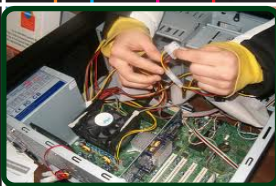
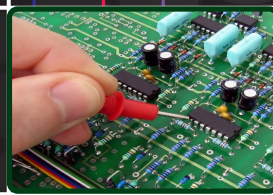


SANGAI INTERNATIONAL UNIVERSITY



Syllabus B. Sc. Honours With Physics

Syllabus B. Sc. Honours With Physics



CHOICE BASED CREDIT SYSTEM

B. SC. HONOURS WITH PHYSICS

Course Structure (Physics-Major)

Details of courses under B.Sc. (Honors)

Course	*Credits	
	Theory+ Practical	Theory + Tutorial
I. Core Course		
(14 Papers)	14X4= 56	14X5=70
Core Course Practical / Tutorial*		
(14 Papers)	14X2=28	14X1=14
II. Elective Course		
(8 Papers)		
A.1. Discipline Specific Elective	4X4=16	4X5=20
(4 Papers)		
A.2. Discipline Specific Elective		
Practical/Tutorial*	4 X 2=8	4X1=4
(4 Papers)		
B.1. Generic Elective/		
Interdisciplinary	4X4=16	4X5=20
(4 Papers)		
B.2. Generic Elective		
Practical/ Tutorial*	4 X 2=8	4X1=4
(4 Papers)		
• Optional Dissertation or project work in place of one Discipline Specific Elective paper (6 credits) in 6th Semester		
III. Ability Enhancement Courses		
1. Ability Enhancement Compulsory		
(2 Papers of 2 credit each)	2 X 2=4	2 X 2=4
Environmental Science		
English/MIL Communication		
2. Ability Enhancement Elective (Skill Based)		
(Minimum 2)	2 X 2=4	2 X 2=4
(2 Papers of 2 credit each)		
Total credit	140	140

Institute should evolve a system/policy about ECA/ General Interest/Hobby/Sports/NCC/NSS/related courses on its own.

* wherever there is a practical there will be no tutorial and vice-versa

PROPOSED SCHEME FOR CHOICE BASED CREDIT SYSTEM IN

B. Sc. Honours (Physics)

	CORE COURSE (14)	Ability Enhancement Compulsory Course (AECC) (2)	Ability Enhancement Elective Course (AECC) (2) (Skill Based)	Elective: Discipline Specific DSE (4)	Elective: Generic (GE) (4)
I	Mathematical Physics-I (4+4)	(English/MIL Communication) /Environmental Science			GE-1
	Mechanics (4 + 4)				
II	Electricity& Magnetism (4+4)	Environmental Science/ (English/MIL Communication)			GE-2
	Waves and Optics (4 + 4)				
III	Mathematical Physics–II (4 + 4)		AECC -1		GE-3
	Thermal Physics (4 + 4)				
	Digital Systems and Applications (4 + 4)				
IV	Mathematical Physics–III (4+4)		AECC -2		GE-4
	Elements of Modern Physics (4+4)				
	Analog Systems & Applications (4+4)				
V	Quantum Mechanics and Applications (4+ 4)			DSE-1	
	Solid State Physics (4 + 4)			DSE -2	
VI	Electromagnetic Theory (4+4)			DSE -3	
	Statistical Mechanics (4 + 4)			DSE -4	

SEMESTER	COURSE OPTED	COURSE NAME	Credits
I	Ability Enhancement Compulsory Course-I	English/MIL communications/ Environmental Science	2
	Core course-I	Mathematical Physics-I	4
	Core Course-I Practical/Tutorial	Mathematical Physics-I Lab	2
	Core course-II	Mechanics	4
	Core Course-II Practical/Tutorial	Mechanics Lab	2
	Generic Elective -1	GE-1	4/5
	Generic Elective -1 Practical/Tutorial		2/1
II	Ability Enhancement Compulsory Course-II	English/MIL communications/ 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	GE-2	4/5
	Generic Elective -2 Practical/Tutorial		2/1
III	Core course-V	Mathematical Physics-II	4
	Core Course-V Practical/Tutorial	Mathematical Physics-II Lab	2
	Core course-VI	Thermal Physics	4
	Core Course-VI Practical/Tutorial	Thermal Physics Lab	2
	Core course-VII	Digital Systems and Applications	4
	Core Course-VII Practical/Tutorial	Digital Systems & Applications Lab	2
	Skill Enhancement Course -1	SEC-1	2
	Generic Elective -3	GE-3	4/5
	Generic Elective -3 Practical/Tutorial		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
	Course- X Practical/Tutorial	Analog Systems & Applications Lab	2
	Skill Enhancement Course -2	SEC -2	2
	Generic Elective -4	GE-4	4/5
	Generic Elective -4 Practical		2/1
V	Core course-XI	Quantum Mechanics & Applications	4
	Core Course-XI Practical/Tutorial	Quantum Mechanics Lab	2
	Core course-XII	Solid State Physics	4
	Core Course-XII Practical/Tutorial	Solid State Physics Lab	2
	Discipline Specific Elective -1	DSE-1	4
	Discipline Specific Elective -1 Practical/Tutorial	DSE-1 Lab	2
	Discipline Specific Elective -2	DSE-2	4

	Discipline Specific Elective- 2 Practical/Tutorial	DSE-2 Lab	2
VI	Core course-XIII	Electro-magnetic Theory	4
	Core Course-XIII Practical/Tutorial	Electro-magnetic Theory Lab	2
	Core course-XIV	Statistical Mechanics	4
	Core Course-XIV Practical/Tutorial	Statistical Mechanics Lab	2
	Discipline Specific Elective -3	DSE-3	4
	Discipline Specific Elective -3 Practical/Tutorial	DSE-3 Lab	2
	Discipline Specific Elective-4	DSE-4	4
	Discipline Specific Elective -4 Practical/Tutorial	DSE-4 Lab	2
Total Credits			140

Core Papers (C): (Credit: 06 each) (1 period/week for tutorials or 4 periods/week for practical)

1. Mathematical Physics-I (4 + 4)
2. Mechanics (4 + 4)
3. Electricity and Magnetism (4 + 4)
4. Waves and Optics (4 + 4)
5. Mathematical Physics–II (4 + 4)
6. Thermal Physics (4 + 4)
7. Digital Systems and Applications (4 + 4)
8. Mathematical Physics III (4 + 4)
9. Elements of Modern Physics (4 + 4)
10. Analog Systems and Applications (4 + 4)
11. Quantum Mechanics and Applications (4 + 4)
12. Solid State Physics (4 + 4)
13. Electromagnetic Theory (4 + 4)
14. Statistical Mechanics (4 + 4)

Discipline Specific Elective Papers: (Credit: 06 each) (4 papers to be selected)- DSE 1-4

1. Experimental Techniques (4) + Lab (4)
2. Embedded systems- Introduction to Microcontroller (4) + Lab (4)
3. Physics of Devices and Communication (4) + Lab (4)
4. Advanced Mathematical Physics-I (4) + Lab (4)
5. Advanced Mathematical Physics-II (5) + (1)
6. Classical Dynamics (5) + Tutorials (1)
7. Applied Dynamics (4) + Lab (4)
8. Communication System (4) + Lab (4)
9. Nuclear and Particle Physics (5) + Tutorials (1)
10. Astronomy and Astrophysics (5) + Tutorials (1)
11. Atmospheric Physics (4) + Lab (4)
12. Nano Materials and Applications (4) + Lab (4)
13. Physics of the Earth (5) + Tutorials (1)
14. Digital Signal Processing (4) + (4)
15. Medical Physics (4) + Lab (4)
16. Biological Physics (5) + Tutorials (1)
17. Dissertation

Note: Universities may include more options or delete some from this list

Other Discipline (Four papers of any one discipline)- GE 1 to GE 4

1. Mathematics (5) + Tut (1)
 2. Chemistry (4) + Lab (4)
 3. Economics (5) + Tut (1)
 4. Computer Science (4) + Lab (4)
- Any other discipline of importance

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

Note: Universities may include more options or delete some from this list

Generic Elective Papers (GE) (Minor-Physics) (any four) for other Departments/Disciplines: (Credit: 06 each)

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

Note: Universities may include more options or delete some from this list

Important:

1. Each University/Institute should provide a brief write-up about each paper outlining the salient features, utility, learning objectives and prerequisites.
2. University/Institute can add/delete some experiments of similar nature in the Laboratory papers.
3. The size of the practical group for practical papers is recommended to be 12-15 students.
4. University/Institute can add to the list of reference books given at the end of each paper.