

# GUJARAT TECHNOLOGICAL UNIVERSITY

## Computer Engineering (Software Engineering) (02)

w.e.f Jan 2016

Semester IV						Theory Marks		Tutorial/ Practical Marks				Total Marks
Subject Code	Subject Name	Theory	Tutorial/ Presentation	Practical	Credits	ESE(E)	PA (M)	ESE (V)		PA(I)		
								ESE	OEP	PA	RP	
	Major Elective - V	3	2#	0	4	70	30	30	0	10	10	150
2740004	Seminar (Presentation + Attendance@ + Preparation of learning material*)#	0	4	0	2	0	0	0	0	100	0	100
2740001	External Mid Sem Review (Brief Lit. Rev, Problem Statement and Major Outcomes)	-	-	-	10	0	0	100	0	0	0	100
2740002	Dissertation Phase- II	0	0	24	12	0	0	100	0	0	0	100
	<b>Total Credits</b>				<b>28</b>							

### Major Elective V

<a href="#">2740202</a>	Distributed Database Application System
<a href="#">2740203</a>	Soft Computing
<a href="#">2740204</a>	Semantic Web

## Instrumentation and Control (Applied Instrumentation) (03)

w.e.f Jan 2016

Semester IV						Theory Marks		Tutorial/ Practical Marks				Total Marks
Subject Code	Subject Name	Theory	Tutorial/ Presentation	Practical	Credits	ESE(E)	PA (M)	ESE (V)		PA(I)		
								ESE	OEP	PA	RP	
	Major Elective - V	3	2#	0	4	70	30	30	0	10	10	150
2740004	Seminar (Presentation + Attendance@ + Preparation of learning material*)#	0	4	0	2	0	0	0	0	100	0	100
2740001	External Mid Sem Review (Brief Lit. Rev, Problem Statement and Major Outcomes)	-	-	-	10	0	0	100	0	0	0	100
2740002	Dissertation Phase- II	0	0	24	12	0	0	100	0	0	0	100
	<b>Total Credits</b>				<b>28</b>							

**Major Elective V**

<a href="#">2740302</a>	Industrial Data Networks
<a href="#">2740303</a>	Parallel and Distributed Computing
<a href="#">2740304</a>	Process control and Optimization
<a href="#">2740305</a>	Instrument Design Engineering

**Electronics & Communication (Communication Systems Engg) (05)**

w.e.f Jan 2016

Semester IV						Theory Marks		Tutorial/ Practical Marks				Total Marks
Subject Code	Subject Name	Theory	Tutorial/ Presentation	Practical	Credits	ESE(E)	PA (M)	ESE (V)		PA(I)		
								ESE	OEP	PA	RP	
	Major Elective - V	4	0	2#	5	70	30	20	10	10	10	150
2740004	Seminar (Presentation + Attendance@ + Preparation of learning material*)#	0	4	0	2	0	0	0	0	100	0	100
2740001	External Mid Sem Review (Brief Lit. Rev, Problem Statement and Major Outcomes)	-	-	-	10	0	0	100	0	0	0	100
2740002	Dissertation Phase- II	0	0	24	12	0	0	100	0	0	0	100
	<b>Total Credits</b>				<b>29</b>							

**Major Elective V**

<a href="#">2740501</a>	Video Processing
<a href="#">2740502</a>	Robotics and Intelligent Sytems
<a href="#">2740503</a>	Microwave Integrated Circuits

**Electrical Engineering (07)**

w.e.f Jan 2016

Semester IV						Theory Marks		Tutorial/ Practical Marks				Total Marks
Subject Code	Subject Name	Theory	Tutorial/ Presentation	Practical	Credits	ESE(E)	PA (M)	ESE (V)		PA(I)		
								ESE	OEP	PA	RP	
	Major Elective - V	3	2#	0	4	70	30	30	0	10	10	150
2740004	Seminar (Presentation + Attendance@ + Preparation of learning material*)#	0	4	0	2	0	0	0	0	100	0	100

2740001	External Mid Sem Review (Brief Lit. Rev, Problem Statement and Major Outcomes)	-	-	-	10	0	0	100	0	0	0	100
2740002	Dissertation Phase- II	0	0	24	12	0	0	100	0	0	0	100
	<b>Total Credits</b>				<b>28</b>							

<b>Major Elective V</b>		<b>Group</b>
<a href="#">2740702</a>	Power System Restructuring	Power System Group
<a href="#">2740703</a>	Smart Grid Technology and Applications	Power System Group, Automation and Control Group
<a href="#">2740704</a>	Power Quality	Power Electronics Group
<a href="#">2740705</a>	Power Electronics for Renewable Energy Systems	Power Electronics Group
<a href="#">2740706</a>	Robust & Optimal Control	Automation and Control Group

**Mechanical (CAD/CAM) (08)**

w.e.f Jan 2016

<b>Semester IV</b>						<b>Theory Marks</b>		<b>Tutorial/ Practical Marks</b>				<b>Total Marks</b>
<b>Subject Code</b>	<b>Subject Name</b>	<b>Theory</b>	<b>Tutorial/ Presentation</b>	<b>Practical</b>	<b>Credits</b>	<b>ESE(E)</b>	<b>PA (M)</b>	<b>ESE (V)</b>		<b>PA(I)</b>		
								<b>ESE</b>	<b>OEP</b>	<b>PA</b>	<b>RP</b>	
	Major Elective - V	3	0	2#	4	70	30	20	10	10	10	150
2740004	Seminar (Presentation + Attendance@ + Preparation of learning material*)#	0	4	0	2	0	0	0	0	100	0	100
2740001	External Mid Sem Review (Brief Lit. Rev, Problem Statement and Major Outcomes)	-	-	-	10	0	0	100	0	0	0	100
2740002	Dissertation Phase- II	0	0	24	12	0	0	100	0	0	0	100
	<b>Total Credits</b>				<b>28</b>							

<b>Major Elective V</b>	
<a href="#">2740801</a>	Rapid Prototyping and Tooling
<a href="#">2740802</a>	Micro and Nano Manufacturing
<a href="#">2740803</a>	Pressure Vessel and Piping system Design
<a href="#">2740804</a>	Quality Control and Reliability

**Mechanical (Machine Design) (09)**

w.e.f Jan 2016

Semester IV						Theory Marks		Tutorial/ Practical Marks				Total Marks
Subject Code	Subject Name	Theory	Tutorial/ Presentation	Practical	Credits	ESE(E)	PA (M)	ESE (V)		PA(I)		
								ESE	OEP	PA	RP	
	Major Elective - V	3	0	2#	4	70	30	20	10	10	10	150
2740004	Seminar (Presentation + Attendance@ + Preparation of learning material*)#	0	4	0	2	0	0	0	0	100	0	100
2740001	External Mid Sem Review (Brief Lit. Rev, Problem Statement and Major Outcomes)	-	-	-	10	0	0	100	0	0	0	100
2740002	Dissertation Phase- II	0	0	24	12	0	0	100	0	0	0	100
	<b>Total Credits</b>				<b>28</b>							

**Major Elective V**

<a href="#">2740801</a>	Rapid Prototyping and Tooling
<a href="#">2740803</a>	Pressure Vessel and Piping system Design
<a href="#">2740804</a>	Quality Control and Reliability

**Mechanical (Cryogenic Engineering) (10)**

w.e.f Jan 2016

Semester IV						Theory Marks		Tutorial/ Practical Marks				Total Marks
Subject Code	Subject Name	Theory	Tutorial/ Presentation	Practical	Credits	ESE(E)	PA (M)	ESE (V)		PA(I)		
								ESE	OEP	PA	RP	
	Major Elective - V	3	2#	0	4	70	30	30	0	10	10	150
2740004	Seminar (Presentation + Attendance@ + Preparation of learning material*)#	0	4	0	2	0	0	0	0	100	0	100
2740001	External Mid Sem Review (Brief Lit. Rev, Problem Statement and Major Outcomes)	-	-	-	10	0	0	100	0	0	0	100
2740002	Dissertation Phase- II	0	0	24	12	0	0	100	0	0	0	100
	<b>Total Credits</b>				<b>28</b>							

**Major Elective V**

<a href="#">2741001</a>	Applied Super Conductivity
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**Mechanical (I.C. Engine & Automobile Engineering) (11)**

w.e.f Jan 2016

Semester IV						Theory Marks		Tutorial/ Practical Marks				Total Marks
Subject Code	Subject Name	Theory	Tutorial/ Presentation	Practical	Credits	ESE(E)	PA (M)	ESE (V)		PA(I)		
								ESE	OEP	PA	RP	
	Major Elective - V	3	2#	0	4	70	30	30	0	10	10	150
2740004	Seminar (Presentation + Attendance@ + Preparation of learning material*)#	0	4	0	2	0	0	0	0	100	0	100
2740001	External Mid Sem Review (Brief Lit. Rev, Problem Statement and Major Outcomes)	-	-	-	10	0	0	100	0	0	0	100
2740002	Dissertation Phase- II	0	0	24	12	0	0	100	0	0	0	100
	<b>Total Credits</b>				<b>28</b>							

**Major Elective V**

<a href="#">2741102</a>	Automotive Testing and certification
<a href="#">2741101</a>	Hydraulic & Pneumatic systems in Automotive Vehicles

**Civil (Transportation Engineering) (13)**

w.e.f Jan 2016

Semester IV						Theory Marks		Tutorial/ Practical Marks				Total Marks
Subject Code	Subject Name	Theory	Tutorial/ Presentation	Practical	Credits	ESE(E)	PA (M)	ESE (V)		PA(I)		
								ESE	OEP	PA	RP	
	Major Elective - V	3	2#	0	4	70	30	30	0	10	10	150
2740004	Seminar (Presentation + Attendance@ + Preparation of learning material*)#	0	4	0	2	0	0	0	0	100	0	100
2740001	External Mid Sem Review (Brief Lit. Rev, Problem Statement and Major Outcomes)	-	-	-	10	0	0	100	0	0	0	100
2740002	Dissertation Phase- II	0	0	24	12	0	0	100	0	0	0	100
	<b>Total Credits</b>				<b>28</b>							

**Major Elective V**

<a href="#">2741302</a>	Transportation Facility Design
<a href="#">2741303</a>	Docks and Harbour Engineering
<a href="#">2741304</a>	Public Transportation Planning

**Civil (Construction Engineering and Management) (14)**

w.e.f Jan 2016

Semester IV						Theory Marks		Tutorial/ Practical Marks				Total Marks
Subject Code	Subject Name	Theory	Tutorial/ Presentation	Practical	Credits	ESE(E)	PA (M)	ESE (V)		PA(I)		
								ESE	OEP	PA	RP	
	Major Elective - V	3	2#	0	4	70	30	30	0	10	10	150
2740004	Seminar (Presentation + Attendance@ + Preparation of learning material*)#	0	4	0	2	0	0	0	0	100	0	100
2740001	External Mid Sem Review (Brief Lit. Rev, Problem Statement and Major Outcomes)	-	-	-	10	0	0	100	0	0	0	100
2740002	Dissertation Phase- II	0	0	24	12	0	0	100	0	0	0	100
	<b>Total Credits</b>				<b>28</b>							

**Major Elective V**

<a href="#">2741401</a>	Management Information System
<a href="#">2741402</a>	Eco friendly Construction
<a href="#">2741403</a>	Infrastructure Projects

**Chemical Engineering (Computer Aided Process Design) (16)**

w.e.f Jan 2016

Semester IV						Theory Marks		Tutorial/ Practical Marks				Total Marks
Subject Code	Subject Name	Theory	Tutorial/ Presentation	Practical	Credits	ESE(E)	PA (M)	ESE (V)		PA(I)		
								ESE	OEP	PA	RP	
	Major Elective - V	3	2#	0	4	70	30	30	0	10	10	150
2740004	Seminar (Presentation + Attendance@ + Preparation of learning material*)#	0	4	0	2	0	0	0	0	100	0	100
2740001	External Mid Sem Review (Brief Lit. Rev, Problem Statement and Major Outcomes)	-	-	-	10	0	0	100	0	0	0	100
2740002	Dissertation Phase- II	0	0	24	12	0	0	100	0	0	0	100
	<b>Total Credits</b>				<b>28</b>							

**Major Elective V**

<a href="#">2741601</a>	Advanced Transport Phenomena(ATP)
<a href="#">2741602</a>	Process Intensification & Integration (PII)

**Environmental Engineering (17)**

w.e.f Jan 2016

Semester IV						Theory Marks		Tutorial/ Practical Marks				Total Marks
Subject Code	Subject Name	Theory	Tutorial/ Presentation	Practical	Credits	ESE(E)	PA (M)	ESE (V)		PA(I)		
								ESE	OEP	PA	RP	
	Major Elective - V	3	2#	0	4	70	30	30	0	10	10	150
2740004	Seminar (Presentation + Attendance@ + Preparation of learning material*)#	0	4	0	2	0	0	0	0	100	0	100
2740001	External Mid Sem Review (Brief Lit. Rev, Problem Statement and Major Outcomes)	-	-	-	10	0	0	100	0	0	0	100
2740002	Dissertation Phase- II	0	0	24	12	0	0	100	0	0	0	100
	<b>Total Credits</b>				<b>28</b>							

**Major Elective V**

<a href="#">2741701</a>	Environmental Legislations & Management
<a href="#">2741702</a>	Energy Sources & their Environmental Impact

**Environmental Management (18)**

w.e.f Jan 2016

Semester IV						Theory Marks		Tutorial/ Practical Marks				Total Marks
Subject Code	Subject Name	Theory	Tutorial/ Presentation	Practical	Credits	ESE(E)	PA (M)	ESE (V)		PA(I)		
								ESE	OEP	PA	RP	
	Major Elective - V	3	2#	0	4	70	30	30	0	10	10	150
2740004	Seminar (Presentation + Attendance@ + Preparation of learning material*)#	0	4	0	2	0	0	0	0	100	0	100
2740001	External Mid Sem Review (Brief Lit. Rev, Problem Statement and Major Outcomes)	-	-	-	10	0	0	100	0	0	0	100
2740002	Dissertation Phase- II	0	0	24	12	0	0	100	0	0	0	100
	<b>Total Credits</b>				<b>28</b>							

**Major Elective V**

<a href="#">2741801</a>	Anaerobic Biotechnologies
<a href="#">2741802</a>	Preventive Environmental Management

**Civil (Structural Engineering) (20)**

w.e.f Jan 2016

Semester IV						Theory Marks		Tutorial/ Practical Marks				Total Marks
Subject Code	Subject Name	Theory	Tutorial/ Presentation	Practical	Credits	ESE(E)	PA (M)	ESE (V)		PA(I)		
								ESE	OEP	PA	RP	
	Major Elective - V	3	0	2#	4	70	30	20	10	10	10	150
2740004	Seminar (Presentation + Attendance@ + Preparation of learning material*)#	0	4	0	2	0	0	0	0	100	0	100
2740001	External Mid Sem Review (Brief Lit. Rev, Problem Statement and Major Outcomes)	-	-	-	10	0	0	100	0	0	0	100
2740002	Dissertation Phase- II	0	0	24	12	0	0	100	0	0	0	100
	<b>Total Credits</b>				<b>28</b>							

**Major Elective V**

<a href="#">2742002</a>	Design of Bridges
<a href="#">2742003</a>	Advanced Seismic Design of Structures

**Mechanical (Thermal Engineering) (21)**

w.e.f Jan 2016

Semester IV						Theory Marks		Tutorial/ Practical Marks				Total Marks
Subject Code	Subject Name	Theory	Tutorial/ Presentation	Practical	Credits	ESE(E)	PA (M)	ESE (V)		PA(I)		
								ESE	OEP	PA	RP	
	Major Elective - V	3	2#	0	4	70	30	30	0	10	10	150
2740004	Seminar (Presentation + Attendance@ + Preparation of learning material*)#	0	4	0	2	0	0	0	0	100	0	100
2740001	External Mid Sem Review (Brief Lit. Rev, Problem Statement and Major Outcomes)	-	-	-	10	0	0	100	0	0	0	100
2740002	Dissertation Phase- II	0	0	24	12	0	0	100	0	0	0	100
	<b>Total Credits</b>				<b>24</b>							

**Major Elective V**

<a href="#">2742102</a>	Energy Conservation & Management
<a href="#">2742103</a>	Advanced Thermal Turbo Machineries



**Information Technology (23)**

w.e.f Jan 2016

Semester IV						Theory Marks		Tutorial/ Practical Marks				Total Marks
Subject Code	Subject Name	Theory	Tutorial/ Presentation	Practical	Credits	ESE(E)	PA (M)	ESE (V)		PA(I)		
								ESE	OEP	PA	RP	
	Major Elective - V	3	2#	0	4	70	30	30	0	10	10	150
2740004	Seminar (Presentation + Attendance@ + Preparation of learning material*)#	0	4	0	2	0	0	0	0	100	0	100
2740001	External Mid Sem Review (Brief Lit. Rev, Problem Statement and Major Outcomes)	-	-	-	10	0	0	100	0	0	0	100
2740002	Dissertation Phase- II	0	0	24	12	0	0	100	0	0	0	100
	<b>Total Credits</b>				<b>28</b>							

**Major Elective V**

<a href="#">2742302</a>	Computer Vision
<a href="#">2742303</a>	Wireless Sensor Network for IT
<a href="#">2742304</a>	Embedded System and Programming

**Plastic Technology (24)**

w.e.f Jan 2016

Semester IV						Theory Marks		Tutorial/ Practical Marks				Total Marks
Subject Code	Subject Name	Theory	Tutorial/ Presentation	Practical	Credits	ESE(E)	PA (M)	ESE (V)		PA(I)		
								ESE	OEP	PA	RP	
	Major Elective - V	3	0	2#	4	70	30	20	10	10	10	150
2740004	Seminar (Presentation + Attendance@ + Preparation of learning material*)#	0	4	0	2	0	0	0	0	100	0	100
2740001	External Mid Sem Review (Brief Lit. Rev, Problem Statement and Major Outcomes)	-	-	-	10	0	0	100	0	0	0	100
2740002	Dissertation Phase- II	0	0	24	12	0	0	100	0	0	0	100
	<b>Total Credits</b>				<b>28</b>							

**Major Elective V**

<a href="#">2742402</a>	Plastics Characterization Techniques
<a href="#">2742401</a>	Advanced Mould Manufacturing

**Textile Engineering (25)**

w.e.f Jan 2016

Semester IV						Theory Marks		Tutorial/ Practical Marks				Total Marks
Subject Code	Subject Name	Theory	Tutorial/ Presentation	Practical	Credits	ESE(E)	PA (M)	ESE(V)		PA(I)		
								ESE	OEP	PA	RP	
	Major Elective - V	3	2#	0	4	70	30	30	0	10	10	150
2740004	Seminar (Presentation + Attendance@ + Preparation of learning material*)#	0	4	0	2	0	0	0	0	100	0	100
2740001	External Mid Sem Review (Brief Lit. Rev, Problem Statement and Major Outcomes)	-	-	-	10	0	0	100	0	0	0	100
2740002	Dissertation Phase- II	0	0	24	12	0	0	100	0	0	0	100
	<b>Total Credits</b>				<b>28</b>							

**Major Elective V**

<a href="#">2742501</a>	Advanced Topics in Textile Manufacture
<a href="#">2742502</a>	Product Design in Textile

**Electronics & Communication (Signal Processing And VLSI Technology) (26)**

w.e.f Jan 2016

Semester IV						Theory Marks		Tutorial/ Practical Marks				Total Marks
Subject Code	Subject Name	Theory	Tutorial/ Presentation	Practical	Credits	ESE(E)	PA (M)	ESE(V)		PA(I)		
								ESE	OEP	PA	RP	
	Major Elective - V	4	0	2#	5	70	30	20	10	10	10	150
2740004	Seminar (Presentation + Attendance@ + Preparation of learning material*)#	0	4	0	2	0	0	0	0	100	0	100
2740001	External Mid Sem Review (Brief Lit. Rev, Problem Statement and Major Outcomes)	-	-	-	10	0	0	100	0	0	0	100
2740002	Dissertation Phase- II	0	0	24	12	0	0	100	0	0	0	100
	<b>Total Credits</b>				<b>29</b>							

**Major Elective V**

<a href="#">2742602</a>	Radar Signal Processing
<a href="#">2742603</a>	Multirate Signal Processing
<a href="#">2742604</a>	Mutli gate transistors

**Electronics & Communication (Wireless Communication Systems & Networks) (27)**

w.e.f Jan 2016

Semester IV						Theory Marks		Tutorial/ Practical Marks				Total Marks
Subject Code	Subject Name	Theory	Tutorial/ Presentation	Practical	Credits	ESE(E)	PA (M)	ESE(V)		PA(I)		
								ESE	OEP	PA	RP	
	Major Elective - V	4	0	2#	5	70	30	20	10	10	10	150
2740004	Seminar (Presentation + Attendance@ + Preparation of learning material*)#	0	4	0	2	0	0	0	0	100	0	100
2740001	External Mid Sem Review (Brief Lit. Rev, Problem Statement and Major Outcomes)	-	-	-	10	0	0	100	0	0	0	100
2740002	Dissertation Phase- II	0	0	24	12	0	0	100	0	0	0	100
	<b>Total Credits</b>				<b>29</b>							

**Major Elective V**

<a href="#">2742702</a>	RF Integrated Circuits
<a href="#">2742703</a>	Software Defined Radio and Cognitive Radio Networks

**Mechanical (Production Engineering) (28)**

w.e.f Jan 2016

Semester IV						Theory Marks		Tutorial/ Practical Marks				Total Marks
Subject Code	Subject Name	Theory	Tutorial/ Presentation	Practical	Credits	ESE(E)	PA (M)	ESE(V)		PA(I)		
								ESE	OEP	PA	RP	
	Major Elective - V	3	2#	0	4	70	30	30	0	10	10	150
2740004	Seminar (Presentation + Attendance@ + Preparation of learning material*)#	0	4	0	2	0	0	0	0	100	0	100
2740001	External Mid Sem Review (Brief Lit. Rev, Problem Statement and Major Outcomes)	-	-	-	10	0	0	100	0	0	0	100
2740002	Dissertation Phase- II	0	0	24	12	0	0	100	0	0	0	100
	<b>Total Credits</b>				<b>28</b>							

**Major Elective V**

<a href="#">2742802</a>	Artificial Intelligence in Manufacturing
<a href="#">2742803</a>	Rapid Prototyping, Tooling and Synergic Integration
<a href="#">2742804</a>	Flexible Manufacturing System
<a href="#">2742805</a>	Advance Robotics

**Power Electronics (29)**

w.e.f Jan 2016

Semester IV						Theory Marks		Tutorial/ Practical Marks				Total Marks
Subject Code	Subject Name	Theory	Tutorial/ Presentation	Practical	Credits	ESE(E)	PA (M)	ESE(V)		PA(I)		
								ESE	OEP	PA	RP	
	Major Elective - V	3	2#	0	4	70	30	30	0	10	10	150
2740004	Seminar (Presentation + Attendance@ + Preparation of learning material*)#	0	4	0	2	0	0	0	0	100	0	100
2740001	External Mid Sem Review (Brief Lit. Rev, Problem Statement and Major Outcomes)	-	-	-	10	0	0	100	0	0	0	100
2740002	Dissertation Phase- II	0	0	24	12	0	0	100	0	0	0	100
	<b>Total Credits</b>				<b>28</b>							

**Major Elective V**

<a href="#">2742902</a>	Electromagnetic Compatibility in Power Electronics
<a href="#">2742903</a>	Power Quality (Power Electronics)
<a href="#">2742904</a>	Reliability Engineering

**Chemical Engineering (30)**

w.e.f Jan 2016

Semester IV						Theory Marks		Tutorial/ Practical Marks				Total Marks
Subject Code	Subject Name	Theory	Tutorial/ Presentation	Practical	Credits	ESE(E)	PA (M)	ESE(V)		PA(I)		
								ESE	OEP	PA	RP	
	Major Elective - V	3	2#	0	4	70	30	30	0	10	10	150
2740004	Seminar (Presentation + Attendance@ + Preparation of learning material*)#	0	4	0	2	0	0	0	0	100	0	100

2740001	External Mid Sem Review (Brief Lit. Rev, Problem Statement and Major Outcomes)	-	-	-	10	0	0	100	0	0	0	100
2740002	Dissertation Phase- II	0	0	24	12	0	0	100	0	0	0	100
<b>Total Credits</b>					<b>28</b>							

**Major Elective V**

<a href="#">2743002</a>	Polymer science and Technology
<a href="#">2743003</a>	Surface Science and Nano technology
<a href="#">2743004</a>	Bioprocess and Biochemical Engineering

**Bio Medical Engineering (31)**

w.e.f Jan 2016

Semester IV						Theory Marks		Tutorial/ Practical Marks				Total Marks
Subject Code	Subject Name	Theory	Tutorial/ Presentation	Practical	Credits	ESE(E)	PA (M)	ESE(V)		PA(I)		
								ESE	OEP	PA	RP	
	Major Elective - V	3	2#	0	4	70	30	30	0	10	10	150
2740004	Seminar (Presentation + Attendance@ + Preparation of learning material*)#	0	4	0	2	0	0	0	0	100	0	100
2740001	External Mid Sem Review (Brief Lit. Rev, Problem Statement and Major Outcomes)	-	-	-	10	0	0	100	0	0	0	100
2740002	Dissertation Phase- II	0	0	24	12	0	0	100	0	0	0	100
<b>Total Credits</b>					<b>24</b>							

**Major Elective V**

<a href="#">2743102</a>	Medical Informatics
<a href="#">2743103</a>	Medical Ethics and Standards
<a href="#">2743104</a>	Brain Control Interfaces

**Civil (Water Resources Engineering) (33)**

w.e.f Jan 2016

Semester IV						Theory Marks		Tutorial/ Practical Marks				Total Marks
Subject Code	Subject Name	Theory	Tutorial/ Presentation	Practical	Credits	ESE(E)	PA (M)	ESE(V)		PA(I)		
								ESE	OEP	PA	RP	
	Major Elective - V	3	2#	0	4	70	30	30	0	10	10	150

2740004	Seminar (Presentation + Attendance@ + Preparation of learning material*)#	0	4	0	2	0	0	0	0	100	0	100
2740001	External Mid Sem Review (Brief Lit. Rev, Problem Statement and Major Outcomes)	-	-	-	10	0	0	100	0	0	0	100
2740002	Dissertation Phase- II	0	0	24	12	0	0	100	0	0	0	100
<b>Total Credits</b>					<b>28</b>							

**Major Elective V**

<a href="#">2743301</a>	Flood management
<a href="#">2743302</a>	Coastal Engineering

**Energy Engineering (39)**

w.e.f Jan 2016

Semester IV						Theory Marks		Tutorial/ Practical Marks				Total Marks
Subject Code	Subject Name	Theory	Tutorial/ Presentation	Practical	Credits	ESE(E)	PA (M)	ESE(V)		PA(I)		
								ESE	OEP	PA	RP	
	Major Elective - V	3	2#	0	4	70	30	30	0	10	10	150
2740004	Seminar (Presentation + Attendance@ + Preparation of learning material*)#	0	4	0	2	0	0	0	0	100	0	100
2740001	External Mid Sem Review (Brief Lit. Rev, Problem Statement and Major Outcomes)	-	-	-	10	0	0	100	0	0	0	100
2740002	Dissertation Phase- II	0	0	24	12	0	0	100	0	0	0	100
<b>Total Credits</b>					<b>28</b>							

**Major Elective V**

<a href="#">2743901</a>	Biomass Energy Conversion
<a href="#">2743902</a>	Batteries and Fuel Cell
<a href="#">2743903</a>	Exergy analysis of Thermal Systems

**Rubber Technology (40)**

w.e.f Jan 2016

Semester IV						Theory Marks		Tutorial/ Practical Marks				Total Marks
Subject Code	Subject Name	Theory	Tutorial/ Presentation	Practical	Credits	ESE(E)	PA (M)	ESE(V)		PA(I)		
								ESE	OEP	PA	RP	
	Major Elective - V	3	2#	0	4	70	30	30	0	10	10	150
2740004	Seminar (Presentation + Attendance@ + Preparation of learning material*)#	0	4	0	2	0	0	0	0	100	0	100
2740001	External Mid Sem Review (Brief Lit. Rev, Problem Statement and Major Outcomes)	-	-	-	10	0	0	100	0	0	0	100
2740002	Dissertation Phase- II	0	0	24	12	0	0	100	0	0	0	100
	<b>Total Credits</b>				<b>28</b>							

**Major Elective V**[2744002](#) Powder & Particulate Rubber Technology(PP)[2744003](#) Rubber Waste Utilisation (RW)**Electronics & Communication (Signal Processing & Communication) (41)**

w.e.f Jan 2016

Semester IV						Theory Marks		Tutorial/ Practical Marks				Total Marks
Subject Code	Subject Name	Theory	Tutorial/ Presentation	Practical	Credits	ESE(E)	PA (M)	ESE(V)		PA(I)		
								ESE	OEP	PA	RP	
	Major Elective - V	3	0	2#	4	70	30	20	10	10	10	150
2740004	Seminar (Presentation + Attendance@ + Preparation of learning material*)#	0	4	0	2	0	0	0	0	100	0	100
2740001	External Mid Sem Review (Brief Lit. Rev, Problem Statement and Major Outcomes)	-	-	-	10	0	0	100	0	0	0	100
2740002	Dissertation Phase- II	0	0	24	12	0	0	100	0	0	0	100
	<b>Total Credits</b>				<b>28</b>							

**Major Elective V**[2744101](#) Advance Topics in Signal and Image Processing[2744102](#) Design of Microwave Circuits

**Electronics & Communication (VLSI System Design) (42)**

w.e.f Jan 2016

Semester IV						Theory Marks		Tutorial/ Practical Marks				Total Marks
Subject Code	Subject Name	Theory	Tutorial/ Presentation	Practical	Credits	ESE(E)	PA (M)	ESE(V)		PA(I)		
								ESE	OEP	PA	RP	
	Major Elective - V	3	2#	0	4	70	30	30	0	10	10	150
2740004	Seminar (Presentation + Attendance@ + Preparation of learning material*)#	0	4	0	2	0	0	0	0	100	0	100
2740001	External Mid Sem Review (Brief Lit. Rev, Problem Statement and Major Outcomes)	-	-	-	10	0	0	100	0	0	0	100
2740002	Dissertation Phase- II	0	0	24	12	0	0	100	0	0	0	100
	<b>Total Credits</b>				<b>28</b>							

**Major Elective V**

<a href="#">2744201</a>	Silicon on Insulator
<a href="#">2744202</a>	Power Efficient VLSI Design

**Civil (Geotechnical Engineering) (43)**

w.e.f Jan 2016

Semester IV						Theory Marks		Tutorial/ Practical Marks				Total Marks
Subject Code	Subject Name	Theory	Tutorial/ Presentation	Practical	Credits	ESE(E)	PA (M)	ESE(V)		PA(I)		
								ESE	OEP	PA	RP	
	Major Elective - V	3	2#	0	4	70	30	30	0	10	10	150
2740004	Seminar (Presentation + Attendance@ + Preparation of learning material*)#	0	4	0	2	0	0	0	0	100	0	100
2740001	External Mid Sem Review (Brief Lit. Rev, Problem Statement and Major Outcomes)	-	-	-	10	0	0	100	0	0	0	100
2740002	Dissertation Phase- II	0	0	24	12	0	0	100	0	0	0	100
	<b>Total Credits</b>				<b>28</b>							

**Major Elective V**

<a href="#">2744302</a>	Environmental Geotechnology
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**Electronics & Communication (Wireless Communication Technology) (44)**

w.e.f Jan 2016

Semester IV						Theory Marks		Tutorial/ Practical Marks				Total Marks
Subject Code	Subject Name	Theory	Tutorial/ Presentation	Practical	Credits	ESE(E)	PA (M)	ESE(V)		PA(I)		
								ESE	OEP	PA	RP	
	Major Elective - V	4	0	2#	5	70	30	20	10	10	10	150
2740004	Seminar (Presentation + Attendance@ + Preparation of learning material*)#	0	4	0	2	0	0	0	0	100	0	100
2740001	External Mid Sem Review (Brief Lit. Rev, Problem Statement and Major Outcomes)	-	-	-	10	0	0	100	0	0	0	100
2740002	Dissertation Phase- II	0	0	24	12	0	0	100	0	0	0	100
	<b>Total Credits</b>				<b>29</b>							

**Major Elective V**

<a href="#">2744401</a>	Mobile Computing Technology
<a href="#">2744402</a>	Wireless Sensor Networks & its Energy Management
<a href="#">2742702</a>	RF Integrated Circuit

**Power Electronics & Electrical Drives (45)**

w.e.f Jan 2016

Semester IV						Theory Marks		Tutorial/ Practical Marks				Total Marks
Subject Code	Subject Name	Theory	Tutorial/ Presentation	Practical	Credits	ESE(E)	PA (M)	ESE(V)		PA(I)		
								ESE	OEP	PA	RP	
	Major Elective - V	3	2#	0	4	70	30	30	0	10	10	150
2740004	Seminar (Presentation + Attendance@ + Preparation of learning material*)#	0	4	0	2	0	0	0	0	100	0	100
2740001	External Mid Sem Review (Brief Lit. Rev, Problem Statement and Major Outcomes)	-	-	-	10	0	0	100	0	0	0	100
2740002	Dissertation Phase- II	0	0	24	12	0	0	100	0	0	0	100
	<b>Total Credits</b>				<b>28</b>							

**Major Elective V**

<a href="#">2744502</a>	Electromagnetic compatibility in Power Electronics
<a href="#">2744503</a>	Electric Vehicles

**Mechanical (Industrial Engineering) (46)**

w.e.f Jan 2016

<b>Semester IV</b>						<b>Theory Marks</b>		<b>Tutorial/ Practical Marks</b>				<b>Total Marks</b>
<b>Subject Code</b>	<b>Subject Name</b>	<b>Theory</b>	<b>Tutorial/ Presentation</b>	<b>Practical</b>	<b>Credits</b>	<b>ESE(E)</b>	<b>PA (M)</b>	<b>ESE(V)</b>		<b>PA(I)</b>		
								<b>ESE</b>	<b>OEP</b>	<b>PA</b>	<b>RP</b>	
	Major Elective - V	3	0	2#	4	70	30	20	10	10	10	150
2740004	Seminar (Presentation + Attendance@ + Preparation of learning material*)#	0	4	0	2	0	0	0	0	100	0	100
2740001	External Mid Sem Review (Brief Lit. Rev, Problem Statement and Major Outcomes)	-	-	-	10	0	0	100	0	0	0	100
2740002	Dissertation Phase- II	0	0	24	12	0	0	100	0	0	0	100
	<b>Total Credits</b>				<b>28</b>							

**Major Elective V**

<a href="#">2744603</a>	Industrial Psychology
<a href="#">2744602</a>	Advance Operations Research
<a href="#">2744601</a>	Productivity Engineering & Management

**Mechatronics (47)**

w.e.f Jan 2016

<b>Semester IV</b>						<b>Theory Marks</b>		<b>Tutorial/ Practical Marks</b>				<b>Total Marks</b>
<b>Subject Code</b>	<b>Subject Name</b>	<b>Theory</b>	<b>Tutorial/ Presentation</b>	<b>Practical</b>	<b>Credits</b>	<b>ESE(E)</b>	<b>PA (M)</b>	<b>ESE(V)</b>		<b>PA(I)</b>		
								<b>ESE</b>	<b>OEP</b>	<b>PA</b>	<b>RP</b>	
	Major Elective - V	3	2#	0	4	70	30	30	0	10	10	150
2740004	Seminar (Presentation + Attendance@ + Preparation of learning material*)#	0	4	0	2	0	0	0	0	100	0	100
2740001	External Mid Sem Review (Brief Lit. Rev, Problem Statement and Major Outcomes)	-	-	-	10	0	0	100	0	0	0	100
2740002	Dissertation Phase- II	0	0	24	12	0	0	100	0	0	0	100
	<b>Total Credits</b>				<b>28</b>							

**Major Elective V**[2744701](#) Automation and Computer Integrated Manufacturing**Civil (Town & Country Planning) (48)**

w.e.f Jan 2016

Semester IV						Theory Marks		Tutorial/ Practical Marks				Total Marks
Subject Code	Subject Name	Theory	Tutorial/ Presentation	Practical	Credits	ESE(E)	PA (M)	ESE(V)		PA(I)		
								ESE	OEP	PA	RP	
	Major Elective - V	3	2#	0	4	70	30	30	0	10	10	150
2740004	Seminar (Presentation + Attendance@ + Preparation of learning material*)#	0	4	0	2	0	0	0	0	100	0	100
2740001	External Mid Sem Review (Brief Lit. Rev, Problem Statement and Major Outcomes)	-	-	-	10	0	0	100	0	0	0	100
2740002	Dissertation Phase- II	0	0	24	12	0	0	100	0	0	0	100
	<b>Total Credits</b>				<b>28</b>							

**Major Elective V**[2744801](#) Legal Issues in Urban Planning[2744802](#) Inclusive Urban Planning**Mechanical (Advance Manufacturing System) (50)**

w.e.f Jan 2016

Semester IV						Theory Marks		Tutorial/ Practical Marks				Total Marks
Subject Code	Subject Name	Theory	Tutorial/ Presentation	Practical	Credits	ESE(E)	PA (M)	ESE(V)		PA(I)		
								ESE	OEP	PA	RP	
	Major Elective - V	3	2#	0	4	70	30	30	0	10	10	150
2740004	Seminar (Presentation + Attendance@ + Preparation of learning material*)#	0	4	0	2	0	0	0	0	100	0	100
2740001	External Mid Sem Review (Brief Lit. Rev, Problem Statement and Major Outcomes)	-	-	-	10	0	0	100	0	0	0	100
2740002	Dissertation Phase- II	0	0	24	12	0	0	100	0	0	0	100
	<b>Total Credits</b>				<b>28</b>							

**Major Elective V**

<a href="#">2745002</a>	Sustainable Design and Manufacturing
<a href="#">2742803</a>	Rapid Prototyping, Tooling and Synergic Integration
<a href="#">2745003</a>	Lean Manufacturing System and Implementation

**Electronics & Communication (Embedded System) (54)**

w.e.f Jan 2016

Semester IV						Theory Marks		Tutorial/ Practical Marks				Total Marks
Subject Code	Subject Name	Theory	Tutorial/ Presentation	Practical	Credits	ESE(E)	PA (M)	ESE(V)		PA(I)		
								ESE	OEP	PA	RP	
<a href="#">2745402</a>	Cortex-M4 Processor Architecture and Programming-Major Elective - V	3	0	2#	4	70	30	30	0	10	10	150
<a href="#">2744202</a>	Power Efficient VLSI Design - Major Elective - V	3	2#	0	4	70	30	30	0	10	10	150
2740004	Seminar (Presentation + Attendance@ + Preparation of learning material*)#	0	4	0	2	0	0	0	0	100	0	100
2740001	External Mid Sem Review (Brief Lit. Rev, Problem Statement and Major Outcomes)	-	-	-	10	0	0	100	0	0	0	100
2740002	Dissertation Phase- II	0	0	24	12	0	0	100	0	0	0	100
<b>Total Credits</b>					<b>32</b>							

**ME Computer Engineering (Systems & Network Security)(56)**

w.e.f Jan 2016

Semester IV						Theory Marks		Tutorial/ Practical Marks				Total Marks
Subject Code	Subject Name	Theory	Tutorial/ Presentation	Practical	Credits	ESE(E)	PA (M)	ESE(V)		PA(I)		
								ESE	OEP	PA	RP	
	Major Elective - V	3	2#	0	4	70	30	30	0	10	10	150
2740004	Seminar (Presentation + Attendance@ + Preparation of learning material*)#	0	4	0	2	0	0	0	0	100	0	100
2740001	External Mid Sem Review (Brief Lit. Rev, Problem Statement and Major Outcomes)	-	-	-	10	0	0	100	0	0	0	100
2740002	Dissertation Phase- II	0	0	24	12	0	0	100	0	0	0	100
<b>Total Credits</b>					<b>28</b>							

### Major Elective V

<a href="#">2745601</a>	Data Center Management
<a href="#">2745602</a>	Storage Area Network
<a href="#">2745603</a>	Cyber Forensics

# The concerned faculty member shall provide the list of peer reviewed Journals and Tier-I & Tier-II Conferences relating to the subject (or relating to the area of thesis for seminar) of the students in the beginning of the semester i.e. within 10 days. The same list will be uploaded on GTU website within the first two weeks of the start of the semester. Every student or a group of students shall critically study 2 research papers, integrate the details and make presentation in the last two weeks of the semester. The GTU marks entry portal will allow entry of marks to institutes only after uploading of the best 3 presentations of the students. A unique id number will be generated only after uploading the presentations. Thereafter the entry of marks will be allowed. The best 3 presentations of each college will be uploaded on GTU website.

@ Every student is required to remain present during presentations made by all other students without fail.

\* Students are required to prepare teaching material alongwith associated labwork which can bring excitement to learning as a part of the seminar component, in topic of interest relating to any subject including Bachelor's work, as approved by the faculty.

\$ In case thesis is on a patentable idea, the student should study patents relating to his/her field and prepare a patent study and analysis report for 5 such patents. For one of the patents, he should do a complete technical analysis and prepare a presentation explaining the technical part to other students of the class. The PSAR and presentations should be uploaded on GTU website and submitted as a part of the thesis report.

**Note:** Major Elective – IV, Major Elective – V and Seminar may be conducted on weekends as a special case for the students permitted by the University.