	National	• This course deals with the wave properties of particles and fundamentals of Quantum Mechanics. Nuclear models and special relativity are dealt with in detail.
P6CC13	Major Practicals-III	National	• This laboratory course explores the basic principles of electronics through experiments
P6CC14	Major Practicals-IV	National	• This laboratory course explores the basic principles of non-electronics through

			experiments
P6ME1/2	Microprocessor/Medical Physics	National	• **Microprocessor:** This course explores the assembly language program codes and simple microprocessor programs • **Medical Physics:** This course deals with the applications of electricity and magnetism in medicine, light in medicine, nuclear medicine, radiation protection in medicine and computers in medicine
P6ME2/3	Opto Electronics/Energy Physics	National	• **Optoelectronics:** Optoelectronics is a recent field. This course aims at giving an idea about fibre optics systems and communication. This course also deals with the LEDs and stimulated emission in intrinsic semiconductors, photo detectors and modulation methods. • **Energy Physics:** This course covers the different sources of renewable energy sector

			and its applications.
P6SB5	Physics of Measuring Instruments - II	National	• This course enable the students to learn the physics principles behind astronomical measurements, electron microscopes and X-ray diffraction measurements
P6SB6	Physics of Medical Instruments-II	National	• This course enable the students to learn the working principles of medical instruments used in radiography and nuclear medicine.

2015 – 2016

COURSE CODE	COURSE TITLE	NATURE OF THE COURSE (LOCAL/NATIONAL/ REGIONAL/GLOBAL)	COURSE OBJECTIVE
P1CC1	Mechanics and properties of matter	National	• The objective of this course is to understand the basic properties of matter and mechanics of fluids

P1CC2	Thermal physics	National	• This course deals with molecular properties of gases, Maxwellian Distribution of speeds in an Ideal gas, transport phenomena and production of very low temperatures.
C1ACP1	Allied physics- I	National	• This course provides a conceptually based exposure to the fundamental principal and processes of significant topics of physics like Waves and Oscillations, Properties of matter, Electricity and Magnetism and Geometrical Optics.
P1NME1	Physics in everyday life	National	• Aim of this course is to enable the student to understand the physics concepts in day today life.
B1ACP1	Digital principles and applications	National	• Aim of this course is to enable the students to understand digital principles and applications
P2CC3	Oscillations, waves and fluid	National	• This course enables to understand waves,

	dynamics		oscillations and its applications in human ear, musical instruments and to know about Doppler effect, Ultrasonic and various applications of them.
P2CC4	Advanced Mechanics	National	• This course deals with understanding of central force, Projectile motion, work and kinetic energy linear momentum, collision and angular momentum.
P2CC5	Major Practicals - I	National	• The course provides hands on training to determine the properties of materials relevant to the theory learnt in core courses.
C2ACP2	Allied Physics II	National	• The course provides a conceptually based exposure to the fundamental principal and processes of significant topics of physics like geometrical Optics, Atomic Physics, Nuclear Physics and Electronics.
C2ACP3	Allied Practicals	National	• This course enables the student to develop

			broad array of basic skills and tools of experimental physics.
P2NME2	Physics in everyday life	National	• Aim of this course is to enable the student to understand the physics concepts in day today life.
P3CC6	Electromagnetism	National	• This course imparts a sound knowledge in electromagnetism.
M3ACP1/ G3ACP1	Allied physics I	National	• The course provides a conceptually based exposure to the fundamental principal and processes of significant topics of physics like Waves and Oscillations, Properties of matter, Electricity and Magnetism and Geometrical Optics
P3SB1	Biomechanics	National	• This course aims to introduce the Biomechanical concepts and to give an idea about the anatomic pulleys and lever systems

P4CC7	Electronics	National	• The aim of this course is to provide a basic knowledge in semiconductor, transistor, amplifier, oscillator and digital electronics
P4CC8	Major practical-II	National	• This laboratory course explores the basic principles of electricity and magnetism, basic elements of electric circuits through experiments
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P5CC9	Electronics and communication	National	• This course aims at the fundamentals of digital electronics, flip-flops, registers, counters and D/A & A/D converters. It also exposes the students to modulation, satellite communication and fibre optics communication
P5CC10	Optics	National	• This course aims at giving a detailed study of interference, diffraction, polarization, Holography, Laser and Maser
P5SB3	Physics of measuring instruments-1	National	• This course enables the students to learn the principles behind thermo dynamical measurements and mechanical and electrical measurements.

P5SB4	Physics of medical instruments- I	National	• To enable the student learn the physics principles behind the medical instruments used for diagnosis especially pressure, sound, light and electricity
P6CC11	Thermodynamics and statistical mechanics	National	• The aim of this course is to deal with thermodynamics, entropy and thermodynamic potentials. This course also deals with statistical thermodynamics and applications of statistics to gases.
P6CC12	Modern physics	National	• This course deals with the wave properties of particles and fundamentals of Quantum Mechanics. Nuclear models and special relativity are dealt with in detail.
P6CC13	Major practical-III	National	• This laboratory course explores the basic principles of electronics through experiments
P6CC14	Major Practicals-IV	National	• This laboratory course explores the basic principles of non-electronics through

			experiments
P6ME1/2	Microprocessor/medical physics	National	• **Microprocessor:** This course explores the assembly language program codes and simple microprocessor programs • **Medical Physics:** This course deals with the applications of electricity and magnetism in medicine, light in medicine, nuclear medicine, radiation protection in medicine and computers in medicine
P6ME2/3	Opto electronics/energy physics	National	• **Optoelectronics:** Optoelectronics is a recent field. This course aims at giving an idea about fibre optics systems and communication. This course also deals with the LEDs and stimulated emission in intrinsic semiconductors, photo detectors and modulation methods. • **Energy Physics:** This course covers the different sources of renewable energy sector

			and its applications.
P6SB5	Physics of measuring instruments - II	National	• This course enable the students to learn the physics principles behind astronomical measurements, electron microscopes and X-ray diffraction measurements
P6SB6	Physics of medical instruments-II	National	• This course enables the students to learn the working principles of medical instruments used in radiography and nuclear medicine.