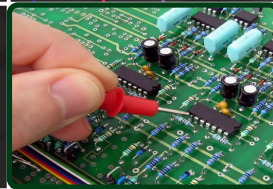


SANGAI INTERNATIONAL UNIVERSITY



Syllabus B. Sc. (HONOURS) Instrumentation

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CHOICE BASED CREDIT SYSTEM

B. Sc. (HONOURS) Instrumentation

Syllabus and Scheme of Examination

for

B.Sc. (Honours) Instrumentation

Submitted

to

***University Grants Commission
New Delhi***

under

Choice Based Credit System

June 2015

Course Structure

Details of course under B.Sc. (Honours)

Course	*Credits	
	Theory+ Practical	Theory + Tutorial
<u>I. Core Course</u>		
(14 Papers)	14X4= 56	
Core Course Practical / Tutorial*		
(14 Papers)	14X2=28	
<u>II. Elective Course</u>		
(8 Papers)		
A.1. Discipline Specific Elective	4X4=16	
(4 Papers)		
A.2. Discipline Specific Elective		
Practical/ Tutorial*	4 X 2=8	
(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		
<u>III. Ability Enhancement Courses</u>		
1. Ability Enhancement Compulsory Courses (AECC)		
(2 Papers of 2 credit each)	2 X 2=4	2 X 2=4
Environmental Science		
English/MIL Communication		
2. Skill Enhancement Courses (SEC)		
(Minimum 2)	2 X 2=4	2 X 2=4
(2 Papers of 2 credit each)		
Total credit	140	140

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

Policy about ECA/ General Interest/Hobby/Sports/NCC/NSS/related courses as per University of Delhi rules and norms

Scheme for Choice Based Credit System in B.Sc.(Honours) Instrumentation

	CORE COURSE (14)	Ability Enhancement Compulsory Course (AECC) (2)	Skill Enhancement Course (SEC) (2)	Elective: Discipline Specific DSE (4)	Elective: Generic (GE) (4)
I	Basic Circuit Theory and Network Analysis	(English/ MIL Communication)/ Environmental Science			GE-1
	Applied Physics				
II	Analog Devices and Circuits	Environmental Science/(English/ MIL Communication)			GE-2
	Transducers and Sensors				
III	Biomedical Instrumentation		SEC -1		GE-3
	Digital Electronics and VHDL				
	Engineering Mathematics				
IV	Operational Amplifiers and Applications		SEC -2		GE-4
	Analytical Instrumentation				
	Electronic Instrumentation				
V	Measurement Technology			DSE-1	
	Microprocessor			DSE -2	
VI	Power Electronics			DSE -3	
	Control Systems			DSE -4	

SEMESTER-WISE SCHEDULE FOR B.Sc. (HONOURS) INSTRUMENTATION

Semester	Course Opted	Course Name	Credits
I	Ability Enhancement Compulsory Course-I	English/MIL communications/ Environmental Science	2
	Core course-I	Basic Circuit Theory and Network Analysis	4
	Core Course-I Practical/Tutorial	Basic Circuit Theory and Network Analysis Lab	2
	Core course-II	Applied Physics	4
	Core Course-II Practical/Tutorial	Applied Physics 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	Analog Devices	4
	Core Course-III Practical/Tutorial	Analog Devices Lab	2
	Core course-IV	Transducers and Sensors	4
	Core Course-IV Practical/Tutorial	Transducers and Sensors Lab	2
	Generic Elective -2	GE-2	4/5
	Generic Elective -2 Practical/Tutorial		2/1
III	Core course-V	Biomedical Instrumentation	4
	Core Course-V Practical/Tutorial	Biomedical Instrumentation Lab	2
	Core course-VI	Digital Electronics and Verilog	4
	Core Course-VI Practical/Tutorial	Digital Electronics and Verilog Lab	2
	Core course-VII	Engineering Mathematics	4
	Core Course-VII Practical/Tutorial	Engineering Mathematics 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	Operational Amplifiers and Applications	4
	Core Course-VIII Practical/Tutorial	Operational Amplifiers and Applications Lab	2
	Core course-IX	Analytical Instrumentation	4
	Core Course-IX Practical/Tutorial	Analytical Instrumentation Lab	2
	Core course-X	Electronic Instrumentation	4
	Core Course-X Practical/Tutorial	Electronic Instrumentation Lab	2
	Skill Enhancement Course-2	SEC-2	2
	Generic Elective -4	GE-4	4/5
	Generic Elective -4 Practical/Tutorial		2/1

V	Core course-XI	Measurement Technology	4
	Core Course-XI Practical/Tutorial	Measurement Technology Lab	2
	Core course-XII	Microprocessor	4
	Core Course-XII Practical/Tutorial	Microprocessor 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	Power Electronics	4
	Core Course-XIII Practical/Tutorial	Power Electronics Lab	2
	Core course-XIV	Control Systems	4
	Core Course-XIV Practical/Tutorial	Control Systems 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 COURSE(C): (Credit: 06 each) (1 period/week for tutorials or 4 periods/week for practical)

1. Basic Circuit Theory and Network Analysis (4+4)
2. Applied Physics (4+4)
3. Analog Devices and Circuits (4+4)
4. Transducers and Sensors (4+4)
5. Biomedical Instrumentation (4+4)
6. Digital Electronics and Verilog (4+4)
7. Engineering Mathematics (4+4)
8. Operational Amplifiers and Applications (4+4)
9. Analytical Instrumentation (4+4)
10. Electronic Instrumentation (4+4)
11. Measurement Technology (4+4)
12. Microprocessors (4+4)
13. Power Electronics (4+4)
14. Control Systems (4+4)

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

1. Concepts of Chemistry (4+4)
2. Signal and Systems (4+4)
3. Advanced Analytical Instrumentation (4+4)
4. Communication System (4+4)
5. Advanced Biomedical Instrumentation (4+4)
6. Embedded System and Robotics (4+4)

7. Process Control Dynamics (4+4)
8. Reliability and Quality Control Techniques (4+4)
9. Dissertation (4+4)

Skill Enhancement Course (SEC) (02 papers) (Credit: 02 each) - SEC1 to SEC2

1. Programming in C (4)
2. VLSI Design and Verification (4)
3. Testing and Calibration (4)
4. PLC and SCADA (4)
5. Virtual Instrumentation (4)
6. Programming using MATLAB (4)

Other Discipline - GE 1 to GE 4

1. Mathematics
2. Computer Science
3. Physics
4. Biomedical Science
5. Chemistry
6. Electronics
7. Commerce

Any other discipline of Choice

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

1. Sensors and Actuators (4+4)
2. Electro-Mechanical Instruments(4+4)
3. Instrumentation & Control (4+4)
4. Analytical Instrumentation (4+4)
5. Nuclear & Biomedical Instrumentation (4+4)
6. Machine Intelligence (4+4)

Important:

1. The size of the practical group for practical papers is recommended to be 12-15 students.