

Scheme and Syllabus for choice-based credit system (CBCS) for B.Sc. Honours in Physics

Semester	Core Course (14 Credits)	Ability Enhancement Compulsory Course 2	Skill Enhancement Course SEC 2	Discipline Specific Elective (DSE) (4)	Generic Elective GE (4)
I	Mathematical Physics-I (PHYSICS C-I)	Communicative English(AECC-1)			GE-1
	Mechanics (C-II)	MIL/Communicative Hindi/Alternative			
II	Electricity& Magnetism(C-III)	English (AECC-2) Environmental			GE-2
	Waves and Optics(C-IV)	Science (AECC-3)			
III	Mathematical Physics-II (C-V)		SEC-1		GE-3
	Thermal Physics (C-VI)				
	Digital Systems and Applications (C-VII)				
IV	Mathematical Physics-II(C-VIII)		SEC-2		GE-4
	Elements of Modern Physics (C-IX)				
	Analog Systems and Applications (C-X)				
V	Quantum Mechanics and Applications (C-XI)			DSE-1	
	Solid State Physics (C-XII)			DSE-2	
VI	Electromagnetic Theory (C-XIII)			DSE-3	
	Statistical Mechanics(C-XIV)			DSE-4	

Semester wise distribution of courses in B.Sc. Physics Honours (CBCS)

Semester	Course opted	Course Name	Credits
I	Ability Enhancement Compulsory Course-I Ability Enhancement Compulsory Course-II	Communicative English MIL/ Communicative Hindi / Alternative English	2
	Core course-I	Mathematical Physics-I	4
	Core Course-I Practical	Mathematical Physics-I Lab	2
	Core course-II	Mechanics	4
	Core Course-II Practical	Mechanics Lab	2
	Generic Elective -I Theory	GE-1 (T)	4/5
	Generic Elective -I Practical/Tutorial	GE-1 (P)	2/1
II	Ability Enhancement Compulsory Course-III	Environmental Science	2
	Core course-III	Electricity and Magnetism	4
	Core Course-III Practical/Tutorial	Electricity and Magnetism Lab	2
	Core course-IV	Waves and Optics	4
	Core Course-IV Practical/Tutorial	Waves and Optics Lab	2
	Generic Elective -2 Theory	GE-2(T)	4/5
	Generic Elective -2 Practical/Tutorial	GE-2(P)	2/1
III	Core course-V	Mathematical Physics-II	4
	Core Course-V Practical	Mathematical Physics-II Lab	2
	Core course-VI	Thermal Physics	4
	Core Course-VI Practical	Thermal Physics Lab	2
	Core course-VII	Digital Systems and Applications	4
	Core Course-VII Practical/Tutorial	Digital Systems and Applications Lab	2
	Skill Enhancement Course -I/Ability Enhancement Elective Course- I	SEC- I/AEEC- I	2
	Generic Elective -3 Theory	GE-3(T)	4/5
	Generic Elective -3 Practical/Tutorial	GE-3(P)	2/1
IV	Core course-VIII	Mathematical Physics III	4
	Course-VIII Practical/Tutorial	Mathematical Physics-III Lab	2
	Core course-IX	Elements of Modern Physics	4
	Course-IX Practical/Tutorial	Elements of Modern Physics Lab	2
	Core course-X	Analog Systems and Applications	4
	Core Course- X Practical/Tutorial	Analog Systems and Applications Lab	2
	Skill Enhancement Course -2/Ability Enhancement Elective Course-2	SEC-2/AEEC-2	2
	Generic Elective -4 Theory	GE-4(T)	4/5
	Generic Elective -4 Practical/Tutorial	GE-4 (P)	2/1

V	Core course-XI	Quantum Mechanics and Applications	4
	Core Course-XI Practical/Tutorial	Quantum Mechanics and Applications Lab	2
	Core course-XII	Solid State Physics	4
	Core Course-XII Practical/Tutorial	Solid State Physics Lab	2
	Discipline Specific Elective -I	DSE-I: Classical Dynamics	4/5
	Discipline Specific Elective -I Practical	DSE-I Lab	2/1
	Discipline Specific Elective -2	DSE-2:Astronomy and Astrophysics	4/5
	Discipline Specific Elective- 2 Practical/Tutorial	DSE-2 Lab	2/1
VI	Core course-XIII	Electro-magnetic Theory	4/5
	Core Course-XIII Practical/Tutorial	Electro-magnetic Theory Lab	2/1
	Core course-XIV	Statistical Mechanics	4/5
	Core Course-XIV Practical/Tutorial	Statistical Mechanics Lab	2/1
	Discipline Specific Elective -3	DSE-3: Nuclear and Particle Physics Theory	4/5
	Discipline Specific Elective -3 Practical/Tutorial	DSE-3 Lab	2/1
	Discipline Specific Elective -4	DSE-4: Nuclear and Particle Physics Theory	4/5
Total Credits			142

Discipline Specific Elective Papers: (Credit: 06 each) (4 papers to be selected) DSE I-4

1. Experimental Techniques + Lab
2. Embedded systems- Introduction to Microcontroller + Lab
3. Physics of Devices and Communication + Lab
4. Advanced Mathematical Physics-I + Lab
5. Advanced Mathematical Physics-II
6. Classical Dynamics + Tut
7. Applied Dynamics + Lab 8
8. Communication System + Lab
9. Nuclear and Particle Physics + Tut
10. Astronomy and Astrophysics +
11. Atmospheric Physics + Lab
12. Nano Materials and Applications + Lab
13. Physics of the Earth + Tut

14. Digital Signal Processing
15. Medical Physics +Tut
16. Biological Physics + Tut
17. Dissertation
- 18.

Other Discipline - GE I to GE 4 (Credit: 06 each) (4 papers to be selected) :

1. Mathematics + Tut
2. Chemistry + Lab
3. Economics + Tut
4. Computer Science + Lab
5. Electronics + Lab
6. Statistics + Tut
7. Any other relevant subject to be decided upon by the BOS in Physics from time to time

Skill Enhancement Courses (02 to 04 papers) (Credit: 02 each) - SEC1 to SEC4:

1. Physics Workshop Skills
2. Computational Physics Skills
3. Electrical circuits and Network Skills
4. Basic Instrumentation Skills
5. Renewable Energy and Energy harvesting
6. Technical Drawing
7. Radiation Safety
8. Applied Optics
9. Weather Forecasting

Generic Elective Papers (GE) (any four) for other Departments/Disciplines, Credit: 06 each.

Course codes: PHYSICS GE-I to PHYSICS GE-4

1. Mechanics + Lab
2. Electricity and Magnetism + Lab
3. Thermal Physics + Lab
4. Waves and Optics + Lab
5. Digital, Analog and Instrumentation + Lab
6. Elements of Modern Physics + Lab
7. Mathematical Physics + Lab
8. Solid State Physics + Lab
9. Quantum Mechanics + Lab
10. Embedded System: Introduction to microcontroller + Lab

II. Nuclear and Particle Physics + Tut

**Scheme and Syllabus for choice-based credit system (CBCS) system for
B.Sc. Non-Honours in Physics**

Semester	Discipline Core Course (12)	Ability Enhancement Compulsory Course (AECC) (2)	Skill Enhancement Course (SEC) (2)	Discipline Specific Elective DSE (6)
I	Mechanics DSC-1A	Communicative English (AECC-1)		
	DSC-2A	MIL/ Communicative Hindi/Alternative English (AECC-2)		
	DSC-3A			
II	Electricity and Magnetism	Environmental Science (AECC-3)		
	DSC-2B			
	DSC-3B			
III	Thermal Physics and Statistical Mechanics		(SEC-1) Electrical circuits and network skills	
	DSC - 2C			
	DSC - 3C			
IV	Waves and optics		(SEC -2)Applied optics	
	DSC-2D			
	DSC-3D			
V			(SEC-3) Basic Instrumentation Skills/Computational Physics Skills	(DSE-1A)Digital and Analog Circuits and Instrumentation + Lab / Mathematical Physics + Lab / Nuclear and Particle Physics + Tutorial
				(DSE-2A)
				(DSE-3A)
VI			(SEC-4:)Renewable energy and energy harvesting / Physics Workshop Skills	(DSE-1B)Elements of Modern Physics + Lab / Solid State Physics + Lab / Quantum Mechanics + Lab / Dissertation
				DSE-2B
				DSE-3B

Semester wise distribution of courses in B.Sc. Physics Non-Honours (CBCS)

Semester	Course opted	Course Name	Credits
I	Ability Enhancement compulsory course- I	Communicative English	2
	Ability Enhancement compulsory course- II	MIL/ Communicative Hindi/ Alternative English	2
	Discipline Specific Core -IA	Mechanics	4
	Discipline Specific Core -IA Practical/ Tutorial	Mechanics Lab	2
	Discipline Specific Core -2A	DSC-2A	6
	Discipline Specific Core -3A	DSC-3A	6
II	Ability Enhancement compulsory course- III	Environmental Science	2
	Discipline Specific Core -IB	Electricity and Magnetism	4
	Discipline Specific Core -IB Practical/ Tutorial	Electricity and Magnetism Lab	2
	Discipline Specific Core-2B	DSC- 2B	6
	Discipline Specific Core-3B	DSC- 3B	6
III	Discipline Specific Core -IC	Thermal Physics and Statistical Mechanics	4
	Discipline Specific Core -IC Practical/ Tutorial	Thermal Physics and Statistical Mechanics Lab	2
	Discipline Specific Core- 2C	DSC- 2C	6
	Discipline Specific Core -3C	DSC- 3C	6
	Skill Enhancement Course-1	SEC-1	2
IV	Discipline Specific Core -ID	Waves and Optics	4
	Discipline Specific Core -ID Practical/ Tutorial	Waves and Optics Lab	2
	Discipline Specific Core -2D	DSC-2D	6
	Discipline Specific Core -3D	DSC-3D	6
	Skill Enhancement Course-2	SEC-2	2
	Discipline - 3 Paper IV	DSC- 3 Paper IV Theory	4
	Discipline - 3 Paper IV Practical	DSC- 3 Paper IV	2
V	Skill Enhancement Course-3	SEC-3	2
	Discipline Specific Elective- 1	DSE- 1A	6
	Discipline Specific Elective- 2	DSE-2A	6
	Discipline Specific Elective- 3	DSE-3A	6
VI	Skill Enhancement Course-4	SEC-4	2
	Discipline Specific Elective- 4	DSE- 1B	6
	Discipline Specific Elective- 5	DSE-2B	6
	Discipline Specific Elective- 6	DSE-3B	6
Total Credits			122

N.B: For more details regarding the courses and mode of assessment, one can visit the websites:
https://dibru.ac.in/wp-content/uploads/2020/02/BSc_Physics_Majormodified.pdf
https://dibru.ac.in/wp-content/uploads/2020/02/BSc_Physics_Non_Majormodified.pdf