#### **BRANCH-APPLIED ELECTRONICS & INSTRUMENTATION ENGINEERING**

2<sup>nd</sup> Semester

Theory						Practical			
Course Name	Hours/ Week L/T	Credit Theory	University Marks	Internal Evaluation	Hours/ Week L/T	Credit Practical	Marks		
Specialization Core-1	-								
Fiber Optics & LASER	4-0	4	100	50	-	-	-		
Instrumentation									
Specialization Core-2									
Industrial Process Control	4-0	4	100	50	-	-	-		
Instrumentation									
Elective-I (Specialization related) 1 .Biomedical instrumentation & Signal Processing 2 Analytical									
Instrumentation									
3. Microsystems Principle, Design and Application 4.Digital & Adaptive Control 5.Digital & IC Based Instrumentation	4-0	4	100	50	-	-	-		
Elective-II (Departmental									
related)									
<ol> <li>Non-Linear Systems</li> <li>Adaptive Signal Processing.</li> <li>Virtual Instrumentation</li> <li>Micro Controller &amp; Embedded Systems</li> </ol>	4-0	4	100	50	-	-	-		
Elective-III (from any									
Department) 1.Data Encryption and Security 2.Industrial Automation & Robotics 3.Bio-mems & nanotechnology 4.Bio Informatics	4-0	4	100	50	-	-	-		
Lab-2 (Specialization									
lab to be decided by the Department) Modeling & Simulation Laboratory					4	4	150		
Seminar/Project					4	4	150		
Total									
Total Marke: 1050									
Total Credits: 28									

#### Specialization: Electronics & Instrumentation Engineering/Applied Electronics & Instrumentation Engg

### **BRANCH-AUTOMATION & ROBOTICS**

2<sup>nd</sup> Semester

### Specialization: Automation & Robotics

Second Semester									
	Th	eory			Practical				
Course Name	Hours/ Week L/T	Credit Theory	University Marks	Internal Evaluation	Hours/ Week L/T	Credit Practical	Marks		
Specialization Core-1 Automation & Manufacturing	4-0	4	100	50	-	-	-		
Specialization Core-2 Mechanical Measurement & Control System	4-0	4	100	50	-	-	-		
Elective-I (Specialization related) 1.Advanced Computer Concept for Automation 2.Mechatronics 3.Modelling, Simulation & Analysis of Manufacturing System	4-0	4	100	50	-	-	-		
Elective-II (Departmental related) 1. Total Quality Management 2. Embedded System 3. Mechanical Vibration	4-0	4	100	50	-	-	-		
Elective-III (from any Department) 1. Computer Aided Production Operation Management 2. Applied Mathematics 3. Finite Element Method 4. Project Management	4-0	4	100	50	-	-	-		
Lab-2 (Specialization lab to be decided by the Department)					4	4	150		
Seminar/Project					4	4	150		
Total									
Total Marks: 1050									
Total Credits: 28	1								

#### **BRANCH-BIOTECHNOLOGY**

#### 2<sup>nd</sup> Semester

Second Semester									
	Th	eorv				Practical			
Course Name	Hours/	Credit	University	Internal	Hours/	Credit	Marks		
course Name	Week	Theory	Marks	Evaluation	Week	Practical	ivia kš		
	L/T				L/T				
Specialization Core-1									
Advanced Biochemical	4-0	4	100	50	-	-	-		
Engineering									
Specialization Core-2	4-0	4	100	50	-	-	-		
Applied Bioinformatics	10	· ·	100	50					
Elective-I (Specialization									
related)									
1. Plant biotechnology									
2. Animal biotechnology	4-0	4	100	50	-	-	-		
3. Genomics &									
Proteomics									
4.Computational Biology									
Elective-II (Departmental									
related)									
1. Environmental									
Biotechnology									
2. Advanced	4-0	4	100	50	-	-	-		
Microbiology &		-							
Immunology									
3. Nanobiotechnology									
4. Pharmaceutical									
Biotechnology									
Elective-III (from any									
Department)									
1. Lechniques in Genetic									
Engineering									
2. Bioreactor Design &	4-0	4	100	50	-	-	-		
Optimization									
3.IPR, BIOEthics &									
A Brososs Control &									
4.Process control &									
Lau-2 (Specialization					л	л	150		
the Department)					4	4	150		
Sominar/Project					Л	Л	150		
Total					4	4	130		
Total Markey 1050									
Total Credits: 28									

### Specialization: Biotechnology

### **BRANCH- CHEMICAL ENGINEERING**

#### 2nd Semester

Second Semester									
	Th	eory				Practical			
Course Name	Hours/ Week L/T	Credit Theory	University Marks	Internal Evaluation	Hours/ Week L/T	Credit Practical	Marks		
Specialization Core-1									
Petroleum Refinery	4-0	4	100	50	-	-	-		
Engineering									
Specialization Core-2									
Advanced Separation	4-0	4	100	50	-	-	-		
Techniques									
Elective I(Specialization									
related)									
1. Advanced Fluid	4.0	4	100	50					
Dynamics	4-0	4	100	50	-	-	-		
2. Mineral Beneficiation									
S. Advance Process									
Elective II (Denartmental									
related)									
1. Multiphase Flow									
2. Bioprocess Engineering			100						
3. Advances in Bio-	4-0	4	100	50	-	-	-		
Chemical Engineering									
4. Process Plant									
Simulation									
Elective III (from any									
department)									
1. Air Pollution Control									
Equipment Design									
2. Thermodynamics in	4-0	4	100	50	-	-	-		
Process Design	_								
3. Non-conventional									
A Industrial Safety &									
4. Industrial Safety &									
Lab-2 (Specialization									
lab to be decided by the					4	4	150		
department)					-				
Seminar/Project					4	4	150		
Total									
Total Marks: 1050									
Total Credits: 28									

#### Specialization: Chemical Engineering

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### 2<sup>nd</sup> Semester

#### Specialization: Structural Engineering/ Structural and Foundation Engineering Second Semester

Second Semester										
	Th	eory				Practical				
Course Name	Hours/ Week L/T	Credit Theory	University Marks	Internal Evaluation	Hours/ Week L/T	Credit Practical	Marks			
Specialization Core-1	4-0	4	100	50	-	-	-			
Concrete Design	4-0	4	100	50						
Specialization Core-2					-	-	-			
Matrix Methods of	4-0	4	100	50						
Elective I(Specialization					_	-	-			
related)										
1.Structural Dynamics										
Structure	4-0	4	100	50						
3. Bridge Engineering										
4.Earthquake Resistance										
Elective II (Departmental						_	-			
related)										
1.Advance Construction										
2. Offshore Engineering	4-0	4	100	50						
3. Tall Structures										
4.Optimization Methods										
Engineering										
Elective III(from any					-	-	-			
department)										
1. Composite Structure 2. Hydropower										
Engineering										
3.Non-conventional	4-0	4	100	50						
Energy 4. Advanced Numerical										
Method										
5.Green Building										
Lab-2 (Specialization										
lab to be decided by					4	4	150			
the department)					_	_				
Seminar/Project					4	4	150			
Total										
Total Marks: 1050										
Total Credits: 28										

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2<sup>nd</sup> Semester

Specialization:	Water Resource Engineering & Management/
	Water Resource Engineering

Second Semester									
	Th	eory				Practical			
Course Name	Hours/ Week L/T	Credit Theory	University Marks	Internal Evaluation	Hours/ Week L/T	Credit Practical	Marks		
Specialization Core-1 Ground Water Hydrology	4-0	4	100	50	-	-	-		
<b>Specialization Core-2</b> Free Surface Flow	4-0	4	100	50	-	-	-		
Elective I(Specialization related) 1.Advanced Fluid Mechanics 2. Applied Hydrology 3.Fluvial Hydaulics 4. Ground Improvement Technique	4-0	4	100	50	-	-	-		
Elective II (Departmental related) 1. Design of Irrigation Structure 2. GIS & Remote Sensing 3. Irrigation & Drainage 4.Water Resources System & Management	4-0	4	100	50	-	-	-		
<i>Elective III(from any department)</i> 1. Composite Structure 2. Hydropower Engineering 3.Non-conventional Energy 4. Advanced Numerical Method 5.Green Building Concepts	4-0	4	100	50	-	-	-		
Lab-2 (Specialization lab to be decided by the department)					4	4	150		
Seminar/Project					4	4	150		
Total Marks: 1050									
Total Credits: 28									

### 2<sup>nd</sup> Semester

Second Semester									
	Th	eory				Practical			
Course Name	111	Cradit	Liniumaitu	Internal		Credit	Marka		
Course Name	Week L/T	Theory	Marks	Evaluation	Week L/T	Practical	Warks		
<b>Specialization Core-1</b> Geometric Design of Highways	4-0	4	100	50	-	-	-		
Specialization Core-2 Transportation Systems Planning	4-0	4	100	50	-	-	-		
Elective I(Specialization related) 1.Advanced Railway Engineering 2.Planing & Design of Airport 3. Bridge Engineering 4.Ground Improvement	4-0	4	100	50	-	-	-		
Elective II(Departmental related) 1.Advance Construction Materials 2. Mass Transit Systems 3. Traffic Engineering & Traffic Flow Theory 4.Transportation & Environment	4-0	4	100	50	-	-	-		
Elective III(from any department) 1. Composite Structure 2. Hydropower Engineering 3.Non-conventional Energy 4. Advanced Numerical Method 5.Green Building Concepts Lab-2 (Specialization In the backgridthere	4-0	4	100	50	-	-	- 150		
the department)					4	4	150		
Seminar/Project					4	4	150		
Total									
Total Marks: 1050									
Total Credits: 28									

#### Specialization: Transportation Engineering

### 2<sup>nd</sup> Semester

Second Semester										
	Th	eory			Practical					
Course Name	Hours/ Week L/T	Credit Theory	University Marks	Internal Evaluation	Hours/ Week L/T	Credit Practical	Marks			
Specialization Core-1 Advanced Soil Mechanics	4-0	4	100	50	-	-	-			
Specialization Core-2 Ground Improvement	4-0	4	100	50	-	-	-			
Elective I(Specialization related) 1.Stability Analysis of Slopes, embankments & Dams 2.Ground Water & Flow Through Porous Media 3.Earth Retaining structure 4.Earthquake Geotechnical Engineering	4-0	4	100	50	-	-	-			
Elective II (Departmental related) 1.Subsoil Exploration & Soil Testing 2. Dynamics of Soils & Foundation 3.Strength & Deformation Behavior of Soil 4.Optimization Methods & its Application in Civil Engineering	4-0	4	100	50	-	-	-			
<i>Elective III (from any department)</i> 1. Composite Structure 2. Hydropower Engineering 3.Non-conventional Energy 4. Advanced Numerical Method 5.Green Building Concepts	4-0	4	100	50	-	-	-			
Lab-2 (Specialization lab to be decided by the department)					4	4	150			
Seminar/Project					4	4	150			
Total										
Total Marks: 1050										
Total Credits: 28										

### Specialization: Soil Mechanics and Foundation Engineering/Soil Mechanics

### 2<sup>nd</sup> Semester

Second Semester									
	Th	eory			Practical				
Course Name	Hours/ Week L/T	Credit Theory	University Marks	Internal Evaluation	Hours/ Week L/T	Credit Practical	Marks		
Specialization Core-1					-	-	-		
Advanced Geo-	4-0	4	100	50					
Mechanics									
Specialization Core-2					-	-	-		
Ground Improvement	4-0	4	100	50					
Technique									
Elective I(Specialization related) 1.Stability Analysis of Slopes, embankments & Dams 2.Ground Water & Flow Through Porous Media 3.Rock Mechanics 4.Soil Dynamics & Geotechnical Earthquake Engineering	4-0	4	100	50	-	-	-		
Elective II (Departmental					-	_	-		
related) 1.Advance Construction Materials 2. Soil Stabilization by Admixture 3.Reinforced Soil Structure 4.Optimization Methods & its Application in Civil Engineering	4-0	4	100	50					
<i>Elective III(from any</i> <i>department)</i> 1. Composite Structure 2. Hydropower Engineering 3.Non-conventional Energy 4. Advanced Numerical Method 5.Green Building Concepts	4-0	4	100	50	-	-	-		
Lab-2 (Specialization lab to be decided by the department)					4	4	150		
Seminar/Project					4	4	150		
Total					1				
Total Markey 1050									
Total Credits: 28									

#### Specialization: Geotechnical Engineering

### **BRANCH-COMPUTER SCIENCE & ENGINEERING**

#### 2nd Semester

Specialization:CSE/CS									
			Second Sen	nester					
	Th	eory			Practical				
Course Name	Hours/ Week L/T	Credit Theory	University Marks	Internal Evaluation	Hours/ Week L/T	Credit Practical	Marks		
Specialization Core-1 Computer Graphics	4-0	4	100	50	-	-	-		
Specialization Core-2	4-0	4	100	50	-	-	-		
Elective I (Specialization related)	4-0	4	100	50	-	-	-		
<ol> <li>Distributed Database System.</li> <li>J2EE.</li> <li>Information Extraction and Retrieval.</li> <li>Machine Learning.</li> </ol>									
Elective II(Departmental related)	4-0	4	100	50	-	-	-		
<ol> <li>Data Ware Housing &amp; Data Mining</li> <li>Cloud Computing</li> <li>Cryptography.</li> <li>Graph Theory.</li> </ol>									
Elective III(from any department) 1. Mobile Computing.	4-0	4	100	50	-	-	-		
<ol> <li>Wireless Sensor Network.</li> <li>Big Data Analytic</li> </ol>									
<ol> <li>Bio Informatics.</li> <li>Digital Image Processing</li> </ol>									
Lab-2 (Specialization lab to be decided by the department)					4	4	150		
Seminar/Project					4	4	150		
Total									
Total Marks: 1050									
Total Credite: 28									
Total Credits: 28									

### **BRANCH-CONSTRUCTION TECHNOLOGY & MANAGEMENT**

#### 2nd Semester

### Specialization: Construction Technology & Management

Second Semester									
	Th	eorv				Practical			
Course Name	Hours/	, Credit	University	Internal	Hours/	Credit	Marks		
	Week	Theory	Marks	Evaluation	Week	Practical			
	L/T	-			L/T				
Specialization Core-I	4-0	4	100	50	-	-	-		
Infrastructure Valuation									
Specialization Core-II	4-0	4	100	50	-	-	-		
Strategic Management in									
Construction									
Elective – I	4-0	4	100	50	-	-	-		
(Specialization									
related)									
1. Quality & Safety									
Management									
2. Building information Management									
3. Construction Techniques									
4. Quantitative Methods in									
Construction									
Elective – II	4-0	4	100	50	-	-	-		
(Departmental									
related)									
1. Advance Construction									
Materials									
Management									
3.Mantainance &									
Rehabilitation of Structures									
4.Contract Management &									
	4.0	4	100	50					
Elective _ III (from	4-0	4	100	50	-	-	-		
any department)									
Techniques in Building									
Construction									
2.Environmental Impact									
Assessment &									
Management									
Development for									
Construction									
4.Climate Change &									
Sustainable Development									
5. Green Building Concepts							450		
LAB 2 (Specialization					4	4	150		
lab to be decided by									
the department)							450		
Seminar/Project					4	4	150		
Iotal									
Total Marks: 1050									
Total Credits: 28									

2<sup>nd</sup> Semester

			Second Sen	nester				
	Th	eory			Practical			
Course Name	Hours/ Week L/T	Credit Theory	University Marks	Internal Evaluation	Hours/ Week L/T	Credit Practical	Marks	
Specialization Core-1 Power System Transient	4-0	4	100	50	-	-	-	
Specialization Core-2 Power System Dynamics	4-0	4	100	50	-	-	-	
Elective I(Specialization related) 1.HVDC Transmission & FACTS 2.EHVAC Transmission 3.Computer Aided Power System Protection 4.Power System Reliability	4-0	4	100	50	-	-	-	
Elective II (Departmental related) 1.Advance Control System 2. Energy Generation From Waste 3.Power Quality Improvement Techniques 4.Power System Control & Instrumentation	4-0	4	100	50	-	-	-	
Elective III(from any department) 1. Electric Drives In Hybrid Vehicle 2.Green Energy Resources & Technology 3. Quantitative methods For Energy Management & planning 4.Advanced Numerical Methods Lab-2 (Specialization lab to be decided by	4-0	4	100	50	- 4	- 4	- 150	
the department)							100	
Seminar/Project					4	4	150	
Total								
Total Marks: 1050								
Total Credits: 28								

#### Specialization: Power System Engineering/ Power Systems/ Electrical Power Systems

### 2<sup>nd</sup> Semester

Second Semester								
	Th	eory				Practical		
Course Name	Hours/ Week L/T	Credit Theory	University Marks	Internal Evaluation	Hours/ Week L/T	Credit Practical	Marks	
Specialization Core-1					-	-	-	
Advanced Power Converter	4-0	4	100	50				
Specialization Core-2 Advanced Electric Drives	4-0	4	100	50	-	-	-	
Elective I(Specialization related) 1.HVDC Transmission &					-	-	-	
FACTS 2.Electrical Machine Analysis & Control 2. Power System	4-0	4	100	50				
Transient 4.Control Techniques In Power Electronics								
Elective II (Departmental related) 1.Advance Control System 2. Energy Generation From Waste 3.Power Quality Improvement Techniques 4.Power System Control & Instrumentation	4-0	4	100	50	-	-	-	
Elective III(from any department) 1. Electric Drives In Hybrid Vehicle 2.Green Energy Resources & Technology 3. Quantitative methods For Energy Management & planning 4. Advanced Digital Signal Processing	4-0	4	100	50	-	-	-	
Lab-2 (Specialization lab to be decided by the department)					4	4	150	
Seminar/Project					4	4	150	
Total								
Total Marks: 1050								
Total Credits: 28								

### Specialization: Power Electronics & Drives/ Power Electronics/ Power Electronics & Electrical Drives

### 2<sup>nd</sup> Semester

Second Semester								
	Th	eory				Practical		
Course Name	Hours/ Week L/T	Credit Theory	University Marks	Internal Evaluation	Hours/ Week L/T	Credit Practical	Marks	
Specialization Core-1 Advanced Power Converter	4-0	4	100	50	-	-	-	
Specialization Core-2 Power System Dynamics	4-0	4	100	50	-	-	-	
Elective I(Specialization related) 1.HVDC Transmission & FACTS 2.Electrical Machine Analysis & Control 3.Power System Transient 4.Control Techniques In Power Electronics	4-0	4	100	50	-	-	-	
Elective II (Departmental related) 1.Advance Control System 2. Energy Generation From Waste 3.Power Quality Improvement Techniques 4.Power System Control & Instrumentation	4-0	4	100	50	-	-	-	
Elective III(from any department) 1. Electric Drives In Hybrid Vehicle 2.Green Energy Resources & Technology 3. Quantitative methods For Energy Management & planning 4.Advance Microprocessor & Microcontroller Lab-2 (Specialization	4-0	4	100	50	-	-	-	
lab to be decided by the department)					4	4	150	
Seminar/Project Total					4	4	150	
Total Marks: 1050 Total Credits: 28								

#### Specialization: Power Electronics & Power System

2<sup>nd</sup> Semester

### Specialization: Power Engineering and Energy System/ Power And Energy Engineering

Second Semester									
	Th	eory			Practical				
Course Name	Hours/ Week L/T	Credit Theory	University Marks	Internal Evaluation	Hours/ Week L/T	Credit Practical	Marks		
Specialization Core-1					-	-	_		
Foundation For Energy	4-0	4	100	50					
Systems Technology									
Specialization Core-2	10	4	100	50	-	-	-		
Power System Dynamics	4-0	4	100	50					
Elective I(Specialization					-	-	-		
related)									
1.HVDC Transmission &									
FACTS									
2.EHVAC Transmission	4-0	4	100	50					
3. Operation & Control Of									
Electrical Energy Systems									
4.Power System									
Reliability									
Elective II (Departmental					-	-	-		
related)									
1.Advance Control									
System									
2. Energy Generation	4-0	4	100	50					
From Waste	10		100	50					
3.Power Quality									
Improvement Techniques									
4.Protection & Digital									
Relaying									
Elective III(from any					-	-	-		
department)									
1. Electric Drives In									
Hybrid Vehicle									
2.Green Energy	10	4	100	50					
Resources & Technology	4-0	4	100	50					
3. Quantitative methods									
A System Identification &									
Adantive Control									
Lab-2 (Specialization									
lab to be decided by					4	4	150		
the department)									
Seminar/Project					4	4	150		
Total									
Total Marks: 1050									
Total Credits: 28									

### 2<sup>nd</sup> Semester

Second Semester								
	Th	eory				Practical		
Course Name	Hours/ Week L/T	Credit Theory	University Marks	Internal Evaluation	Hours/ Week L/T	Credit Practical	Marks	
Specialization Core-1	4-0	4	100	50	-	-	-	
Solar Energy Engineering Specialization Core-2 Wind and Small Hydro System	4-0	4	100	50	-	-	-	
Elective I(Specialization related) 1.HVDC Transmission & FACTS 2.Operation & control of Electrical Energy System 3.Energy System Modeling & Analysis 4.Energy Resources, Economics & Environment	4-0	4	100	50	-	-	-	
Elective II(Departmental related) 1.Power System Planning & Operation 2.Energy Generation From Waste 3.Computer Aided Power System Analysis 4.Power System Control & Instrumentation	4-0	4	100	50	-	-	-	
Elective III(from any department) 1.Electric Drives In Hybrid Vehicles 2. Green Energy Resources & Technology 3.Quantitative methods For Energy Management & Planning 4. Energy Efficiency in Electrical Utility	4-0	4	100	50	-	-	-	
Lab-2 (Specialization lab to be decided by the department)					4	4	150	
Seminar/Project					4	4	150	
Total								
Total Marks: 1050								
Total Credits: 28								

### Specialization: Energy System Engineering

# BRANCH-INDUSTRIAL POWER CONTROL & DRIVES 2<sup>nd</sup> Semester

### Specialization: Industrial Power Control & Drives

Second Semester									
	Theory					Practical			
Course Name	Hours/ Week L/T	Credit Theory	University Marks	Internal Evaluation	Hours/ Week L/T	Credit Practical	Marks		
Specialization Core-1	-				-	-	-		
Load Flow & Optimal Power Control	4-0	4	100	50					
Specialization Core-2 Advanced Electric Drives	4-0	4	100	50	-	-	-		
Elective -I(Specialization related) 1.HVDC Transmission & FACTS 2. Digital Relaying 3.Solid State Control of Electric Drive 4.Power System Reliability	4-0	4	100	50	-	-	-		
Elective-II (Departmental related) 1.Advance Control System 2. Design & Synthesis of Control System 3.Power Quality Improvement Techniques 4.Power System Control & Instrumentation	4-0	4	100	50	-	-	-		
Elective -III(from any department) 1. Electric Drives In Hybrid Vehicle 2.Green Energy Resources & Technology 3. Transducer & Instrumentation 4.Advanced Digital Signal Processing	4-0	4	100	50	-	-	-		
Lab-2 (Specialization lab to be decided by the department)					4	4	150		
Seminar/Project					4	4	150		
Total									
Total Marks: 1050									
Total Credits: 28									

### **BRANCH-ELECTRICAL & ELECTRONICS ENGINEERING**

2<sup>nd</sup> Semester

Students of this branch will follow the syllabus as per the specialization given by their institute.

2<sup>nd</sup> Semester

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#### Specialization: VLSI & Embedded System Design/VLSI & Embedded System/ VLSI Design & Embedded System

Second Semester									
	Th	eory				Practical			
Course Name	Hours/ Week L/T	Credit Theory	University Marks	Internal Evaluation	Hours/ Week L/T	Credit Practical	Marks		
Specialization Core-1									
Embedded System	4-0	4	100	50	-	-	-		
Design									
Specialization Core-2									
VLSI Fabrication	4-0	4	100	50	-	-	-		
Technology	_								
Elective-I (Specialization									
related)									
1.Low Power Digital VLSI									
Design									
2.Introduction to	4.0	4	100	50					
Nanoelectronics	4-0	4	100	50	-	-	-		
3.Microsystems –									
Principle, Design and									
Application									
4.VLSI Physical Design									
Elective-II (Departmental									
related)									
1. Advanced Techniques									
in DSP									
2. Adaptive Signal	4-0	4	100	50	-	-	-		
Processing.									
3. RF and Mixed-Signal									
Integrated Circuits									
4. ASIC & SoC Design									
Elective-III (from any									
Department)									
1.Data Encryption and									
Security									
2. Network Architecture	4-0	4	100	50	-	-	-		
and Design.			100	50					
3.Bio-MEMS and									
Nanotechnology									
4.Wireless and Mobile									
Communication									
Lab-2 (Specialization							450		
lab to be decided by					4	4	150		
the Department)							450		
Seminar/Project					4	4	150		
Total									
Total Marks: 1050									
Total Credits: 28									

2<sup>nd</sup> Semester

#### Specialization: Electronics and Communication Engineering/ Electronics and Telecommunication Engineering/ Communication Engineering/ Communication Systems

Second Semester								
	Th	eory			Practical			
Course Name	Hours/	Credit	University	Internal	Hours/	Credit	Marks	
	Week	Theory	Marks	Evaluation	Week	Practical		
	L/T				L/T			
Specialization Core-1								
Telecommunication	4-0	4	100	50	-	-	-	
Network and Optical			100	50				
Switching								
Specialization Core-2	10	4	100	50				
Satellite Communication	4-0	4	100	50	-	-	-	
Flective-I (Specialization								
related)								
1.Fiber-Optics								
Components and Device								
2.Digital Image	10	4	100	50				
Processing	4-0	4	100	50	-	-	-	
3.Radar System								
Engineering								
4.Wireless Sensor								
Network								
Elective-II (Departmental								
related)								
1. Industrial Telematics								
2. Statistical Signal	4-0	1	100	50	_			
3 RF and Mixed-Signal	4-0	4	100	50	-	-	-	
Integrated Circuit Design								
4. Embedded System								
Design								
Elective-III (from any								
Department)								
1.Data Encryption and								
Security								
2. Network Architecture	4-0	4	100	50	-	-	-	
and Design.			100	50				
3.Antenna Theory and								
Design								
4. Wireless and Mobile								
Lah-2 (Specialization								
lab to be decided by					Δ	Д	150	
the Department)					-		130	
Seminar/Project					4	4	150	
Total								
Total Marks: 1050								
Total Credits: 28								
			1	1		1		

2

### 2<sup>nd</sup> Semester

Second Semester									
	Th	eory			Practical				
Course Name	Hours/ Week L/T	Credit Theory	University Marks	Internal Evaluation	Hours/ Week L/T	Credit Practical	Marks		
Specialization Core-1									
DSP Algorithm and	4-0	4	100	50	-	-	-		
Architectures									
Specialization Core-2									
Digital Image and Video	4-0	4	100	50	-	-	-		
Processing									
Elective-I (Specialization related) 1.Array Signal Processing 2.Multirate Signal Processing 3. Biomedical instrumentation & Signal Processing 4. Speech and Audio Signal Processing	4-0	4	100	50	-	-	-		
Elective-II (Departmental related) 1. Advanced Techniques in DSP 2. Statistical Signal Processing 3. RF and Mixed-Signal Integrated Circuits 4. Embedded System Design	4-0	4	100	50	-	-	-		
Elective-III (from any Department) 1.Data Encryption and Security 2. Network Architecture and Design. 3. Bio-MEMS and Nanotechnology 4. Wireless and Mobile Communication	4-0	4	100	50	-	-	-		
Lab-2 (Specialization lab to be decided by the Department)					4	4	150		
Seminar/Project					4	4	150		
Total									
Total Marks: 1050		1							
Total Credits: 28				1					
i oturi ci cuito. 20	1	1	1	1	1	1	1		

### Specialization: Signal Processing and Engineering

### 2<sup>nd</sup> Semester

Second Semester									
	Th	eory			Practical				
Course Name	Hours/ Week L/T	Credit Theory	University Marks	Internal Evaluation	Hours/ Week L/T	Credit Practical	Marks		
Specialization Core-1									
MIMO Wireless	4-0	4	100	50	-	-	-		
Communication System									
Specialization Core-2									
Ultra Wide Band	4-0	4	100	50	-	-	-		
Communication system									
Elective-I (Specialization related)									
1. Wireless									
Communication									
2 Spread Spectrum									
Communication	4-0	4	100	50	-	-	-		
Technique									
3.VLSI for Wireless									
Communication									
4.Satellite									
Communication System									
Elective-II (Departmental									
related)									
1. Advanced Techniques									
in DSP									
2. Statistical Signal	1-0	Λ	100	50	_	_	-		
Processing	70	-	100	50					
3. RF and Mixed-Signal									
Integrated Circuits									
4. Embedded System									
Design									
Department)									
1.Data Encryption and									
Security									
2. Network Architecture	4.0	4	100	50					
and Design.	4-0	4	100	50	-	-	-		
3.Antenna Theory and									
Design									
4. Wireless and Mobile									
Communication									
Lab-2 (Specialization							450		
lab to be decided by					4	4	150		
the Department)							450		
Seminar/Project					4	4	150		
Total									
Total Marks: 1050									
Total Credits: 28									

### Specialization: Wireless Communication Technology

### 2<sup>nd</sup> Semester

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Second Semester										
	Theory Pract					Practical				
Course Name	Hours/ Week L/T	Credit Theory	University Marks	Internal Evaluation	Hours/ Week L/T	Credit Practical	Marks			
Specialization Core-1	-									
Detection and Estimation	4-0	4	100	50	-	-	-			
Theory										
Specialization Core-2										
Digital Image and Video	4-0	4	100	50	-	-	-			
Processing										
Elective-I (Specialization related) 1.Fiber-Optics Components and Device 2.Radar and Sonar Signal Processing 3.Biomedical Instrumentation and Signal Processing 4.Digital Eilter Design	4-0	4	100	50	-	-	-			
Flective-II (Denartmental										
related) 1. Advanced Techniques in DSP 2. Statistical Signal Processing 3. RF and Mixed-Signal Integrated Circuits 4.VLSI Digital Signal Processing	4-0	4	100	50	-	-	-			
Elective-III (from any										
Department) 1.Data Encryption and Security 2. Network Architecture and Design. 3. Antenna Theory and Design 4. Wireless and Mobile Communication	4-0	4	100	50	-	-	-			
Lab-2 (Specialization lab to be decided by the Department)					4	4	150			
Seminar/Project					4	4	150			
Total										
Total Marks: 1050										
Total Credits: 28										
	1	1	1		1	1				

### Specialization: Signal Processing and Communication

### **BRANCH: ENERGY CONSERVATION & MANAGEMENT**

2nd Semester

Syllabus will be uploaded soon

### **BRANCH-ENVIRONMENTAL ENGINEERING**

2nd Semester

Second Semester								
Theory Practical								
Course Name	Hours/ Week L/T	Credit Theory	University Marks	Internal Evaluation	Hours/ Week L/T	Credit Practical	Marks	
Specialization Core-1	4-0	4	100	50	-	-	-	
Air & Noise Poliution Specialization Core-2 Solid Waste Management	4-0	4	100	50	-	_	-	
Elective I (Specialization related) 1. Hazardous Waste Management 2. Industrial Pollution Control 3. Advanced Water & Waste Water Treatment System 4. Green Technology	4-0	4	100	50	-	-	-	
Elective II (Departmental related) 1. Environmental Impact Assessment 2. Environmental Management 3. Occupational Health & Safety 4. Environmental System Modeling & Optimization	4-0	4	100	50	-	-	-	
Elective III (from any department) 1 Environmental Hydraulics 2. Engineering Hydrology 3. Application of Remote Sensing & GIS for Environmental Engineering 4. Instrumental Methods for Environmental Analysis	4-0	4	100	50	-	-	-	
Lab-2 (Specialization lab to be decided by the department)					4	4	150	
Seminar/Project					4	4	150	
Total								
Total Marks: 1050								
Total Credits: 28								

#### Specialization: Environmental Engineering/ Environmental Science & Engineering

# BRANCH-INDUSTRIAL ENGINEERING & MANAGEMENT 2<sup>nd</sup> Semester

TheoryPracticalCourse NameHours/ Week L/TCredit Theory MarksHours/ EvaluationHours/ L/TCredit PracticalMarksSpecialization Core-1 Decision Modeling-II4-0410050Specialization Core-2 Supply Chain Management4-0410050Elective-1 (Specialization related)4-0410050I.Quality Engineering & Management 2.Facility Planning Management4-0410050J.Facility-I (Departmental related)4-0410050J.Total Quality Management 2. Fractitive Management 3. Human Resource Management4-0410050Specialization related)4-0410050J.Total Quality Management 2. Froductivity4-0410050Specialization related)J.Total Quality Management 3. Human Resource Management 4. Strategic ManagementJ.Human Resource ManagementJ.Human Resource ManagementJ.Human Resource Management <th></th> <th></th> <th></th> <th>Second Sen</th> <th>nester</th> <th>T</th> <th></th> <th></th>				Second Sen	nester	T		
Course NameHours/ Week L/TCredit Theory MarksUniversity MarksInternal EvaluationHours/ Week L/TCredit PracticalMarksSpecialization Core-1 Decision Modeling-II4-0410050Specialization Core-2 Supply Chain Management4-0410050Specialization Core-2 Supply Chain Management4-0410050Industry Core Core Core Core Core Core Core Core		Th	eory				Practical	
Week L/TTheory L/TMarksEvaluation EvaluationWeek VPracticalSpecialization Core-1 Decision Modeling-II4-0410050Specialization Core-2 Supply Chain Management4-0410050Image Decision Modeling-II4-0410050Specialization Core-2 Supply Chain Management4-0410050Image Decision Modeling-II Management4-0410050Image Decision Mage Decision Management A.Marketing Management4-0410050Image Decision Management S.Finantial Management Management4-0410050Image Decision Management S.Amatering Management4-0410050Image Decision Management S.Productivity4-0410050Image Decision Mage Decision Management S.Human Resource Management A.Strategic Management4-0410050Image Decision Management A.Strategic Management B.Elective-III (from any Department)4-0410050Image Decision Management A.Strategic Management B.Human ResourceImage Decision Management <t< th=""><th>Course Name</th><th>Hours/</th><th>Credit</th><th>University</th><th>Internal</th><th>Hours/</th><th>Credit</th><th>Marks</th></t<>	Course Name	Hours/	Credit	University	Internal	Hours/	Credit	Marks
L/TImage relation Core-1 Decision Modeling-IIL/TImage relationSpecialization Core-1 Supply Chain4-0410050Supply Chain Management4-0410050Elective-I (Specialization related) 1.Quality Engineering & Management4-0410050Simantial Management Accounting 4.Marketing Management4-0410050Elective-II (Departmental related) 1. Total Quality Management 2. Productivity4-0410050Elective-II (Specialization related) 3. Human Resource Management 4. Strategic Management4-0410050Elective-II (Iform any Department)4-0410050		Week	Theory	Marks	Evaluation	Week	Practical	
Specialization Core-1 Decision Modeling-II4-0410050Specialization Core-2 Supply Chain Management4-0410050Elective-1 (Specialization related) 1.Quality Engineering & Management-4100502.Facility Planning 3.Finantial Management 4.Marketing Management4-0410050Elective-I (Departmental related)1. Total Quality Management 2. Productivity4-04100501. Total Quality Management 3. Human Resource Management 4. Strategic Management4-04100501. Total Quality Management 4. Strategic Management 4. Strategic Management4-04100501. Total Quality Management 4. Strategic Management 4. Strategic Management4-04100501. Tetal Quality Management 4. Strategic Management 4. Strategic Management4-04100501. Total Quality Management 4. Strategic Management 4. Strategic Management1. Elective-III (from any Department)1. Department 4. Strategic Management1. Strategic Management 4. Strategic Management		L/T				L/T		
Decision Modeling-II1 C1 C<	Specialization Core-1	4-0	4	100	50	-	_	_
Specialization Core-24-0410050ManagementImage StateImage StateImage StateImage StateImage StateImage StateImage StateElective-I (Specialization related)Image StateImage StateImage StateImage StateImage StateImage State1.Quality Engineering & ManagementImage StateImage StateImage StateImage StateImage StateImage State2.Facility PlanningImage StateImage StateImage StateImage StateImage StateImage StateImage State4.MarketingImage StateImage StateImage StateImage StateImage StateImage StateImage StateManagementImage StateImage StateImage StateImage StateImage StateImage StateImage State2.ProductivityImage StateImage StateImage StateImage StateImage StateImage StateImage State3. Human ResourceImage StateImage StateImage StateImage StateImage StateImage StateImage StateImage State3. Human ResourceImage StateImage StateImage StateImage StateImage StateImage StateImage State3. Human ResourceImage StateImage StateImage StateImage StateImage StateImage StateImage State4. StateImage StateImage StateImage StateImage StateImage StateImage StateImage State3. Hum	Decision Modeling-II			100				
Supply Chain Management4-0410050 <i>Elective-I (Specialization related)</i> 1.Quality Engineering & Management 2.Facility Planning 4.Quality Planning 4.Accounting 4.Marketing Management Elective-II (Departmental related) 1. Total Quality Management 2. Productivity4-0410050Management 8.Accounting 4.Marketing Management 2. Productivity4-0410050I. Total Quality Management 3. Human Resource Management 4. Strategic Management4-0410050Management 4. Strategic Management 4. Strategic Management4-0410050	Specialization Core-2	4.0		400	50			
ManagementImagementImagementImagementI.Quality Engineering & Management4-04100502.Facility Planning4-04100503.Finantial Management & Accounting4.04100504.Marketing Management1. Total Quality Management 2. Productivity4-04100503. Human Resource Management 4. Strategic Management 4. Strategic Management4. Strategic Management 4. Strategic Management 4. Strategic Management	Supply Chain	4-0	4	100	50	-	-	-
Litertive-II (Specialization related)4-04100501.Quality Engineering & Management4-04100503.Finantial Management & Accounting Management4.Marketing Management1. Total Quality Management 2. Productivity4-04100501. Total Quality Management 3. Human Resource Management 4. Strategic Management4-0410050Management 4. Strategic Management 4. Strategic Management 4. Strategic Management	Management							
Inductory 1.Quality Engineering & Management 2.Facility Planning 3.Finantial Management & Accounting 4.Marketing Management4-0410050 <i>Elective-II (Departmental related)</i> 1. Total Quality Management 2. Productivity4-0410050Management telated)1. Total Quality Management 2. Productivity4-04100503. Human Resource Management 4. Strategic Management4. Strategic Management Department)	Elective-I (Specialization							
Analogement 2.Facility Planning 3.Finantial Management & Accounting 4.Marketing Management4-0410050 <i>Barbornian Contractions</i> <i>AnalogementBarbornian</i> <i>AnalogementBarbornian</i> <i>PlanningBarbornian</i> <i>AnalogementBarbornian</i> <i>Planning</i> <td< td=""><td>1 Quality Engineering &amp;</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	1 Quality Engineering &							
Management 2.Facility Planning4-04100503.Finantial Management & Accounting 4.Marketing Management4.Marketing ManagementElective-II (Departmental related)1. Total Quality Management2. Productivity Management4-04100503. Human Resource Management4. Strategic Management 4. Strategic ManagementElective-III (from any Department)	Management							
3.Finantial Management & Accounting 4.Marketing Management Elective-II (Departmental related) 1. Total Quality Management 2. Productivity 4-0 3. Human Resource Management 4. Strategic Management 4. Strategic Management 4. Strategic Management	2 Facility Planning	4-0	4	100	50	-	_	_
& Accounting 4.Marketing Management Elective-II (Departmental related) 1. Total Quality Management 2. Productivity 4-0 4-0 4-0 4 4-0 4 100 50 - - - - Management 3. Human Resource Management 4. Strategic Management 4. Strategic Management 5. Strat	3.Finantial Management	10	•	100	50			
4.Marketing Management           Elective-II (Departmental related)           1. Total Quality           Management           2. Productivity       4-0       4       100       50           Management       -             Management       -       -           3. Human Resource       -       -           Management       -       -           4. Strategic Management       -       -           Elective-III (from any Department)       -       -       -	& Accounting							
ManagementImage: constraint of the second secon	4.Marketing							
Elective-II (Departmental related)Image and the second se	Management							
related) 1. Total Quality Management 2. Productivity4-0410050Management 3. Human Resource Management 4. Strategic Management <b>Elective-III (from any</b> <b>Department)</b> 4-0410050	Elective-II (Departmental							
1. Total Quality       A-0       A       100       50       -       -       -         2. Productivity       4-0       4       100       50       -       -       -         Management       .       .       .       .       .       .       .       .         3. Human Resource       .       .       .       .       .       .       .       .       .         4. Strategic Management       .       .       .       .       .       .       .       .       .         Elective-IIII (from any       .       .       .       .       .       .       .       .       .	related)							
Management 2. Productivity4-0410050Management 3. Human Resource Management 4. Strategic Management <b>Elective-III (from any</b> <b>Department)</b>	1. Total Quality							
2. Productivity       4-0       4       100       50       -       -       -       -         Management       3. Human Resource       A       100       50       -	Management							
Management       .         3. Human Resource       .         Management       .         4. Strategic Management       . <i>Elective-III (from any</i> .         Department)       .	2. Productivity	4-0	4	100	50	-	-	-
3. Human Resource         Management         4. Strategic Management         Elective-III (from any         Department)	Management							
Management       4. Strategic Management       Elective-III (from any       Department)	3. Human Resource							
4. Strategic Management Elective-III (from any Department)	Management							
Elective-III (from any Department)	4. Strategic Management							
Department)	Elective-III (from any							
1 System Modeling 9	1 System Modeling &							
2 Enterprise Resource $4-0$ $4$ $100$ $50$	2 Enterprise Resource	4-0	Δ	100	50	_	_	_
Planning(ERP)	Planning(ERP)	10	•	100	50			
3. Total Productive	3. Total Productive							
Maintenance	Maintenance							
4. Project Management	4. Project Management							
Lab-2 (Specialization	Lab-2 (Specialization							
lab to be decided by 4 4 150	lab to be decided by					4	4	150
the Department)	the Department)							
Seminar/Project 4 4 150	Seminar/Project					4	4	150
Total	Total							
Total Marks: 1050	Total Marks: 1050							
Total Credits: 28	Total Credits: 28							

## Specialization: Industrial Engineering & Management/Industrial Engineering

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### **BRANCH-INFORMATION TECHNOLOGY**

2<sup>nd</sup> Semester

Specialization: IT									
			Second Sen	nester					
	Th	eory			Practical				
Course Name	Hours/ Week L/T	Credit Theory	University Marks	Internal Evaluation	Hours/ Week L/T	Credit Practical	Marks		
Specialization Core-1 Data Ware Housing & Data Mining	4-0	4	100	50	-	-	-		
Specialization Core-2 Software Engineering	4-0	4	100	50	-	-	-		
Elective I(Specialization related) 1. Distributed Database System. 2. J2EE. 3. Information Extraction and Retrieval. 4. Enterprise Resource Planning.	4-0	4	100	50	-	-	-		
Elective II(Departmental related) 1. Information Theory and Coding Techniques 2. Cloud Computing 3. Cryptography 4. Graph Theory.	4-0	4	100	50	-	-	-		
Elective III(from any department)1.Mobile Computing.2.Business Function Process.3.Big Data Analytic4.Bio Informatics.5.Digital Image Processing	4-0	4	100	50	-	-	-		
Lab-2 (Specialization lab to be decided by the department)					4	4	150		
Seminar/Project					4	4	150		
Total									
Total Marks: 1050									
Total Credits: 28	1	1							
		1	1	1	1				

**2nd Semester** 

Second Semester										
	Theor	ry				Practical				
Course Name	Hours/ Week L/T	Credit Theory	University Marks	Internal Evaluation	Hours/ Week L/T	Credit Practical	Marks			
<b>Specialization Core-1</b> Advanced Engg Thermodynamics.	4 - 0	4	100	50	-	-	-			
Specialization Core-2 Advanced Refrigeration Engineering.	4 - 0	4	100	50	-	-	-			
<ul> <li>Elective –I (Specialization related)</li> <li>1. Two-Phase Flow and Heat Transfer.</li> <li>2. Thermal &amp; Nuclear Power Plant.</li> <li>3. Introduction to Computational Fluid Dynamics.</li> <li>4. Computational Methods in Thermal Engineering.</li> </ul>	4 - 0	4	100	50	-	-	-			
<b>Elective-II</b> (Departmental related) 1. Advanced Internal Combustion Engine 2. Numerical Analysis 3. Heat Transfer Equipments. 4. Fluid & Gas Dynamics.	4 - 0	4	100	50	-	_	-			
<ul> <li>Elective-III (Other Departmental Related)</li> <li>Heat Exchanger Analysis and Design</li> <li>Renewable Energy Systems.</li> <li>Hydel Power &amp; Wind Energy.</li> <li>Advanced Fluid Mechanics.</li> </ul>	4 - 0	4	100	50	-	-	-			
Lab-2 (Specialization lab to be decided by the department)					4	4	150			
Seminar/Project					4	4	150			
Total										
Total Marks: 1050										
Total Credits: 28										

#### SPECIALIZATION: HEAT POWER & THERMAL ENGINEERING/HEAT POWER ENGINEERING/THERMAL ENGINEERING

# SPECIALIZATION: PRODUCTION ENGINEERING/PRODUCTION ENGINEERING & OPERATIONAL MANAGEMENT

Second Semester										
Theory Practical										
Course Name	Hours/ Week L/T	Credit Theory	University Marks	Internal Evaluation	Hours/ Week L/T	Credit Practical	Marks			
<b>Specialization Core-1</b> Non- Traditional Machining	4 - 0	4	100	50	-	-	-			
<b>Specialization Core-2</b> Rapid Prototyping and Tooling	4 - 0	4	100	50	-	-	-			
<b>Elective–I</b> (Specialization related) 1. Advanced Decision Modeling and Techniques 2. Metal Forming Technology 3. Computer Aided Design and Computer Integrated Manufacturing 4. Metrology	4 - 0	4	100	50	-	-	-			
Elective-II (Departmental related) 1. Composite Materials 2. Quality Engineering & Reliability 3. Theory of Plastic Deformation. 4. Production Management.	4 - 0	4	100	50	-	-	-			
Elective-III (From any department) 1. Quantitative Techniques in Production Management. 2. Alternative Energy. 3. Machine Fault Diagnosis and Signal Processing. 3. Finite Element Methods in Engineering. 4. Tribology.	4 - 0	4	100	50	-	-	-			
Lab-2 (Specialization lab to be decided by the department)					4	4	150			
Seminar/Project					4	4	150			
Total										
Total Marks: 1050 Total Credits: 28										

2nd Semester

Second Semester										
Theory Practical										
Course Name	Hours/ Week L/T	Credit Theory	University Marks	Internal Evaluation	Hours/ Week L/T	Credit Practical	Marks			
Specialization Core-1 Mechanics of Composite Materials	4 - 0	4	100	50	-	-	-			
Specialization Core-2 Fatigue, Creep & Fracture	4 - 0	4	100	50	-	-	-			
Elective –I (Specialization Related) 1. Finite Element Method 2. Bearing and Lubrication 3. Basic Mechanical Handling systems 4. Analysis and synthesis of Mechanism.	4 - 0	4	100	50	-	-	_			
Elective-II (Departmental Related) 1. Optimum Design of Mechanical Systems 2. Composite Materials 3. Material Selection in Mechanical Design. 4. Experimental Stress Analysis	4 - 0	4	100	50	-	-	-			
Elective-III (From any department) 1. Experimental Stress Analysis. 2. Numerical Analysis. 3. Industrial Robotics 4. Computer Aided Design.	4 - 0	4	100	50	-	-	-			
Lab-2 (Specialization lab to be decided by the department)					4	4	150			
Seminar/Project					4	4	150			
Total										
Total Marks:1050										
Total Credits: 28										

#### **SPECIALIZATION:** MACHINE DESIGN / MECHANICAL SYSTEMS DESIGN / SYSTEM DESIGN

**2nd Semester** 

		Secor	nd Semester					
	Theorem	ry				Practical		
Course Name	Hours/ Week L/T	Credit Theory	University Marks	Internal Evaluation	Hours/ Week L/T	Credit Practical	Marks	
<b>Specialization Core-1</b> Advanced Engg Thermodynamics.	4 - 0	4	100	50	-	-	-	
Specialization Core-2 Advanced Fluid Mechanics	4 - 0	4	100	50	-	-	-	
<ul> <li>Elective –I (Specialization Related)</li> <li>1. Advanced Refrigeration Engg.</li> <li>2. Computational Fluid Dynamics.</li> <li>3. Computational Methods in</li> <li>Thermal Engg.</li> <li>4. Gas Turbine &amp; Jet Propulsion.</li> </ul>	4 - 0	4	100	50	-	-	-	
Elective-II (Departmental Related) 1. Two-phase Flow and Heat Transfer. 2. Gas Dynamics 3. Heat Exchanger Analysis and Design. 4. Aircraft & Rocket Propulsion.	4 - 0	4	100	50	-	-	-	
Elective-III (Other Department Related) 1. Cryogenic Technology. 2. Advanced Internal Combustion Engines. 3. Viscous Fluid Flow. 4. Wind Energy Conversion.	4 - 0	4	100	50	-	-	-	
Lab-2 (Specialization lab to be decided by the department)					4	4	150	
Seminar/Project					4	4	150	
Total								
Total Marks: 1050								
Total Credits: 28								

### **SPECIALIZATION:** FLUID & THERMAL ENGINEERING

**2nd Semester** 

Second Semester										
	Theo	ry				Practical				
Course Name	Hours/	Credit	University	Internal	Hours/	Credit	Marks			
	Week	Theory	Marks	Evaluation	Week	Practical				
	L/T	-			L/T					
Specialization Core-1	4 - 0	4	100	50	-	-	150			
Computer Numeric Control Part										
programming										
Specialization Core-2	4 - 0	4	100	50	-	-	150			
Computer Integrated										
Manufacturing										
<b>Elective</b> – <b>I</b> (Specialization related)	4 - 0	4	100	50	-	-	150			
1. Rapid Prototyping and										
Manufacturing										
2. Mechantronics and										
Manufacturing Systems										
simulation										
4 Metrology And Non										
Destructive Testing										
Elective-II (Departmental related)	4 - 0	4	100	50	_	_	150			
1. Manufacturing Information	1 0	•	100	50			150			
System										
2. Design of Material Handling										
Equipment										
3. Performance Modeling And										
Analysis Of Manufacturing										
System Performance										
4. Computer Aided Process										
	4.0	4	100	50						
Elective-III(Departmental	4-0	4	100	50						
Related)										
2. Computer Aided Design and										
Computer Integrated										
Manufacturing										
3. Management Information										
System.										
4. Metrology & Non-destructing										
Testing.										
Lab-2 Compute Aided					4	4	150			
Manufacturing Lab										
Seminar/Project					4	4	150			
Total										
Total Marks: 1050										
Total Credits: 28										

#### SPECIALIZATION: CAD/CAM

#### 2nd Semester

Second Semester										
	Theo	ry				Practical				
Course Name	Hours/	Credit	University	Internal	Hours/	Credit	Marks			
	Week	Theory	Marks	Evaluation	Week	Practical				
	L/T				L/T					
Specialization Core-1	4 - 0	4	100	50	-	-	150			
Vibration of structures										
Specialization Core-2	4 - 0	4	100	50	-	-	150			
Dynamics of Rotors.										
Elective – I (Specialization	4 - 0	4	100	50	-	-	150			
Related)										
1. Acoustics										
2. Machine Fault Diagnosis										
and Signal Processing										
3. Mechatronics										
4. Analysis and Design of										
Smart Materials and Structure										
Elective-II (Departmental	4 - 0	4	100	50	-	-	150			
Related)										
1. Finite Element Method in										
Engineering										
2. Bearing and Lubrication										
3. Vibration and Shock										
Isolation										
4. Computer Graphics and										
Visualization										
Elective-III (From any	4 - 0	4	100	50	-	-	150			
department)										
1. Robotics and Automation										
2. Random vibrations &										
Failure Analysis										
3. Experimental Stress										
Analysis										
4. Non Linear Vibration										
					4	4	150			
LaD-2 (to be decided by the					4	4	150			
Seminon/Droise4					A	Λ	150			
Seminar/Project					4	4	130			
Total Markey 1050										
Total Marks: 1050										
1 otal Credits: 28										

#### SPECIALIZATION: MECHANICAL SYSTEM DESIGN & DYNAMICS / DESIGN & DYNAMICS

**2<sup>ND</sup> SEMESTER** 

## Syllabus will be uploaded soon

### **BRANCH-METALLURGICAL ENGINEERING**

2nd Semester

Second Semester											
	Theory				Practical						
Course Name	Hours/ Week L/T	Credit Theory	University Marks	Internal Evaluation	Hours/ Week L/T	Credit Practical	Marks				
Specialization Core-1 Transport Phenomena in Metallurgy	4-0	4	100	50	-	-	-				
Specialization Core-2 Mechanical Behavior of Materials	4-0	4	100	50	-	-	-				
<b>Elective I (Specialization related)</b> 1.Solid State Phase Transformation 2.Mechanical Working of Materials 3.Physics of Materials 4.Process Metallurgy	4-0	4	100	50	-	-	-				
Elective II(Departmental related) 1.Advanced Casting Processes 2.Metal Failure and Analysis 3.Industrial Heat Treatment 4.Nano Materials 5.Modeling and Computer Application in Metallurgy 6.Powder Metallurgy	4-0	4	100	50	-	-	-				
Elective III (from any Department) 1.Tribology of Materials 2.Composite Materials 3.Bio Materials 4.Degradation of Materials	4-0	4	100	50	-	-	-				
Lab-2 Material Processing and Process Metallurgy Lab					4	4	150				
Seminar/Project					4	4	150				
Total											
Total Marks: 1050											
Total Credits: 28											

#### Specialization: METALLURGICAL AND MATERIALS ENGINEERING

### **BRANCH-METALLURGICAL ENGINEERING**

2nd Semester

Second Semester										
Theory Practical										
Course Name	Hours/ Week L/T	Credit Theory	University Marks	Internal Evaluation	Hours/ Week L/T	Credit Practical	Marks			
Specialization Core-1 Metal Forming Theory and Practices	4-0	4	100	50	-	-	-			
Specialization Core-2 Advanced Ferrous Production Technology	4-0	4	100	50	-	-	-			
Elective I (Specialization related) 1.Non Ferrous Metal Extraction 2.Alternatives Routes of Iron Making 3.Mineral Engineering 4.Material Joining and Non Destructive Testing	4-0	4	100	50	-	-	-			
Elective II(Departmental related) 1.Advanced Casting Processes 2.Metal Failure and Analysis 3.Industrial Heat Treatment 4.Nano Materials Modeling and Computer Application in Metallurgy	4-0	4	100	50	-	-	-			
Elective III(from any department) 1.Tribology of Materials 2.Composite Materials 3.Bio Materials 4.Degradation of Materials	4-0	4	100	50	-	-	-			
Lab-2 Fabrication and Characterisation of Materials Lab					4	4	150			
Seminar/Project					4	4	150			
Total										
Total Marks: 1050										
Total Credits: 28										

#### Specialization: INDUSTRIAL METALLURGY

### BRANCH-Nanotechnology

### 2<sup>nd</sup> Semester

Second Semester										
	Th	eory			Practical					
Course Name	Hours/	Credit	University	Internal	Hours/	Credit	Marks			
	Week	Theory	Marks	Evaluation	Week	Practical				
	L/T				L/T					
Specialization Core-1										
Mathematical Modeling	4-0	4	100	50	-	-	-			
& Simulation										
Specialization Core-2										
Fabrication Techniques	4-0	4	100	50	-	-	-			
& Characterization of		-								
Nanomaterials										
Elective-I (Specialization										
related)										
1.Nanoparticles &										
microorganisms, Bionano										
composite										
2.Nanocomposites	4-0	4	100	50	-	-	-			
3.Quntum Mechanics										
4. Physicochemical										
Methods for										
Characterization of										
Nanomaterials										
Elective-II (Departmental										
related)										
1. Biosensors										
2. MEMS & Bio MEMS	4-0	4	100	50	-	-	-			
3.Nanobiotechnology										
4.Advance										
Nanomaterials										
Elective-III (from any										
Department)										
1.Nanotechnology in										
Health Care										
2. Nanotechnology for										
Energy System	4-0	4	100	50	-	-	-			
3.Green Nanotechnology										
4.Bio Informatics										
5. Semiconductor Nano										
Structure &										
Nanoparticles										
Lab-2 (Specialization										
lab to be decided by					4	4	150			
the Department)										
Seminar/Project					4	4	150			
Total										
Total Marks: 1050										
Total Credits: 28										

### Specialization: Nanotechnology

### **BRANCH-Nanotechnology**

2<sup>nd</sup> Semester

Second Semester										
	Th	eory				Practical				
Course Name	Hours/ Week L/T	Credit Theory	University Marks	Internal Evaluation	Hours/ Week L/T	Credit Practical	Marks			
Specialization Core-1 Nanofabrication Technology	4-0	4	100	50	-	-	-			
Characterization of Polymeric Nanomaterials	4-0	4	100	50	-	-	-			
<i>Elective-I (Specialization related)</i> 1. Mechanics of Finite Size Elements 2. Polymer based Optical, Electronic & Magnetic Materials	4-0	4	100	50	-	-	-			
<i>Elective-II (Departmental related)</i> 1.Micro/Nanofluidics - Design & Modeling 2. Nanopolymers in Medicine	4-0	4	100	50	-	-	-			
<i>Elective-III (from any Department)</i> 1. Technology, innovation and quality Management 2. Nanomaterials for Energy & Environment 3.Green Nanotechnology	4-0	4	100	50	-	-	-			
Lab-2 (Specialization lab to be decided by the Department)					4	4	150			
Seminar/Project					4	4	150			
Total										
Total Marks: 1050										
Total Credits: 28										

### Specialization: Polymer Nanotechnology

### **BRANCH- PLASTIC ENGINEERING**

#### 2nd Semester

Second Semester										
	Theory					Practical				
Course Name	Hours/ Week L/T	Credit Theory	University Marks	Internal Evaluation	Hours/ Week L/T	Credit Practical	Marks			
Specialization Core-1 Properties & Testing of Plastics	4-0	4	100	50	-	-	-			
Specialization Core-2 Plastics Processing Theory and Product Design	4-0	4	100	50	-	-	-			
Elective I(Specialization related) 1. Coating Science & Technology 2. Biodegradable Plastics 3 .Polymer Rheology 4. Plastics waste management and recycling.	4-0	4	100	50	-	-	-			
Elective II (Departmental related) 1.Polymer degradation and stabilization . 2.Mechanical behavior of polymers 3.Polymer Blends and Alloys 4.Nylon technology	4-0	4	100	50	-	-	-			
<i>Elective III (from any department)</i> 1.Production management 2.Engineering Economic and costing 3.Strength of materials 4.CAD/CAM/CAE application in mould/tool design	4-0	4	100	50	-	-	-			
Lab-2 (Specialization lab to be decided by the department)					4	4	150			
Seminar/Project					4	4	150			
Total										
Total Marks: 1050										
Total Credits: 28										

#### Specialization: Plastic Engineering

### **BRANCH- TEXTILE ENGINEERING**

#### 2nd Semester

### Specialization: Textile Chemical Processing

Second Semester										
	Theory					Practical				
Course Name	Hours/	Credit	University	Internal	Hours/	Credit	Marks			
	Week	Theory	Marks	Evaluation	Week	Practical				
	L/T				L/T					
Specialization Core-I	4-0	4	100	50	-	-	-			
Chemistry of Dyes and										
Specialization Core-II	4-0	4	100	50	_	_	_			
Advanced Chemical	40	-	100	50						
Processing										
Elective – I	4-0	4	100	50	-	-	-			
(Specialization										
related)										
1. Principle of Colour										
Communication										
2. Application of Plasma in										
Textile										
3. Application of Nano										
4.Technical Textile										
Elective – II	4-0	4	100	50	-	-	-			
(Departmental										
related)										
1. Fibre Reinforced										
Composites										
Biotechnology in Textile										
3.Garment Processing										
Technology										
Flective III (from	4-0	Δ	100	50						
any department)	4-0	7	100	50			_			
1.Biopolymer										
2.Solar Energy Technology										
3.Polymer s & Fiber										
4.Environmental &										
Ecological Aspects of										
Textile Processing										
5.Digital Image Processing							450			
Advance Chemical					4	4	150			
Processing Lab										
Seminar/Project					4	4	150			
Total										
Total Marks: 1050										
Total Credits: 28										