

**CBCS SYLLABUS**  
**FOR**  
**THREE YEARS UNDER-GRADUATE COURSE**  
**IN**  
**PHYSICS (HONOURS)**  
*(w.e.f. 2022-2023)*



**BANKURA UNIVERSITY**  
**BANKURA**  
**WEST BENGAL**  
**PIN 722155**  
**STRUCTURE IN PHYSICS (HONOURS)**

**SEMESTER –I**

Course Code	Course Title	Credit	Marks			No. of Hours		
			I.A.	ESE	Total	Lec.	Tu.	Pr.
SHPHS/ 101/C-1	Mathematical Physics-I (T 1)	4	10	25	50	4		4
	Mathematical Physics-I Lab (P 1)	2		15				
SHPHS/ 102/C-2	Mechanics (T 2)	4	10	25	50	4		4
	Mechanics Lab (P 2)	2		15				
SHPHS/ 103/GE-1	Mechanics, Electrostatics and Sound (GE T1)	4	10	25	50	4		4
	Mechanics, Electrostatics and Sound Lab (GE P1)	2		15				
ACSHP/10 4/AECC-1	Environmental Studies	4	10	40	50	4		
<b>Total in Semester - I</b>		<b>22</b>	<b>40</b>	<b>160</b>	<b>200</b>	<b>16</b>		<b>12</b>

**SEMESTER –II**

Course Code	Course Title	Credit	Marks			No. of Hours		
			I.A.	ESE	Total	Lec.	Tu.	Pr.
SHPHS / 201/C-3	Electricity and Magnetism (T3)	4	10	25	50	4		4
	Electricity and Magnetism Lab (P3)	2		15				
SHPHS/ 202/C-4	Waves and Optics (T4)	4	10#	40	50	4		4
	Wave and Optics Lab (P4)	2						
SHPHS/ 203/GE-2	Electromagnetism and Thermal Physics (GE T2)	4	10	40	50	4		4
	Electromagnetism and Thermal Physics Lab (GE P2)	2						
ACSHP/20 4/ AECC-2	English/Hind/MIL	2	10	40	50	2		
<b>Total in Semester - II</b>		<b>20</b>	<b>40</b>	<b>160</b>	<b>200</b>	<b>14</b>		<b>12</b>

# IA of C-4 (Waves and optics) will be based on the report of educational tour/lab visit.

**SEMESTER –III**

Course Code	Course Title	Credit	Marks			No. of Hours		
			I.A.	ESE	Total	Lec.	Tu.	Pr.
SHPHS/ 301/C-5	Mathematical Physics-II (T5)	4	10	25	50	4		4
	Mathematical Physics-II Lab (P5)	2		15				
SHPHS/ 302/ C-6	Thermal Physics (T6)	4	10	25	50	4		4
	Thermal Physics Lab (P6)	2		15				
SHPHS /303/C-7	Analog Systems and Applications (T7)	4	10	25	50	4		4
	Analog Systems and Application Lab (P7)	2		15				



SHPHS/ 304/GE-3	Physical Optics and Modern Physics (GE T3)	4	10	25	50	4		4
	Physical Optics and Modern Physics Lab (GE P3)	2		15				
SHPHS/ 305/SEC-1	Computational Physics (SEC T1) Or Renewable Energy and Energy Harvesting (SEC T2)					1		2
		2	10	40	50			
<b>Total in Semester - III</b>		<b>26</b>	<b>50</b>	<b>200</b>	<b>250</b>	<b>17</b>		<b>18</b>

**SEMESTER –IV**

Course Code	Course Title	Credit	Marks			No. of Hours		
			I.A.	ESE	Total	Lec.	Tu.	Pr.
SHPHS /401/C-8	Mathematical Physics III (T8)	4	10	25	50	4		4
	Mathematical Physics III Lab (P8)	2		15				
SHPHS /402/C-9	Elements of Modern Physics (T9)	4	10	25	50	4		4
	Modern Physics Lab (P9)	2		15				
SHPHS /403/C-10	Digital Systems and Applications (T10)	4	10	25	50	4		4
	Digital Systems and Applications Lab (P10)	2		15				
SHPHS /404/GE- 4	Electronics and instrumentation (GE T4)	4	10	25	50	4		4
	Electronics and instrumentation Lab (GE P4)	2		15				
SHPHS / 405/SEC-2	Radiation Safety (SEC T3) or Weather Forecasting (SEC T4)							
		2	10	40	50	1		2
<b>Total in Semester - IV</b>		<b>26</b>	<b>50</b>	<b>200</b>	<b>250</b>	<b>17</b>		<b>18</b>

**SEMESTER – V**

Course Code	Course Title	Credit	Marks			No. of Hours		
			I.A.	ESE	Total			
SHPHS /501/C-11	Quantum Mechanics and Applications (T11)	4	10	25	50	4		4
	Quantum Mechanics and Applications Lab (P11)	2		15				
SHPHS /502/C-12	Solid State Physics (T12)	4	10	25	50	4		4
	Solid State Physics Lab (P12)	2		15				
SHPHS/ 503/DSE-1	Advanced Mathematical Physics (DSE T1) Or Classical Dynamics (DSE T2)	6	10#	40	50	5	1	



SHPHS / 504/DSE-2	Nuclear and Particle Physics (DSE T3) Or Astronomy and Astrophysics (DSE T4)	6	10#	40	50	5	1	
<b>Total in Semester – V</b>		<b>24</b>	<b>40</b>	<b>160</b>	<b>200</b>	<b>20</b>		<b>8</b>

# Based on a power point presentation

**SEMESTER – VI**

Course Code	Course Title	Credit	Marks			No. of Hours		
			I.A.	ESE	Total	Lec.	Tu.	Pr.
SHPHS/ 601/C-13	Electromagnetic Theory (T13)	4	10	25	50	4		4
	Electromagnetic Theory Lab (P13)	2		15				
SHPHS/ 602/C-14	Statistical Mechanics (T14)	4	10	25	50	4		4
	Statistical Mechanics Lab (P14)	2		15				
SHPHS/ 603/DSE-3	Physics of Earth (DSE T5) Or Biological Physics (DSE T6) Or Dissertation (DSE D1)	6	10	40	50	5	1	
SHPHS/ 604/DSE-4	Nano Materials and Applications (DSE T7) & (DSE P7) Or Communication Electronics (DSE T8) & (DSE P8) Or Nonlinear Dynamics (DSE T9) & (DSE P9)	4+2	10	25 15	50	4		4
<b>Total in Semester – VI</b>		<b>24</b>	<b>40</b>	<b>160</b>	<b>200</b>	<b>18</b>		<b>12</b>

SH= Science Honours, PHS = Physics, ACSHP= Arts Commerce Science Honours Pass, C= Core Course, AECC= Ability Enhancement Compulsory Course, SEC= Skill Enhancement Course, GE= Generic Elective, DSE= Discipline Specific Elective, IA= Internal Assessment, ESE= End-Semester Examination, Lec.=Lecture, Tu.= Tutorial, and Pr.=Practical