SRI VENKATESWARA UNIVERSITY: TIRUPATI

CENTRE FOR DISTANCE AND ONLINE EDUCATION

PPR for M.Sc. PHYSICS

Choice Based Credit System(CBCS)

Amended as per NEP-2020

(w.e.f. the Academic Year 2024-2025)

DIRECTOR
Centre for Distance and
Online Education (CDOE)
Sri Venkateswara University
TIRUPATI - 517 502.

Centre for Distance and Online Education
S.V. University
Tirupati

REGISTRAR
S.V. UNIVERSITY
TIRUPATI

Vision

To inculcate certain specific enabling skill sets to prepare the students to take up challenges in any one or more functional domains viz. (i) Academics; (ii) Basic and Applied Research; (iii) Research & Development; (iv) Engineering & Technology and (v) Industry.

Mission

To bring out professionals having knowledge of basic laws of nature together with strong fundamentals in the core area of physics viz. Classical Mechanics, Quantum Mechanics, Condensed Matter Physics, Electromagnetism, Computational Physics, Statistical Physics, Spectroscopy, Photonics, Thin film Technology and Solar Energy Physics, Electronics, Atomic and Nuclear Physics and advanced level topics such as High Energy Physics, Nanotechnology, Nonlinear Optics, etc.

PROGRAM SPECIFIC OBJECTIVES: At the end of the program, the student will beable to:

PSO1	Apply principles of basic scientific concepts in understanding, analysis, and prediction of physical systems.
PSO2	Develop human resource with specialization in theoretical and experimental Techniques required for career in academic, research and industry.
PSO3	Engage in life long learning and adapt to changing professional and societal needs.

PROGRAM OUTCOMES: Atthe end ofthe program, thestudent willbeable to:

PO1	Apply the scientific knowledge to solve the complex physics problems.
PO2	Identify,formulate,andanalyzeadvancedscientificproblemsreachingsubstantiated Conclusionsusingfirstprinciplesofmathematics,physical,andnaturalsciences.
PO3	Design solutions for advanced scientific problems and design system components orprocesses that meet the specified needs with appropriate attention to health and safetyrisks,applicablestandards,andeconomic,environmental,culturalandsocietal consideration.
PO4	Useresearch-basedknowledgeandmethodsincludingdesignofexperiments,analysisandinterpretation ofdata,andsynthesisoftheinformationtoprovidevalid conclusions.
PO5	Create,select,andapplyappropriatetechniques,resources,andmodernscientific Tools to complex physics problems with an understanding of the limitations.
PO6	Applyreasoninginformedbythecontextualknowledgetoassesssocietal,health,safety,legal andculturalissues,andtheconsequentresponsibilitiesrelevanttothe Professional scientific practice.
PO7	Understandtheimpactofthescientificsolutionsinsocietalandenvironmental contexts, and demonstrate the knowledge of,and need for sustainable development.
PO8	Apply ethical principle sand commit to the norms of scientific practice.
PO9	Functioneffectivelyasanindividual,andasamemberorleaderindiverseteams and in multidisciplinary settings.
PO10	Communicate effectively on scientific activities with the Scientific Engineering community and with society at large such as, being able to comprehend and write effective reports and design documentation, make effective representations,and give And receive clear instructions.

PO11	Demonstrateknowledgeandunderstandingofthescientificprinciplesandapply These to one's own work,as a member andleaderinateam,tomanageprojectsandinmultidisciplinaryenvironments.
PO12	Recognizetheneedfor,andhavethepreparationandabilitytoengageinindependent And life-long learning in the broades tcontext of scientific and technological change.

PROGRAMSPECIFICOUTCOMES: At the end of the program, the student will be able to:

PSO1	Understandthebasicandadvanceconceptsofdifferentbranchesofphysics.
PSO2	Performanddesignexperimentsintheareasofelectronics,atomic,nuclear, Condensed matter,and computationa lphysics.
PSO3	Apply the concepts of physics in specialized areas of condensed, nuclear,renewable energies,particle physics,etc.in industry,academia, research and day to day life.

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SRIVENKATESWARAUNIVERSITY::TIRUPATIDE
PARTMENTOFPHYSICS
TWO YEAR M.Sc. COURSE IN PHYSICS (2024-2025)
SCHEME

Semester -I

S.No	Components of Study	Title of theCourse	Titleof thePaper	Credit Hrs /Week	No. ofCredits	IA Marks	SemEndMarks	Total
1.	**Mandatory Core**	PHY101	1.ClassicalMechanicsandTheoryof Relativity	6	4	20	80	100
2.		PHY102	2.Solid State Physics	6	4	20	80	100
3.	**Compulsory Foundation**	PHY103(a)	1.Analogand DigitalElectronics	6	4	20	80	100
		PHY103(b)	2.Computational Methods &C Language					
		PHY103(c)	3.Sensorsand Transducers					
4.	**ElectiveFoundation**	PHY104(a)	1.Atomicand MolecularPhysics	6	4	20	80	100
		PHY104(b)	2.Optical,Microwaveand SatelliteCommunications					
		PHY104(c)	3.ComputerArchitectureand Networking					
5.	**Practical-I**	PHY105	Paper1&3 (GeneralLab)	6	4	--	100	100
6.	**Practical-II**	PHY106	Paper3 &4 (ElectronicsLab)	6	4	--	100	100
	Total			36	24	80	520	600
7.	AuditCourse			0	0	100	0	0

*All core papers are Mandatory

- Compulsory Foundation choose one paper.
- Elective Foundation–Choose one paper.
- Auditcourse-100Marks (Internals)Zero Credit sunder self-study.
- Interested students may register for MOOC with the approval of the concerned BOD but it will be considered for the award of the grade as open elective only giving extra credits.

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Semester -II

S.No	Components of Study	Title of theCourse	Titleof thePaper	Credit Hrs/ Week	No. ofCredits	IA Marks	SemEndMarks	Total
1.	**Mandatory Core**	PHY201	1. Statistical Mechanics	6	4	20	80	100
2.		PHY202	2.EM Theory,Lasers& Modern Optics	6	4	20	80	100
3.	**Compulsory Foundation**	PHY203(a)	1.NuclearPhysics	6	4	20	80	100
		PHY203(b)	2.ICfabrication Techniques					
		PHY203(c)	3.Advanced Microprocessors and its Applications					
4.	**Elective Foundation**	PHY204(a)	1.Mathematical Physics	6	4	20	80	100
		PHY204(b)	2.Introductionto VL SI design					
		PHY204(c)	3.MaterialScience For Industrial Applications					
5.	**Practical-I**	PHY205	Paper1&3 (General Lab)	6	4	--	100	100
6.	**Practical-II**	PHY206	Paper3&4 (Electronics Lab)	6	4	--	100	100
	Total			36	24	80	520	600
7.	Audit Course			0	0	100	0	0

*All core papers are Mandatory

- Compulsory Foundation choose one paper.
- Elective Foundation–Choose one paper.
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S.No	Components of Study	Title of theCourse	Title of thePaper	Credit Hrs/ Week	No. ofCredits	IA Marks	Sem EndMarks	Total
1.	**Mandatory Core**	PHY301	1.Introductory QuantumMechanics	6	4	20	80	100
2.		PHY302	2.Physics ofSemiconductor Devices	6	4	20	80	100
3.	**Generic Elective**	PHY303(a)	1.Applied Spectroscopy	6	4	20	80	100
		PHY303(b)	2.Condensed MatterPhysics					
		PHY303(c)	3.Embedded Systems					
4.	**Practicals**	PHY304	ElectiveLab	6	4	--	100	100
5.	**Skill Oriented Course**	PHY305	Advances inPhysics	6	4	10	90(T40 +P50)	100
6.	**Open Elective**	PHY306(a)	1.Basic Spectroscopic Techniques	6	4	20	80	100
		PHY306(b)	1. Nanomaterials andDevices					
	Total			36	24	90	510	600

*All core papers are Mandatory

- Generic Elective– Choose two
- Core papers and Generic Electives opted paper held Practical-I
- Skill Oriented Course is Mandatory. Relevant society along with practical(10marksinternal40 final theory& 50 forpractical's).
- Open Electives are for the students of other Departments .Minimum one paper should be opted.Extra credits may be earned by opting for more number of open electives depending on the interest of the student through self-study.
- Interested students may register for MOOC with the approval of the concerned DDC.

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S.No	Components ofstudy	Title of theCourse	Title of thePaper	Credit Hrs/ Week	No. ofCredits	IA Marks	Sem EndMarks	Total
1.	**Mandatory Core**	PHY401	1.Advanced QuantumMechanics	6	4	20	80	100
2.		PHY402	2.Physicsof Advanced Materials	6	4	20	80	100
3.	**Generic Elective**	PHY403(a)	1.Photonics	6	4	20	80	100
		PHY403(b)	2.SolarEnergy-Thermal andPhotovoltaic Properties					
		PHY403(c)	3.Vacuumand ThinFilm Technology					
4.	**Practicals**	PHY404	ElectiveLab	6	4	--	100	100
5.	**Multi Disciplinary Course/ProjectWork**	PHY405	Advanced Characterization Techniques	6	4	10	90(T 40+P 50)	100
6.	**OpenElective**	PHY406(a)	1.Wireless Communications	6	4	20	80	100
		PHY406(b)	2. VacuumTechnology& Applications					
	Total			36	24	90	510	600

*All core papers are Mandatory

- Generic Elective –Choose two
- Core papers and Generic Electives opted paper held Practical-II.
- Project Work-Collaboration with various firms/companies/societies.
- Multi-Disciplinary CourseisMandatory.Circleformationwithothersubjects/Dept.ofArts/Commerce.
- Open Electives are for the students of other Departments. Minimum one paper should be opted .Extra credits may be earned by opting for more number of open electives depending onthe interest of the student through self-study.
- Interested students may register for MOOC with the approval of the concerned DDC

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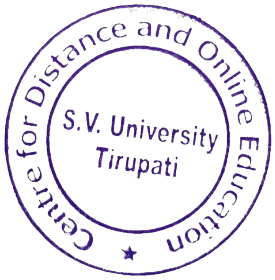

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