



Academic Programs The department of Physics, Visva-Bharati offers

- (1) Four-Year Undergraduate Programme (FYUP) in Physics under the National Education Policy (NEP) 2020 framework
- (2) Two-Year Master of Science (M.Sc.) in Physics, and
- (3) Ph.D. program in diverse research areas.

The curriculum is designed to be both rigorous and flexible, blending core theoretical knowledge with hands-on experimental training and emerging interdisciplinary topics. Emphasis is placed on laboratory skills, computational physics, and research-based learning to prepare students for careers in research, teaching, and technology-driven industries.

COURSE STRUCTURE OF FOUR-YEAR UNDERGRADUATE PROGRAMME IN PHYSICS

Sem	Major Courses	Minor Courses	Multi Courses	AEECC	SEC	CVAC	Research +	Internship	Total Credits
I	2x4cr =8	MnA 1x4cr =4	1x3cr =3	ENG/MIL1 1x2cr =2	1x3cr =3	TS 1x3cr =3	---		23
II	2x4cr =8	MnB 1x4cr =4	1x3cr =3	ENG/MIL2 1x2cr =2	1x3cr =3	ES 1x3cr =3	---		23
YEAR 1	2x8 =16cr	2x4=8cr	2x3 =6cr	2x2 =4cr	2x3 =6cr	2x3 =6cr	---	Sum 4cr	46+4
<i>After successful completion of ONE YEAR Course (Semesters - I & II) securing 46 credits + 4 credits vocational summer internship, students may exit with B.Sc. Certificate in PHYSICS or continue further.</i>									
III	2x4cr =8	MnA 1x4cr =4	1x3cr =3	MIL/ENG1 1x2cr =2	1x3cr =3	---	---		20
IV	4x4cr =16	MnB 1x4cr =4	---	MIL/ENG2 1x2cr =2	---	---	---		22
YEAR 2	10x4 =40cr	4x4 =16cr	3x3 =9cr	4x2 =8cr	3x3 =9cr	2x3 =6cr	---	Sum 4cr	88+4
<i>After successful completion of TWO YEAR Course (Semesters - I to IV) securing 88 credits + 4 credits vocational summer internship, students may exit with B.Sc. Diploma in PHYSICS or continue further.</i>									
V	3x4cr =12	MnA 1x4cr =4	---	---	---	---	---		16
VI	3x4cr =12	MnB 1x4cr =4	---	---	---	---	---		16
YEAR 3	16x4 =64cr	6x4 =24cr	3x3 =9cr	4x2 =8cr	3x3 =9cr	2x3 =6cr	---	Sum 4cr	120+4
<i>After successful completion of THREE YEAR COURSE (Semesters - I to VI) securing 120 credits + 4 credits vocational summer internship, students may exit with B.Sc. Degree in PHYSICS or continue further.</i>									
VII	4x4cr=16	MnA 1x4cr =4	---	---	---	---	---		20
VIII	4x4cr =16	MnB 1x4cr =4	---	---	---	---	---		20
YEAR 4	24x4 =96cr	8x4=32cr	3x3 =9cr	4x2 =8cr	3x3 =9cr	2x3 =6cr	---	Sum 4cr	160+4
<i>After successful completion of FOUR YEAR COURSE (Semesters - I to VIII) securing 160 credits + 4 credits vocational summer internship, students may obtain B.Sc. Honours in PHYSICS.</i>									
OR									
VII	3x4 =12cr	MnA 1x4 =4cr	---	---	---	---	1x4 =4cr*		20
VIII	2x4 =8cr	MnB 1x4 =4cr	---	---	---	---	2x4 =8cr*		20
YEAR 4	21x4 =84cr	8x4 =32cr	3x3 =9cr	4x2 =8cr	3x3 =9cr	2x3 =6cr	3x4 =12cr	Sum 4cr	160+4
<i>After successful completion of FOUR YEAR COURSE (Semesters - I to VIII) securing 160 credits + 4 credits vocational summer internship, students may obtain B.Sc. Honours (with Research) in PHYSICS.</i>									
<i>*Dissertation can be opted by students who attain at least CGPA 75% in 3 years and desire the Research degree. The students pursuing B.Sc. Honours (with Research) have to secure 12 credits (4 credits in Semester VII and 8 credits in Semester VIII). However, students pursuing only B.Sc. Honours have to study additional three Major Courses in PHYSICS securing 12 credits (4 credits in Semester VII and 8 credits in Semester VIII) in lieu of the Dissertation.</i>									

Structure of the M.Sc. in Physics Syllabus

Paper		Type	Code
Semester I			
1	Classical Mechanics	Core: Theory	MPC11
2	Classical Electrodynamics	Core: Theory	MPC12
3	Mathematical Methods in Physics	Core: Theory	MPC13
4	Quantum Mechanics I	Core: Theory	MPC14
5	General Laboratory I	Core: Experiment	MPC15
Semester II			
6	Quantum Mechanics II	Core: Theory	MPC21
7	Statistical Mechanics	Core: Theory	MPC22
8	Solid State Physics	Core: Theory	MPC23
9	Electronics	Core: Theory	MPC24
10	Computational and Numerical Methods in Physics	Core: Computation	MPC25
Semester III			
11	Atomic and Molecular Physics	Core: Theory	MPC31
12	Nuclear & Particle Physics	Core: Theory	MPC32
13	Relativistic Mechanics & Field Theory	Core: Theory	MPC33
14	General Laboratory II	Core: Experiment	MPC34
15	Elective Paper I	Students have to choose one (1) elective paper from the list of eight (8) papers	Elective MPE301 - MPE308
Semester IV			
16	General Laboratory III	Core: Experiment	MPC41
17	Elective Paper II	Students have to choose three (3) elective papers from the list of thirty (31) papers	Elective
18	Elective Paper III		Elective
19	Elective Papers IV		Elective
20	Dissertation	Elective	MPD4

Total Papers – 20

Compulsory Papers – 15

Choice Based Papers – 5 (One Dissertation + Four Elective)

Each paper is equivalent to 4 credit points corresponding to 50 marks

Total Marks - 1000

Total Credit - 80