GUJARAT TECHNOLOGICAL UNIVERSITY

Teaching Scheme of Bachelor of Engineering Semester VII (W.E.F.: 2017-2018)

Aeronautical Engineering (01)

Semester VII

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Tutorial/ Practical		Total Marks	Branch Code
		Theory	Tutorial	Practical		ESE(E)	PA (M)	Viva (V)	PA(I)		
2170001	Project - I	0	0	4	4	0	0	80	20	100	1
2170101	Aircraft Design I	4	0	2	6	70	30	30	20	150	1
2170102	Theory of Heat Transfer	4	0	2	6	70	30	30	20	150	1
2170107	Mechanics of Composite Materials	3	0	0	3	70	30	0	0	100	1
2170104	Rocket & Missile Technology	4	0	0	4	70	30	0	0	100	1
	Department Elective - II	4	0	2	6	70	30	30	20	150	1
	Total	19	0	10	29						

Departmental Elective II	
2170105	Advance Avionics
2170106	Boundary Layer Theory

Automobile Engineering (02)

Semester VII

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Tutorial/ Practical		Total Marks	Branch Code
		Theory	Tutorial	Practical		ESE(E)	PA (M)	Viva (V)	PA(I)		
2170001	Project - I	0	0	4	4	0	0	80	20	100	2
2170202	Automobile Component Design	4	0	2	6	70	30	30	20	150	2
2170203	Vehicle Dynamics	3	0	2	5	70	30	30	20	150	2
2170204	Vehicle Testing &Homologation	4	0	2	6	70	30	30	20	150	2
2170205	Transport Management & Laws	4	0	0	4	70	30	0	0	100	2
	Department Elective - I	3	0	2	5	70	30	30	20	150	2
	TOTAL	18	0	12	30						

Department Elective I	
2170206	Vehicle Maintenance & Garage Practice
2170207	Two and Three Wheeler Technology
2171912	Oil Hydraulics & Pneumatics

Bio-Medical(03)

Semester VII

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Tutorial/ Practical		Total Marks	Branch Code
		Theory	Tutorial	Practical		ESE(E)	PA (M)	Viva (V)	PA(I)		
2170004	Project - I	0	0	8	8	0	0	80	20	100	3
2170303	Medical Imaging techniques	4	2	0	6	70	30	30	20	150	3
2170308	Biomedical Image Processing	4	0	2	6	70	30	30	20	150	3
	Department Elective - I	3	0	2	5	70	30	30	20	150	3
	Department Elective - II	3	0	2	5	70	30	30	20	150	3
	Total	14	2	14	30						

Department Elective I	
2170309	Introduction to JAVA & Visual C++
2170310	Introduction to Virtual Biomedical Instrumentation
Department Elective II	
2170311	Biomedical Microsystems
2170312	Medical Optics

Bio-Technology(04)

Semester VII

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Tutorial/ Practical		Total Marks	Branch Code
		Theory	Tutorial	Practical		ESE(E)	PA (M)	Viva (V)	PA(I)		
2170003	Project - I	0	0	6	6	0	0	80	20	100	4
2170401	Enzymes and Proteins	4	0	3	7	70	30	30	20	150	4
2170403	Bioprocess Plant Design	3	2	0	5	70	30	30	20	150	4
2170407	Biochemical Engineering-I	4	0	0	4	70	30	0	0	100	4
2170408	Biosafety, Patents and IPR	2	0	0	2	70	30	0	0	100	4
	Department Elective - II	4	0	2	6	70	30	30	20	150	4
	Total	17	2	11	30						

Departmental Elective II	
2170409	Environmental Biotechnology
2170410	Biotechnology for Waste and Wastewater Treatment

Chemical Engineering (05)

Semester VII

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Tutorial/ Practical		Total Marks	Branch Code
		Theory	Tutorial	Practical		ESE(E)	PA (M)	Viva (V)	PA(I)		
2170001	Project - I	0	0	4	4	0	0	80	20	100	5
2170501	Chemical Reaction Engineering - II	3	0	3	6	70	30	30	20	150	5
2170502	Process Equipment Design -II	3	0	3	6	70	30	30	20	150	5
2170503	Plant Design & Project Engineering	3	0	0	3	70	30	0	0	100	5
2170507	Computer Aided Process Synthesis	4	0	3	7	70	30	30	20	150	5
	Department Elective - II	3	0	0	3	70	30	0	0	100	5
	Total	16	0	13	29						

Departmental Elective II	
2170505	Energy Technology
2170508	Nano Technology

Civil Engineering (06)

Semester VII

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Tutorial/ Practical		Total Marks	Branch Code
		Theory	Tutorial	Practical		ESE(E)	PA (M)	Viva (V)	PA(I)		
2170003	Project - I	0	0	6	6	0	0	80	20	100	6
2170607	Design of Reinforced Concrete Structures	4	2	0	6	70	30	30	20	150	6
2170609	Irrigation Engineering	3	2	0	5	70	30	30	20	150	6
2170610	Professional Practices & Valuation	3	2	0	5	70	30	30	20	150	6
	Departmental Elective - II	3	1	0	4	70	30	30	20	150	6
	Total	13	7	6	26						

Departmental Elective II	
2170606	Application of Geoinformatics in Civil Engineering
2170611	Infrastructure Engineering And Management
2170612	Earthquake Engineering
2170613	Traffic Engineering

Computer Engineering (07), Computer Science & Engineering (31)

Semester VII

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Tutorial/ Practical		Total Marks	Branch Code
		Theory	Tutorial	Practical		ESE(E)	PA (M)	Viva (V)	PA(I)		
2170002	Project - I	0	0	5	5	0	0	80	20	100	7,31
2170701	Complier Design	4	0	2	6	70	30	30	20	150	7,31
2170709	Information and Network Security	4	0	2	6	70	30	30	20	150	7,31
2170710	Mobile Computing and Wireless Communication	4	0	2	6	70	30	30	20	150	7,31
	Departmental Elective - II	3	0	2	5	70	30	30	20	150	7,31
	Total	15	0	13	28						

Departmental Elective II	
2170712	Image Processing
2170713	Service Oriented Computing
2170714	Distributed DBMS
2170715	Data Mining and Business Intelligence

Electrical & Electronics Engineering (08)

Semester VII

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Tutorial/ Practical		Total Marks	Branch Code
		Theory	Tutorial	Practical		ESE(E)	PA (M)	Viva (V)	PA(I)		
2170004	Project - I	0	0	8	8	0	0	80	20	100	8
2170808	Sensor Networks & Instrumentation	3	0	2	5	70	30	30	20	150	8
2170908	Switch Gear and Protection	4	0	2	6	70	30	30	20	150	8
2171003	Digital Signal Processing	4	0	2	6	70	30	30	20	150	8
	Departmental Elective - II	3	0	2	5	70	30	30	20	150	8
	Total	14	0	16	30						

Departmental Elective II	
2170906	Advanced Power Electronics
2170910	Power Quality and Management
2170911	Energy Conservation, and Audit

Electrical Engineering (09)

Semester VII

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Tutorial/ Practical		Total Marks	Branch Code
		Theory	Tutorial	Practical		ESE(E)	PA (M)	Viva (V)	PA(I)		
2170004	Project - I	0	0	8	8	0	0	80	20	100	9
2170901	Inter Connected Power System	3	0	2	5	70	30	30	20	150	9
2170908	Switch Gear and Protection	4	0	2	6	70	30	30	20	150	9
2170909	Design of AC Machines	3	0	2	5	70	30	30	20	150	9
	Departmental Elective - II	3	0	2	5	70	30	30	20	150	9
	Total	13	0	16	29						

Departmental Elective II	
2170906	Advanced Power Electronics
2170913	Industrial Instrumentation
2170914	Digital Signal Processing

Electronics Engineering (10)

Semester VII

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Tutorial/ Practical		Total Marks	Branch Code
		Theory	Tutorial	Practical		ESE(E)	PA (M)	Viva (V)	PA(I)		
2170001	Project - I	0	0	4	4	0	0	80	20	100	10
2171001	Microwave Engineering	4	0	2	6	70	30	30	20	150	10
2171003	Digital Signal Processing	4	0	2	6	70	30	30	20	150	10
2171004	Wireless Communication	4	0	2	6	70	30	30	20	150	10
2171005	Embedded Systems	3	0	2	5	70	30	30	20	150	10
	Departmental Elective - II	3	0	2	5	70	30	30	20	150	10
	Total	18	0	14	32						

Departmental Elective II	
2171102	Biomedical Instrumention
2171008	Data Communication and Networking
2171011	Radar & Navigational Aids

Electronics & Communication Engineering (11), Electronics & Telecommunication Engineering (12)

Semester VII

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Tutorial/ Practical		Total Marks	Branch Code
		Theory	Tutorial	Practical		ESE(E)	PA (M)	Viva (V)	PA(I)		
2170001	Project - I	0	0	4	4	0	0	80	20	100	11,12
2171001	Microwave Engineering	4	0	2	6	70	30	30	20	150	11,12
2171003	Digital Signal Processing	4	0	2	6	70	30	30	20	150	11,12
2171004	Wireless Communication	4	0	2	6	70	30	30	20	150	11,12
2171008	Data Communication and Networking	3	0	2	5	70	30	30	20	150	11,12
	Departmental Elective - II	3	0	2	5	70	30	30	20	150	11,12
	Total	18	0	14	32						

Departmental Elective II	
2171005	Embedded Systems
2171102	Biomedical Instrumentation
2171007	Satellite Communication
2171103	Industrial Automation

Environmental Engineering (13), Environmental Science & Engineering(37)

Semester VII

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Tutorial/ Practical		Total Marks	Branch Code
		Theory	Tutorial	Practical		ESE(E)	PA (M)	Viva (V)	PA(I)		
2170001	Project - I	0	0	4	4	0	0	80	20	100	13,37
2171302	Air Pollution Control and Management	4	2	0	6	70	30	30	20	150	13,37
2171303	Industrial Water Pollution & Control	4	2	0	6	70	30	30	20	150	13,37
2171306	Wastewater Engineering	4	4	0	8	70	30	30	20	150	13,37
	Departmental Elective - II	4	2	0	6	70	30	30	20	150	13,37
	Total	16	10	4	30						

Departmental Elective II	
2171304	Cleaner Production & Waste Utilization
2171305	Environmental Monitroing and Statistics

Food Processing & Technology (14)

Semester VII

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Tutorial/ Practical		Total Marks	Branch Code
		Theory	Tutorial	Practical		ESE(E)	PA (M)	Viva (V)	PA(I)		
2171401	Food Standards and Quality Assurance	4	0	2	6	70	30	30	20	150	14
2171402	Food Rheology & Sensory Evaluation	4	0	2	6	70	30	30	20	150	14
2171403	Milk & Milk Products Technology	4	0	2	6	70	30	30	20	150	14
	Departmental Elective - II	4	0	2	6	70	30	30	20	150	14
	Departmental Elective - III	4	0	2	6	70	30	30	20	150	14
	Total	20	0	10	30						
Departmental Elective II											
2171404	Food Packaging Technology										
2171405	Controlled and Modified Atmosphere Storage										
Departmental Elective III											
2171406	By-product Utilization and Management										
2171407	Horticultural Produce Processing										

Industrial Engineering (15)

Semester VII

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Tutorial/ Practical		Total Marks	Branch Code
		Theory	Tutorial	Practical		ESE(E)	PA (M)	Viva (V)	PA(I)		
2170001	Project - I	0	0	4	4	0	0	80	20	100	15
2171501	Operations Planning & Control	4	0	2	6	70	30	30	20	150	15
2171502	Work System Design	4	0	2	6	70	30	30	20	150	15
2171503	Resource Optimization Techniques	4	4	0	8	70	30	30	20	150	15
	Departmental Elective - II	4	0	2	6	70	30	30	20	150	15
	TOTAL	16	4	10	30						
Departmental Elective II											
2171504	Industrial Statistics & Quality Management										
2171505	Logistics & Supply chain Management										

Information Technology (16)

Semester VII

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Tutorial/ Practical		Total Marks	Branch Code
		Theory	Tutorial	Practical		ESE(E)	PA (M)	Viva (V)	PA(I)		
2170002	Project - I	0	0	5	5	0	0	80	20	100	16
2170709	Information and Network Security	4	0	2	6	70	30	30	20	150	16
2170710	Mobile Computing and Wireless Communication	4	0	2	6	70	30	30	20	150	16
2170715	Data Mining and Business Intelligence	3	0	2	5	70	30	30	20	150	16
	Departmental Elective - II	3	0	2	5	70	30	30	20	150	16
	Total	14	0	13	27						

Departmental Elective II	
2171607	Big Data Analytics
2170713	Service Oriented Computing
2170714	Distributed DBMS

Instrumentation & Control Engineering (17)

Semester VII

Subject code	Subject name	Teaching Scheme (Hours)			Credits	University Exam (E)		Tutorial/Practical		Total Marks	Branch Code
		Theory	Tutorial	Practical		ESE(E)	PA(M)	Viva(V)	PA(I)		
2170001	Project - I	0	0	4	4	0	0	80	20	100	17
2171707	Industrial Drives and Control	3	0	2	5	70	30	30	20	150	17
2171708	Digital Signal Processing	3	0	2	5	70	30	30	20	150	17
2171709	Distributed Control Systems and SCADA	3	0	2	5	70	30	30	20	150	17
2171710	Process Dynamics and Control	3	0	2	5	70	30	30	20	150	17
	Departmental Elective - II	4	0	2	6	70	30	30	20	150	17
	Total	**16**	**0**	**14**	30						

Departmental Elective II	
2171711	Embedded System Design
2171712	Image Processing
2171713	Building Automation

Mechanical Engineering (19)

Semester VII

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Tutorial/ Practical		Total Marks	Branch Code
		Theory	Tutorial	Practical		ESE(E)	PA (M)	Viva (V)	PA(I)		
2170001	Project - I	0	0	4	4	0	0	80	20	100	19
2171901	Operation Research	3	2	0	5	70	30	30	20	150	19
2171903	Computer Aided Manufacturing	3	0	2	5	70	30	30	20	150	19
2171909	Machine Design	3	2	0	5	70	30	30	20	150	19
2171910	Power Plant Engineering	4	0	2	6	70	30	30	20	150	19
	Department Elective - I	3	0	2	5	70	30	30	20	150	19
	Total	16	4	10	30						

Department Elective I	
2170203	Vehicle Dynamics
2171911	Advance Heat Transfer
2171912	Oil Hydraulics and Pneumatic
2171913	Metal Forming Analysis
2171914	Gas Dynamics
2171916	Applied Mechanics of Solids

Mechatronics Engineering (20)

Semester VII

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Tutorial/ Practical		Total Marks	Branch Code
		Theory	Tutorial	Practical		ESE(E)	PA (M)	Viva (V)	PA(I)		
2170001	Project - I	0	0	4	4	0	0	80	20	100	20
2172001	Microcontrollers and Embedded Systems	3	0	2	5	70	30	30	20	150	20
2172010	**Automated Manufacturing - I**	**3**	**0**	**2**	**5**	70	30	30	20	150	20
2172003	Manufacturing Technology - II	3	0	2	5	70	30	30	20	150	20
2172011	**Production Optimization Techniques**	**3**	**1**	**0**	**4**	70	30	30	20	150	20
	Departmental Elective - II	3	0	2	5	70	30	30	20	150	20
	Total	15	1	12	28						

Departmental Elective II	
2172007	Modern Control Systems
2172008	Finite Element Analysis of Mechatronic Systems
2172009	Soft Computing Applications

Metallurgy Engineering (21)

Semester VII

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Tutorial/ Practical		Total Marks	Branch Code
		Theory	Tutorial	Practical		ESE(E)	PA (M)	Viva (V)	PA(I)		
2170001	Project - I	0	0	4	4	0	0	80	20	100	21
2172102	Non Destructive Testing	4	0	2	6	70	30	30	20	150	21
2172108	Metal Working Processes	4	0	2	6	70	30	30	20	150	21
2172109	Materials Characterization	4	0	2	6	70	30	30	20	150	21
2172110	Seminar	0	0	2	2	0	0	80	20	100	21
	Department Elective - I	4	0	2	6	70	30	30	20	150	21
	Total	16	0	14	30						

Departmental Elective I	
2172107	Surface Coating Technology
2172111	Advances in Welding Metallurgy
2172112	Physical Metallurgy of Special Purpose Non-ferrous Metals and Alloys
2172113	Computer Programming and Numerical Methods

Mining Engineering (22)

Semester VII

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Tutorial/ Practical		Total Marks	Branch Code
		Theory	Tutorial	Practical		ESE(E)	PA (M)	Viva (V)	PA(I)		
2170001	Project - I	0	0	4	4	0	0	80	20	100	22
2172208	**Mine Plannning**	**3**	**0**	**0**	**3**	70	30	0	0	100	22
2172209	**Mine Legislation**	**3**	**0**	**0**	**3**	70	30	0	0	100	22
2172203	Environment Management In Mine	3	0	2	5	70	30	30	20	150	22
2172204	Mineral Processing	3	0	2	5	70	30	30	20	150	22
	Departmental Elective - II	4	0	2	6	70	30	30	20	150	22
	Total	16	0	10	26						

Departmental Elective II	
2172205	Rock Slope Engineering
2172206	Rock Engineering
2172207	Rock Fragmentation

Plastic Technology (23)

Semester VII

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Tutorial/ Practical		Total Marks	Branch Code
		Theory	Tutorial	Practical		ESE(E)	PA (M)	Viva (V)	PA(I)		
2170001	Project - I	0	0	4	4	0	0	80	20	100	23
2172302	Plastics Mold & Die Design	3	0	2	5	70	30	30	20	150	23
2172312	Additives and Compounding of Plastics	3	0	2	5	70	30	30	20	150	23
2172307	FRP Technology and composites	3	0	2	5	70	30	30	20	150	23
2172308	Speciality Plastics & applications	3	0	2	5	70	30	30	20	150	23
	Departmental Elective - II	**3**	**0**	**0**	**3**	70	30	0	0	100	23
	Total	15	0	12	27						
Departmental Elective II											
2172310	Adhesive & sealants										
2172311	Plastic Structure property relationship										

Power Electronics (24)

Semester VII

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Tutorial/ Practical		Total Marks	Branch Code
		Theory	Tutorial	Practical		ESE(E)	PA (M)	Viva (V)	PA(I)		
2170001	Project - I	0	0	4	4	0	0	80	20	100	24
2172402	Industrial Drives & Control-II	4	0	2	6	70	30	30	20	150	24
2172408	Advanced Power Electronics Devices & Interface Circuits	3	0	0	3	70	30	0	0	100	24
2172409	Digital Signal Processing for Power Electronics	3	0	2	5	70	30	30	20	150	24
2172410	Power Electronics Design	4	0	2	6	70	30	30	20	150	24
	Department Elective - II	4	0	2	6	70	30	30	20	150	24
	Total	18	0	12	30						
Departmental Elective II											
2172407	Embedded Systems for Power Electronics										
2172411	Industrial Automation										
2172412	Advanced Control Systems										

Production (25)

Semester VII

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Tutorial/ Practical		Total Marks	Branch Code
		Theory	Tutorial	Practical		ESE(E)	PA (M)	Viva (V)	PA(I)		
2170001	Project - I	0	0	4	4	0	0	80	20	100	25
2171901	Operation Research	3	2	0	5	70	30	30	20	150	25
2171903	Computer Aided Manufacturing	3	0	2	5	70	30	30	20	150	25
2172502	Productivity Improvement Methods	3	0	2	5	70	30	30	20	150	25
2172507	Quality Engineering & Management	3	2	0	5	70	30	30	20	150	25
	Department Elective - II	3	2	0	5	70	30	30	20	150	25
	Total	15	6	8	29						

Departmental Elective II	
2172505	Supply Chain Management
2172506	Flexible Manufacturing System
2172508	Management Information System

Rubber technology (26)

Semester VII

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Tutorial/ Practical		Total Marks	Branch Code
		Theory	Tutorial	Practical		ESE(E)	PA (M)	Viva (V)	PA(I)		
2170001	Project - I	0	0	4	4	0	0	80	20	100	26
2172601	Rubber Euipment Design-II	3	0	3	6	70	30	30	20	150	26
2172607	**Polymer Kinetics**	**3**	**0**	**2**	**5**	70	30	30	20	150	26
2172603	Rubber Plant & Process Engineering	3	0	0	3	70	30	0	0	100	26
2172604	Rubber Products Manufacturing	3	0	2	5	70	30	30	20	150	26
	Department Elective - II	**3**	**0**	**2**	**5**	70	30	30	20	150	26
	Total	15	0	13	28						

Departmental Elective II	
2172608	Rubber Adhesion & Adhesion Science
2172609	Rubber Recycling & Waste Management

Textile Processing (28)

Semester VII

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Tutorial/ Practical		Total Marks	Branch Code
		Theory	Tutorial	Practical		ESE(E)	PA (M)	Viva (V)	PA(I)		
2170001	Project - I	0	0	4	4	0	0	80	20	100	28
2172801	Technology of Printing - II	3	0	3	6	70	30	30	20	150	28
2172807	**Computer Aided Designing & Computer Color Matching**	**3**	**0**	**3**	**6**	70	30	30	20	150	28
2172803	Technology of Finishing - II	3	0	0	3	70	30	0	0	100	28
2172804	Garment Processing	3	0	2	5	70	30	30	20	150	28
	Departmental Elective - II	3	0	2	5	70	30	30	20	150	28
	Total	**15**	**0**	**14**	**29**						

Departmental Elective II	
2172805	Ecological Aspects in Textile Processing
2172806	Instrumental Analysis in Textile Processing

Textile Technology (29)

Semester VII

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Tutorial/ Practical		Total Marks	Branch Code
		Theory	Tutorial	Practical		ESE(E)	PA (M)	Viva (V)	PA(I)		
2170001	Project - I	0	0	4	4	0	0	80	20	100	29
2172902	Modern Weaving Technolgy	4	0	2	6	70	30	30	20	150	29
2172903	Production Planning & Maintenance	4	2	0	6	70	30	30	20	150	29
2172904	Yarn Structure & Fabric Geometry	4	0	0	4	70	30	0	0	100	29
2172910	**CAD IN Textiles**	**2**	**0**	**2**	**4**	70	30	30	20	150	29
	Departmental Elective - II	3	0	2	5	70	30	30	20	150	29
	Total	**17**	**2**	**12**	**29**						

Departmental Elective II	
2172909	Advance Physical Testing
2172906	Garment Technology

Information & Communication Technology (32)

Semester VII

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Tutorial/ Practical		Total Marks	Branch Code
		Theory	Tutorial	Practical		ESE(E)	PA (M)	Viva (V)	PA(I)		
2170002	Project - I	0	0	5	5	0	0	80	20	100	32
2170710	Mobile Computing and Wireless Communication	4	0	2	6	70	30	30	20	150	32
2173203	Microprocessor and Microcontroller	4	0	2	6	70	30	30	20	150	32
2173207	Satellite Communciation & Networking	4	0	2	6	70	30	30	20	150	32
	Departmental Elective - II	3	0	2	5	70	30	30	20	150	32
	Total	15	0	13	28						

Departmental Elective II	
2173208	Distributed Computing
2171003	Digital Signal Processing
2173210	Digital Image Processing

Manufacturing Engineering(34)

Semester VII

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Tutorial/ Practical		Total Marks	Branch Code
		Theory	Tutorial	Practical		ESE(E)	PA (M)	Viva (V)	PA(I)		
2170001	Project - I	0	0	4	4	0	0	80	20	100	34
2171901	Operation Research	3	2	0	5	70	30	30	20	150	34
2171903	Computer Aided Manufacturing	3	0	2	5	70	30	30	20	150	34
2173407	Quality & Reliability Engineering	3	2	0	5	70	30	30	20	150	34
2173408	Design of Machine Tools	3	2	0	5	70	30	30	20	150	34
	Department Elective - II	3	2	0	5	70	30	30	20	150	34
	Total	16	8	6	29						
	Department Elective II										
2173409	Plastic mold & Die design										
2173410	Factory Automation										
2172506	Flexible Manufacturing System										

Environmental Science and Technology (35)

Semester VII

	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Tutorial/ Practical		Total Marks	Branch Code
		Theory	Tutorial	Practical		ESE(E)	PA (M)	Viva (V)	PA(I)		
2170003	Project - I	0	0	6	6	0	0	80	20	100	35
2173507	Legislation in Environmental Protection	3	0	0	3	70	30	0	0	100	35
2173508	Safety Health & Environment	3	0	0	3	70	30	0	0	100	35
2173514	**Environmental Reaction Engineering**	**3**	**0**	**2**	**5**	70	30	30	20	150	35
	Department Elective - I	**3**	**0**	**3$**	**6**	70	30	30	20	150	35
	Department Elective - II	4	0	0	4	70	30	0	0	100	35
	Total	16	0	8	27						

$ Practical includes engineering drawing of various process equipment given in the syllabus

Departmental Elective I	
2173515	Design of Air Pollution Control System and Air Quality Modeling
2173516	Design of Soil Pollution Control System
Departmental Elective II	
2173512	Water resource management
2173513	Newer waste water treatment systems

Chemical Technology (36)

Semester VII

	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Tutorial/ Practical		Total Marks	Branch Code
		Theory	Tutorial	Practical		ESE(E)	PA (M)	Viva (V)	PA(I)		
2170001	Project - I	0	0	4	4	0	0	80	20	100	36
2173610	Chemical Process Economics	3	0	0	3	70	30	0	0	100	36
2173611	Project & Plant Engineering	3	0	0	3	70	30	0	0	100	36
2173612	Fundamentals of Reaction Engineering	3	0	3	6	70	30	30	20	150	36
	Department Elective - VII	4	0	3	7	70	30	30	20	150	36
	Department Elective - VIII	4	0	3	7	70	30	30	20	150	36
	Total	17	0	13	30						

DEPARTMENT ELECTIVE VII	
2173602	Process Technology of Drugs & Intermediates
2173603	Evaluation & Testing of Polymers & Rubber
2173604	Whitewares-I
2173613	Specialty Pigments & Recent development in Pigment Technology

DEPARTMENT ELECTIVE VIII	
2173606	Medicinal Chemistry-II & Technology of Sterile Products
2173607	Product Design Concept: Structures & Additives
2173614	Refractories-II
2173615	New Functional dyes & Recent Trends in Dyes Technology

Nano Technology (39)

Semester VII

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Tutorial/ Practical		Total Marks	Branch Code
		Theory	Tutorial	Practical		ESE(E)	PA (M)	Viva (V)	PA(I)		
2170004	Project - I	0	0	8	8	0	0	80	20	100	39
2173901	Application of CNT and Metallic Nanoparticles	4	0	0	4	70	30	0	0	100	39
2173902	Spintronics	3	0	0	3	70	30	0	0	100	39
2173903	Thin Film Technology	3	0	4	7	70	30	30	20	150	39
2173904	Photonics	3	0	0	3	70	30	0	0	100	39
	Departmental Elective - II	3	0	2	5	70	30	30	20	150	39
	Total	16	0	14	30						

Departmental Elective II	
2173905	Electrical and Optical properties of Nanomaterials