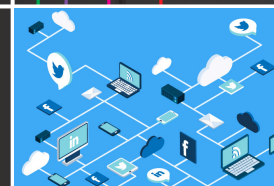
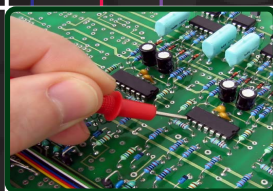


SANGAI INTERNATIONAL UNIVERSITY



Syllabus B.sc.- Physical- Science- Physics, - Chemistry, - Mathematics

Syllabus B.sc.- Physical- Science- Physics, - Chemistry, - Mathematics



CHOICE BASED CREDIT SYSTEM

**B. SC. PHYSICAL SCIENCE
(PHYSICS, CHEMISTRY,
MATHEMATICS)**

Details of Courses Under Undergraduate Program (B.Sc.)

Course	*Credits	
	Theory+ Practical	Theory+Tutorials
<u>I. Core Course</u>	12X4= 48	12X5=60
(12 Papers)		
04 Courses from each of the		
03 disciplines of choice		
Core Course Practical / Tutorial*	12X2=24	12X1=12
(12 Practical/ Tutorials*)		
04 Courses from each of the		
03 Disciplines of choice		
<u>II. Elective Course</u>	6x4=24	6X5=30
(6 Papers)		
Two papers from each discipline of choice		
including paper of interdisciplinary nature.		
Elective Course Practical / Tutorials*	6 X 2=12	6X1=6
(6 Practical / Tutorials*)		
Two Papers from each discipline of choice		
including paper of interdisciplinary nature		
• Optional Dissertation or project work in place of one Discipline elective paper (6 credits) in 6th Semester		

III. Ability Enhancement Courses

1. Ability Enhancement Compulsory 2 X 2=4 2X2=4

(2 Papers of 2 credits each)

Environmental Science

English/MIL Communication

2. Skill Enhancement Course 4 X 2=8 4 X 2=8

(Skill Based)

(4 Papers of 2 credits each)

Total credit= 120

Total credit= 120

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

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

Proposed scheme for choice based credit system in B. Sc. Physical Science

	CORE COURSE (12)	Ability Enhancement Compulsory Course (AECC) (2)	Skill Enhancement Course (SEC) (2)	Discipline Specific Elective DSE (6)
I	Mechanics Atomic Structure, Bonding, General Organic Chemistry & Aliphatic Hydrocarbons Differential Calculus	(English/MIL Communication)/ Environmental Science		
II	Electricity, Magnetism and EMT Chemical Energetics, Equilibria & Functional Group Organic Chemistry-I	Environmental Science (English/MIL Communication)		
	Differential Equations			
III	Thermal Physics and Statistical		SEC-1	

	Mechanics			
	Solutions, Phase equilibrium, Conductance, Electrochemistry & Functional Group Organic Chemistry-II			
	Real Analysis			
IV	Waves and Optics		SEC -2	
	Transition Metal & Coordination Chemistry, States of Matter & Chemical Kinetics			
	Algebra			
V			SEC -3	DSE-1 A
				DSE-2 A
				DSE-3 A
VI			SEC -4	DSE-1 B
				DSE-2 B
				DSE-3 B

SEMESTER	COURSE OPTED	COURSE NAME	Credits
I	Ability Enhancement Compulsory Course-I	English/MIL communications/ Environmental Science	2
	Core course-I	Mechanics	4
	Core Course-I Practical/Tutorial	Mechanics Lab	2
	Core course-II	Atomic Structure, Bonding, General Organic Chemistry & Aliphatic Hydrocarbons	4
	Core Course-II Practical/Tutorial	Atomic Structure, Bonding, General Organic Chemistry & Aliphatic Hydrocarbons Lab	2
	Core Course-III	Differential Calculus	6
II	Ability Enhancement Compulsory Course-II	English/MIL communications/ Environmental Science	2
	Core course-IV	Electricity, Magnetism and EMT	4
	Core Course-IV Practical/Tutorial	Electricity, Magnetism and EMT Lab	2
	Core course-V	Chemical Energetics, Equilibria & Functional Group Organic Chemistry-I	4
	Core Course-V Practical/Tutorial	Chemical Energetics, Equilibria & Functional Group Organic Chemistry-I Lab	2
	Core Course-VI	Differential Equations	6
III	Core course-VII	Thermal Physics and Statistical Mechanics	4
	Core Course-VII Practical/Tutorial	Thermal Physics and Statistical Mechanics Lab	2
	Core course-VIII	Solutions, Phase Equilibria, Conductance, Electrochemistry & Functional Group Organic Chemistry-II	4
	Core Course-VIII Practical/Tutorial	Solutions, Phase Equilibria, Conductance, Electrochemistry & Functional Group Organic Chemistry-II Lab.	2
	Core Course-IX	Real Analysis	6
	Skill Enhancement Course -1	SEC-1	2
IV	Core course-X	Waves and Optics	4
	Course-X Practical/Tutorial	Waves and Optics Lab	2
	Core course-XI	Transition Metal & Coordination Chemistry, States of matter & Chemical kinetics	4

	Course-XI Practical/Tutorial	Transition Metal & Coordination Chemistry, States of matter & Chemical kinetics Lab	2
	Core course-XII	Algebra	6
	Skill Enhancement Course -2	SEC -2	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			120

B.Sc. Physical Science

PHYSICS

Core papers Physics (Credit: 06 each) (CP 1-4):

1. Mechanics (4) + Lab (4)
2. Electricity and Magnetism (4) + Lab (4)
3. Thermal Physics and Statistical Mechanics (4) + Lab (4)
4. Waves and Optics (4) + Lab (4)

Discipline Specific Elective papers (Credit: 06 each) (DSE 1, DSE 2): Choose 2

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

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

Skill Enhancement Course (any four) (Credit: 02 each)- SEC 1 to SEC 4

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. Radiology and Safety
8. Applied Optics
9. Weather Forecasting

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.