

# GUJARAT TECHNOLOGICAL UNIVERSITY

## Draft Teaching Scheme : B.E. Course : Semester VII (W.E.F.: 2016-2017)

### Aeronautical Engineering (01)

#### Semester VII

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Marks		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
<a href="#">2170101</a>	Aircraft Design I	4	0	2	6	70	30	30	20	150	1
<a href="#">2170102</a>	Theory of Heat Transfer	4	0	2	6	70	30	30	20	150	1
<a href="#">2170103</a>	Mechanics of Composite Materials	4	0	0	4	70	30	0	0	100	1
<a href="#">2170104</a>	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
	<b>Total</b>	20	0	10	30						

#### Departmental Elective II

<a href="#">2170105</a>	Advance Avionics
<a href="#">2170106</a>	Boundary Layer Theory

### Automobile Engineering (02)

#### Semester VII

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Marks		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
<a href="#">2170202</a>	Automobile Component Design	4	0	2	6	70	30	30	20	150	2
<a href="#">2170203</a>	Vehicle Dynamics	3	0	2	5	70	30	30	20	150	2
<a href="#">2170204</a>	Vehicle Testing & Homologation	4	0	2	6	70	30	30	20	150	2
<a href="#">2170205</a>	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
	<b>TOTAL</b>	18	0	12	30						

#### Department Elective I

<a href="#">2170206</a>	Vehicle Maintenance & Garage Practice
<a href="#">2170207</a>	Two and Three Wheeler Technology

[2171912](#) Oil Hydraulics & Pneumatics

**Bio-Medical(03)**

**Semester VII**

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Marks		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
<a href="#">2170303</a>	Medical Imaging techniques	4	2	0	6	70	30	30	20	150	3
<a href="#">2170308</a>	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
	<b>Total</b>	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		Marks		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
<a href="#">2170401</a>	Enzymes and Proteins	4	0	3	7	70	30	30	20	150	4
<a href="#">2170403</a>	Bioprocess Plant Design	3	2	0	5	70	30	30	20	150	4
<a href="#">2170407</a>	Biochemical Engineering-I	4	0	0	4	70	30	0	0	100	4
<a href="#">2170408</a>	Bioethics, 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
	<b>Total</b>	17	2	11	30						

**Departmental Elective II**

[2170409](#) Environmental Biotechnology

2170410	Biotechnology for Waste and Wastewater Treatment
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**Chemical Engineering (05)**

**Semester VII**

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Marks		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
<a href="#">2170501</a>	Chemical Reaction Engineering - II	3	0	3	6	70	30	30	20	150	5
<a href="#">2170502</a>	Process Equipment Design -II	3	0	3	6	70	30	30	20	150	5
<a href="#">2170503</a>	Plant Design & Project Engineering	3	0	0	3	70	30	0	0	100	5
<a href="#">2170507</a>	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
	<b>Total</b>	16	0	13	29						

**Departmental Elective II**

<a href="#">2170505</a>	Energy Technology
<a href="#">2170508</a>	Nano Technology

**Civil Engineering (06)**

**Semester VII**

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Marks		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
<a href="#">2170607</a>	Design of Reinforced Concrete Structures	4	2	0	6	70	30	30	20	150	6
<a href="#">2170609</a>	Irrigation Engineering	3	2	0	5	70	30	30	20	150	6
<a href="#">2170610</a>	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

	<b>Total</b>	13	7	6	26						
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<b>Departmental Elective II</b>	
<a href="#">2170606</a>	Application of Geoinformatics in Civil Engineering
<a href="#">2170611</a>	Infrastructure Engineering And Management
<a href="#">2170612</a>	Earthquake Engineering
<a href="#">2170613</a>	Traffic Engineering

<b>Computer Engineering (07), Computer Science &amp; Engineering (31)</b>
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**Semester VII**

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Marks		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
<a href="#">2170701</a>	Complier Design	4	0	2	6	70	30	30	20	150	7,31
<a href="#">2170709</a>	Information and Network Security	4	0	2	6	70	30	30	20	150	7,31
<a href="#">2170710</a>	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
	<b>Total</b>	15	0	13	28						

<b>Departmental Elective II</b>	
<a href="#">2170712</a>	Image Processing
<a href="#">2170713</a>	Service Oriented Computing
<a href="#">2170714</a>	Distributed DBMS
<a href="#">2170715</a>	Data Mining and Business Intelligence

<b>Electrical &amp; Electronics Engineering (08)</b>
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**Semester VII**

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Marks		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
<a href="#">2170808</a>	Sensor Networks & Instrumentation	3	0	2	5	70	30	30	20	150	8
<a href="#">2170908</a>	Switch Gear and Protection	4	0	2	6	70	30	30	20	150	8
<a href="#">2171003</a>	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
	<b>Total</b>	14	0	16	30						

<b>Departmental Elective II</b>	
<a href="#">2170906</a>	Advanced Power Electronics
<a href="#">2170910</a>	Power Quality and Management
<a href="#">2170911</a>	Energy Conservation, and Audit

**Electrical Engineering (09)**

**Semester VII**

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Marks		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
<a href="#">2170901</a>	Inter Connected Power System	3	0	2	5	70	30	30	20	150	9
<a href="#">2170908</a>	Switch Gear and Protection	4	0	2	6	70	30	30	20	150	9
<a href="#">2170909</a>	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
	<b>Total</b>	13	0	16	29						

**Departmental Elective II**

<a href="#">2170906</a>	Advanced Power Electronics
<a href="#">2170913</a>	Industrial Instrumentation
<a href="#">2170914</a>	Digital Signal Processing

**Electronics Engineering (10)**

**Semester VII**

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Marks		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
<a href="#">2171001</a>	Microwave Engineering	4	0	2	6	70	30	30	20	150	10
<a href="#">2171003</a>	Digital Signal Processing	4	0	2	6	70	30	30	20	150	10
<a href="#">2171004</a>	Wireless Communication	4	0	2	6	70	30	30	20	150	10
<a href="#">2171005</a>	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
	<b>Total</b>	18	0	14	32						

**Departmental Elective II**

<a href="#">2171102</a>	Biomedical Instrumentation
<a href="#">2171008</a>	Data Communication and Networking
<a href="#">2171011</a>	Radar & Navigational Aids

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

**Semester VII**

Subject	Subject name	Teaching Scheme (Hours)	Credits	Theory Marks	Marks		
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code	Subject name	Theory	Tutorial	Practical	Credits	ESE(E)	PA (M)	Viva (V)	PA(I)	Total Marks	Branch Code
2170001	Project - I	0	0	4	4	0	0	80	20	100	11,12
<a href="#">2171001</a>	Microwave Engineering	4	0	2	6	70	30	30	20	150	11,12
<a href="#">2171003</a>	Digital Signal Processing	4	0	2	6	70	30	30	20	150	11,12
<a href="#">2171004</a>	Wireless Communication	4	0	2	6	70	30	30	20	150	11,12
<a href="#">2171008</a>	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
	<b>Total</b>	18	0	14	32						
<b>Departmental Elective II</b>											
<a href="#">2171005</a>	Embedded Systems										
<a href="#">2171102</a>	Biomedical Instrumentation										
<a href="#">2171007</a>	Satellite Communication										
<a href="#">2171103</a>	Industrial Automation										

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

#### Semester VII

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Marks		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
<a href="#">2171302</a>	Air Pollution Control and Management	4	2	0	6	70	30	30	20	150	13,37
<a href="#">2171303</a>	Industrial Water Pollution & Control	4	2	0	6	70	30	30	20	150	13,37
<a href="#">2171306</a>	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
	<b>Total</b>	16	10	4	30						
<b>Departmental Elective II</b>											
<a href="#">2171304</a>	Cleaner Production & Waste Utilization										
<a href="#">2171305</a>	Environmental Monitoring and Statistics										

### Food Processing & Technology (14)

#### Semester VII

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

### Industrial Engineering (15)

#### Semester VII

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

### Information Technology (16)

#### Semester VII

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Marks		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
<a href="#">2170709</a>	Information and Network Security	4	0	2	6	70	30	30	20	150	16
<a href="#">2170710</a>	Mobile Computing and Wireless Communication	4	0	2	6	70	30	30	20	150	16
<a href="#">2170715</a>	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
	<b>Total</b>	<b>14</b>	<b>0</b>	<b>13</b>	<b>27</b>						
<b>Departmental Elective II</b>											
<a href="#">2171607</a>	Big Data Analytics										
<a href="#">2170713</a>	Service Oriented Computing										
<a href="#">2170714</a>	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
<a href="#">2171707</a>	Industrial Drives and Control	3	0	2	5	70	30	30	20	150	17
<a href="#">2171708</a>	Digital Signal Processing	3	0	2	5	70	30	30	20	150	17
<a href="#">2171709</a>	Distributed Control Systems and SCADA	3	0	2	5	70	30	30	20	150	17
<a href="#">2171710</a>	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
	<b>Total</b>	<b>16</b>	<b>0</b>	<b>14</b>	30						

**Departmental Elective II**

<a href="#">2171711</a>	Embedded System Design
<a href="#">2171712</a>	Image Processing
<a href="#">2171713</a>	Building Automation

**Mechanical Engineering (19)**

**Semester VII**

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Marks		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
<a href="#">2171901</a>	Operation Research	3	2	0	5	70	30	30	20	150	19
<a href="#">2171903</a>	Computer Aided Manufacturing	3	0	2	5	70	30	30	20	150	19
<a href="#">2171909</a>	Machine Design	3	2	0	5	70	30	30	20	150	19
<a href="#">2171910</a>	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
	<b>Total</b>	<b>16</b>	<b>4</b>	<b>10</b>	30						



<b>Department Elective I</b>	
<a href="#">2170203</a>	Vehicle Dynamics
<a href="#">2171911</a>	Advance Heat Transfer
<a href="#">2171912</a>	Oil Hydraulics and Pneumatic
<a href="#">2171913</a>	Metal Forming Analysis
<a href="#">2171914</a>	Gas Dynamics
<a href="#">2171916</a>	Applied Mechanics of Solids

<b>For Equivalency</b>	
<a href="#">2171917</a>	Steam and Gas Turbines

3	0	0	3	70	30	0	0	100	19
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<b>Mechatronics Engineering (20)</b>
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**Semester VII**

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Marks		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
<a href="#">2172001</a>	Microcontrollers and Embedded Systems	3	0	2	5	70	30	30	20	150	20
<a href="#">2172002</a>	Automated Manufacturing - I	4	0	2	6	70	30	30	20	150	20
<a href="#">2172003</a>	Manufacturing Technology - II	3	0	2	5	70	30	30	20	150	20
<a href="#">2172004</a>	Production Optimization Techniques	3	2	0	5	70	30	30	20	150	20
	Departmental Elective - II	3	0	2	5	70	30	30	20	150	20
	<b>Total</b>	16	2	12	30						

**Departmental Elective II**

<a href="#">2172007</a>	Modern Control Systems
<a href="#">2172008</a>	Finite Element Analysis of Mechatronic Systems
<a href="#">2172009</a>	Soft Computing Applications

<b>Metallurgy Engineering (21)</b>
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**Semester VII**

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Marks		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
<a href="#">2172102</a>	Non Destructive Testing	4	0	2	6	70	30	30	20	150	21
<a href="#">2172108</a>	Metal Working Processes	4	0	2	6	70	30	30	20	150	21
<a href="#">2172109</a>	Materials Characterization	4	0	2	6	70	30	30	20	150	21
<a href="#">2172110</a>	Seminar	0	0	2	2	0	0	80	20	100	21
	Department Elective - I	4	0	2	6	70	30	30	20	150	21
	<b>Total</b>	16	0	14	30						

Departmental Elective I	
<a href="#">2172107</a>	Surface Coating Technology
<a href="#">2172111</a>	Advances in Welding Metallurgy
<a href="#">2172112</a>	Physical Metallurgy of Special Purpose Non-ferrous Metals and Alloys
<a href="#">2172113</a>	Computer Programming and Numerical Methods

### Mining Engineering (22)

#### Semester VII

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Marks		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
<a href="#">2172201</a>	Mine Planning	4	0	2	6	70	30	30	20	150	22
<a href="#">2172202</a>	Mine Legislation	4	0	0	4	70	30	0	0	100	22
<a href="#">2172203</a>	Environment Management In Mine	3	0	2	5	70	30	30	20	150	22
<a href="#">2172204</a>	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
	<b>Total</b>	18	0	12	30						

#### Departmental Elective II

<a href="#">2172205</a>	Rock Slope Engineering
<a href="#">2172206</a>	Rock Engineering
<a href="#">2172207</a>	Rock Fragmentation

### Plastic Technology (23)

#### Semester VII

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Marks		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
<a href="#">2172302</a>	Plastics Mold & Die Design	3	0	2	5	70	30	30	20	150	23
<a href="#">2172303</a>	Additive and Compounding of Plastics	3	0	2	5	70	30	30	20	150	23
<a href="#">2172307</a>	FRP Technology and composites	3	0	2	5	70	30	30	20	150	23
<a href="#">2172308</a>	Speciality Plastics & applications	3	0	2	5	70	30	30	20	150	23
	Departmental Elective - II	3	0	3	6	70	30	30	20	150	23
	<b>Total</b>	15	0	15	30						

#### Departmental Elective II

<a href="#">2172306</a>	Adhesive & sealants
<a href="#">2172309</a>	Plastic Structure property relationship

### Power Electronics (24)

#### Semester VII

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Marks		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
<a href="#">2172402</a>	Industrial Drives & Control-II	4	0	2	6	70	30	30	20	150	24
<a href="#">2172408</a>	Advanced Power Electronics Devices & Interface Circuits	3	0	0	3	70	30	0	0	100	24

<a href="#">2172409</a>	Digital Signal Processing for Power Electronics	3	0	2	5	70	30	30	20	150	24
<a href="#">2172410</a>	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
	<b>Total</b>	18	0	12	30						
<b>Departmental Elective II</b>											
<a href="#">2172407</a>	Embedded Systems for Power Electronics										
<a href="#">2172411</a>	Industrial Automation										
<a href="#">2172412</a>	Advanced Control Systems										

**Production (25)**

**Semester VII**

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Marks		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
<a href="#">2171901</a>	Operation Research	3	2	0	5	70	30	30	20	150	25
<a href="#">2171903</a>	Computer Aided Manufacturing	3	0	2	5	70	30	30	20	150	25
<a href="#">2172502</a>	Productivity Improvement Methods	3	0	2	5	70	30	30	20	150	25
<a href="#">2172507</a>	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
	<b>Total</b>	15	6	8	29						
<b>Departmental Elective II</b>											
<a href="#">2172505</a>	Supply Chain Management										
<a href="#">2172506</a>	Flexible Manufacturing System										
<a href="#">2172508</a>	Management Information System										

**Rubber technology (26)**

**Semester VII**

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Marks		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
<a href="#">2172601</a>	Rubber Equipment Design-II	3	0	3	6	70	30	30	20	150	26
<a href="#">2172602</a>	Polymer Kinetics	3	0	3	6	70	30	30	20	150	26
<a href="#">2172603</a>	Rubber Plant & Process Engineering	3	0	0	3	70	30	0	0	150	26
<a href="#">2172604</a>	Rubber Products Manufacturing	3	0	2	5	70	30	30	20	150	26
	Department Elective - II	3	0	3	6	70	30	30	20	150	26
	<b>Total</b>	15	0	15	30						
<b>Departmental Elective II</b>											
<a href="#">2172605</a>	Rubber Adhesion & Adhesion Science										
<a href="#">2172606</a>	Rubber Recycling & Waste Management										

**Textile Processing (28)**



**Manufacturing Engineering(34)**

**Semester VII**

Subject code	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Marks		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
<a href="#">2171901</a>	Operation Research	3	2	0	5	70	30	30	20	150	34
<a href="#">2171903</a>	Computer Aided Manufacturing	3	0	2	5	70	30	30	20	150	34
<a href="#">2173407</a>	Quality & Reliability Engineering	3	2	0	5	70	30	30	20	150	34
<a href="#">2173408</a>	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
	<b>Total</b>	16	8	6	29						
	<b>Department Elective II</b>										
<a href="#">2173409</a>	Plastic mold & Die design										
<a href="#">2173410</a>	Factory Automation										
<a href="#">2172506</a>	Flexible Manufacturing System										

**Environmental Science and Technology (35)**

**Semester VII**

	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Marks		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
<a href="#">2173507</a>	Legislation in Environmental Protection	3	0	0	3	70	30	0	0	100	35
<a href="#">2173508</a>	Safety Health & Environment	3	0	0	3	70	30	0	0	100	35
<a href="#">2173509</a>	Environmental Reaction Engineering	3	1	3	7	70	30	30	20	150	35
	Department Elective - I	3	1	3§	7	70	30	30	20	150	35
	Department Elective - II	4	0	0	4	70	30	0	0	100	35
	<b>Total</b>	16	2	12	30						

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

**Departmental Elective I**

<a href="#">2173510</a>	Design of Air Pollution Control System and Air Quality Modeling
<a href="#">2173511</a>	Design of Soil Pollution Control System
	<b>Departmental Elective II</b>
<a href="#">2173512</a>	Water resource management

<a href="#">2173513</a>	Newer waste water treatment systems
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**Chemical Technology (36)**

**Semester VII**

	Subject name	Teaching Scheme (Hours)			Credits	Theory Marks		Marks		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
<a href="#">2173610</a>	Chemical Process Economics	3	0	0	3	70	30	0	0	100	36
<a href="#">2173611</a>	Project & Plant Engineering	3	0	0	3	70	30	0	0	100	36
<a href="#">2173612</a>	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
	<b>Total</b>	17	0	13	30						

**DEPARTMENT ELECTIVE VII**

<a href="#">2173602</a>	Process Technology of Drugs & Intermediates
<a href="#">2173603</a>	Evaluation & Testing of Polymers & Rubber
<a href="#">2173604</a>	Whitewares-I
<a href="#">2173613</a>	Specialty Pigments & Recent development in Pigment Technology

**DEPARTMENT ELECTIVE VIII**

<a href="#">2173606</a>	Medicinal Chemistry-II & Technology of Sterile Products
<a href="#">2173607</a>	Product Design Concept: Structures & Additives
<a href="#">2173614</a>	Refractories-II
<a href="#">2173615</a>	New Functional dyes & Recent Trends in Dyes Technology

**Nano Technology (39)**

**Semester VII**

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

	<b>Total</b>	16	0	14	30						
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<b>Departmental Elective II</b>	
<a href="#">2173905</a>	Electrical and Optical properties of Nanomaterials