

GOVERNMENT ARTS COLLEGE FOR MEN
(Autonomous)
NANDANAM, CHENNAI – 600 035.



DEPARTMENT OF PHYSICS

COURSE OUTCOME FOR
MSc Degree Course in PHYSICS

Semester System

(Two Year PG Degree Course)

CHOICE BASED CREDIT SYSTEM

Effective from the Academic Year

2019 - 2020

GOVERNMENT ARTS COLLEGE FOR MEN (AUTONOMOUS), NANDANAM, CHENNAI-35
M. Sc. PHYSICS (CBCS with soft skills) – SCHEME OF EXAMINATION
(For candidates joining the course from the academic year 2019-2020 onwards)

COURSE OUTCOME

SEM	PART	SUB CODE	TITLE	COURSE OUTCOME
I	III	196201	MATHEMATICAL PHYSICS-I	<i>On completion of the course, the student will be able to understand the mathematical principles, appreciate the application of mathematical principles to practical problems in various branches of Physics</i>
I	III	196202	CLASSICAL MECHANICS AND RELATIVITY	<i>On completion of the course, the student will be able to know the difference between lagrangian and Hamiltonian mechanics. the concepts of advanced classical mechanics and their applications.the basic concepts of special theory of relativity.</i>
I	III	196203	CONDENSED MATTER PHYSICS AND SPECTROSCOPY	<i>On completion of the course, the student will be able to understand the physics behind structural properties of the solids, tailor the properties of solids with proper understanding and will be able to analyze results of measurements using spectroscopy methods.</i>
I	III	196204	ELECTROMAGNETIC THEORY AND PLASMA PHYSICS	<i>On completion of the course, the student will be able to know the concept of electrodynamics, electrostatic energy in the presence of dielectric, E & M propagation in different media, the concepts of plasma Physics.</i>
I	III	196221	INTEGRATED ELECTRONICS AND MICROPROCESSOR 8085	<i>At end of the course, students will be able to:</i> <ul style="list-style-type: none"> • Explain all the basic concept in electronics and design their own digital circuits. • Describe the general architecture of a microcomputer system and architecture & organization of 8085 & 8086 Microprocessor and understand the difference between 8085 and advanced

				<p><i>microprocessor.</i></p> <ul style="list-style-type: none"> • <i>Understand and realize the Interfacing of memory & various I/O devices with 8085 microprocessor</i> • <i>Understand and classify the instruction set of 8085 microprocessor and distinguish the use of different instructions and apply it in assembly language programming.</i> • <i>Understand the architecture and operation of Programmable Interface Devices and realize the programming & interfacing of it with 8085 microprocessor</i>
II	III	196207	QUANTUM MECHANICS-I	<p><i>On completion of the course, the student will be able to explain the behavior of matter and energy on the scale of atoms and subatomic particles</i></p>
II	III	196208	MATHEMATICAL PHYSICS-II	<p><i>On the successful completion of the course, students will be able to Develop problem solving skills. Explain how mathematical concepts are applied in the solution of physical problems.</i></p>
II	III	196222	CRYSTAL GROWTH AND CHARACTERISATION TECHNIQUES	<p><i>This paper will serve as an eye opener for students keen in research activities particularly in experimental solid state physics</i></p>
II	III	196241	LASERS AND ITS APPLICATIONS <i>(For I M.Sc Chemistry students)</i>	<p><i>On completion of the course, the student will be able to know the fundamentals of laser and different types of laser and its properties the applications of laser in data storage, fibre optics, medical and industries. The students will acquire knowledge in fundamentals of fiber optics, communication equipments, construction and working of optical communication networks including sensor applications The students will learn the applications of laser in holography, science and industries.</i></p>
III	III	196209	QUANTUM MECHANICS-II	<p><i>On completion of the course, the student will be able to solve problems using advanced quantum mechanical concepts</i></p>

III	III	196210	MATERIAL SCIENCE AND NANO TECHNOLOGY	<p><i>Unit 1 explains the very basic structure and preparation techniques of ceramics and their composites.</i></p> <p><i>Unit 2 explains the various types of polymers and characterizations</i></p> <p><i>Unit 3 gives the idea of different types of dielectric polarization.</i></p> <p><i>Unit 4 explains the different techniques used in materials characterization.</i></p> <p><i>Unit 5 gives the idea of Nano materials and their applications</i></p>
III	III	196211	RESEARCH METHODOLOGY, COMPUTATIONAL METHODS AND C PROGRAMMING	<p><i>: On completion of the course, the student will be able to handle research activities with ease and also solve problems numerically and write code for scientific problems using C programming language</i></p>
III	III	196223	MICROPROCESSOR 8086 AND MICROCONTROLLERS	<p><i>On completion of the course, the student will be able to:</i></p> <p><i>Draw and describe architecture of microprocessor and microcontroller.</i></p> <p><i>The concepts of interface various peripheral devices to the microprocessor and microcontrollers.</i></p> <p><i>Ability to design microcontroller based system for various applications.</i></p> <p><i>Concepts of write assembly language program for microcontrollers</i></p>
III	III	196242	ENERGY PHYSICS <i>(For II M.Sc Chemistry students)</i>	<p><i>On completion of the course, the student will be able to understand and design energy efficient methods to explore alternative energy resources.</i></p>
III	IV	196281	INTERNSHIP	<p><i>Internship is intended to gain practical knowledge related to the study.</i></p> <p><i>The duration is for 4 weeks for 2 credits and it should be carried out in an organization recommended by the Department during the summer vacation of the first year.</i></p>
IV	III	196214	NUCLEAR PHYSICS AND PARTICLE PHYSICS	<p><i>After the completion of the course, Students will be able to:</i></p> <ol style="list-style-type: none"> <i>1. Students shall learn about the knowledge of particles.</i> <i>2. Significance of various decays tells the students about the nuclear process..</i> <i>3. It will teach the students about the spin parity concept & magic no. Related to shell.</i> <i>4. About the scattering process how it will occur</i>

IV	III	196215	STATISTICAL MECHANICS AND LOW TEMPERATURE PHYSICS	<i>On completion of the course, the student will be able to solve problems involving statistical mechanics and low temperature physics</i>
IV	III	196216	PROJECT WITH VIVA VOCE	<i>For students to adventure into preliminary research field both in theory and experiment, the concept of project has been introduced in the final semester. In the project, the student will explore new developments from books and journals, collecting literature / data and write a dissertation based on his / her work and studies. The project work can also be based on experimental/Computational work</i>
I & II I & II III & IV III & IV	III	196205 196206 196212 196213	PRACTICAL-I PRACTICAL-II PRACTICAL-III PRACTICAL-IV	<i>Have understood and prepared to apply the knowledge gained through laboratory sessions on Advanced experiments involving sound, light, heat, electricity and magnetism, electronics, microprocessor 8085, 8086 and microcontroller 8051 and its interfacing and numerical method based problem solving using C programming in research fields and industries</i>
IV	III	196224	INSTRUMENTATION TECHNIQUES	<i>On completion of the course, the student will be able to understand the basic theoretical concepts behind the functioning of various instruments and sensors used in real life situations.</i>
IV	III	196225	COMMUNICATION ELECTRONICS	<i>On completion of the course, the student will be able to</i> <ul style="list-style-type: none"> • <i>Know the various communication systems and its working is learned.</i> • <i>Know the basic working principle of satellites.</i> • <i>Know various aspects of satellite subsystem, launching methods, and on-board processing.</i> <i>Understand the earth segment and space segment components</i>