

Presidency University, Kolkata


PHYSICS

Syllabus for the 2-Year 4-Semester Master of Science Degree Programme 2016

Sem	Paper	Code	Credit
I	Mathematical Physics (Taught)	PHYS0701	4
	Classical Mechanics (Taught)	PHYS0702	4
	Quantum Physics-I (Taught)	PHYS0703	4
	Statistical Physics (Taught)	PHYS0704	4
	PG-Lab 1 (Lab based Sessional)	PHYS0791	4
II	Quantum Physics 2 (including Atomic and Molecular Physics)	PHYS0801	4
	Classical Electrodynamics (Taught)	PHYS0802	4
	Solid State Physics (Taught)	PHYS0803	4
	Nuclear and Particle Physics	PHYS0804	4
	PG-Lab 2 (Lab based Sessional)	PHYS0892	4
III	Special-I (Taught: Choice Based)	PHYS0901	4
	A] Introduction to Astrophysics		
	B] Advanced Condensed Matter Physics-I		
	Special-II (Taught: Choice Based)	PHYS0902	4
	A] General Relativity and Cosmology		
	B] Advanced Condensed Matter Physics-II		
	Special-Lab PG-Lab 3	PHYS0992	4
A] Condensed Matter Lab			
B] Astrophysics Lab			
PG-Lab 4 (Lab based Sessional)	PHYS0991	4	
Elective (Taught: Choice Based)	PHYS0904	4	
IV	Semiconductor Device Physics/Trends in Modern Physics Research (Taught: Choice Based)	PHYS1001	4
	Non-linear Physics/Experimental or Computational Techniques (Taught: Choice Based)	PHYS1002	4
	Thesis formulation	PHYS1091	4
	Thesis execution	PHYS1092	4
	Project presentation	PHYS1093	4

***Specialisation** -- 2 choices: [A] Condensed Matter Physics, [B] Astrophysics and Cosmology

** **Elective subjects** -- Possible choices: [A] Physics of nanostructured materials [B] Quantum Field theory and its Applications [C] Physics of Remote Sensing. (Not all of these options may be available each year)


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Credit Allocation and Marks Distribution for the Undergraduate Course in Physics (Major) under CBCS
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Semester	Course Type	Paper Code	Course Name	Credits			Marks			Total
				Theory	Practical	Tutorial	Total	Theory	Practical	
First	Core Course	PHYS01C1	Mathematical Physics-I	4	2		6	70	30	100
First	Core Course	PHYS01C2	Mechanics	4	2		6	70	30	100
First	Generic Elective	PHYS01 GE1	Mechanics and Relativity (Credit 5+1, Marks 80+20)							100
First	Ability Enhancement Compulsory Course	PHYS01 AECC1	ENVS/ English Communication/MIL	4			4	100		100
Second	Core Course	PHYS02C3	Electricity and Magnetism	4	2		6	70	30	100
Second	Core Course	PHYS02C4	Waves and Optics	4	2		6	70	30	100
Second	Generic Elective	PHYS02 GE2	Physics of Everyday Life (Credit 5+1, Marks 80+20)							100
Second	Ability Enhancement Course	PHYS02 AECC2	ENVS/ English Communication/MIL	4			4	100		100
Third	Core Course	PHYS03C5	Mathematical Physics-II	4	2		6	70	30	100
Third	Core Course	PHYS03C6	Thermal Physics	4	2		6	70	30	100
Third	Core Course	PHYS03C7	Analog Systems and Applications	4	2		6	70	30	100
Third	Generic Elective	PHYS03 GE3	Any one of (i) Thermal Physics (Credit 4+2, Marks 70+30) or (ii) Nuclear Age (Credit 5+1, Marks 80+20)							100
Third	Skill Enhancement Course	PHYS03 SECC1	Statistical and Computational Methods	4			4	100		100
Fourth	Core Course	PHYS04C8	Mathematical Physics-III	4	2		6	70	30	100
Fourth	Core Course	PHYS04C9	Elements of Modern Physics	4	2		6	70	30	100
Fourth	Core Course	PHYS04 C10	Digital Systems and Applications	4	2		6	70	30	100
Fourth	Generic Elective	PHYS04 GE4	Optics	5	1		6	80	20	100
Fourth	Skill Enhancement Course	PHYS04 SECC2	Modern Experimental & Theoretical Techniques	4			4	100		100
Fifth	Core Course	PHYS05 C11	Quantum Mechanics and Applications	4	2		6	70	30	100
Fifth	Core Course	PHYS05 C12	Statistical Mechanics	4	2		6	70	30	100

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Fifth	Discipline Specific Elective (DSE) (Any Two)	DSE1	Advanced Mechanics (Credit 5+1, Marks 80+20)						100
		DSE2 (Any one of 2A & 2B)	DSE2A: Nuclear Medicine (Credit 5+1, Marks 80+20) DSE2B: Quantum Optics and Quantum Information (Credit 5 + 1, Marks 80 + 20)						100
Sixth	Core Course	PHYS06 C13	4	2	6	70	30	100	
Sixth	Core Course	PHYS06 C14	4	2	6	70	30	100	
Sixth	Discipline Specific Elective (DSE) (Any Two)	DSE3	Nuclear & Particle Physics (Credit 5+1, Marks 80+20)						100
		DSE4 Any one of 4A and 4B)	DSE4A: Physics of Materials (Credit 5+1, Marks 80+20) DSE4B: Supervised Project with Dissertation (Credit 6, Marks 100)						100
			Total Credit		148	Total Marks2600		100	

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To Whom it may concern :

This is to note that the paper **PHYS0692** in the pre-CBCS era, was a Supervised Reading / Project for the undergraduate students . There was no fixed syllabus for this paper, The faculty members used to propose the material of study to the students, which changed every year.

Arunava Chakrabarti
Professor and Head 21.9.2023
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