VIKAS COLLEGE OF ENGINEERING AND TECHNOLOGY
(Sponsored by SARASWATHI VIDYA PEETAM)
(Approved by AICTE, New Delhi & Affiliated to JNTUK, Kakinada)
Certified by ISO 9001:2015:: Accredited by NAAC with 'B+ 'Grade.
NUNNA-521212, Vijayawada Rural, Krishna Dt., A.P. India.
E-mail-principal.vcet@gmail.com, Website: http://www.vikasinstitutionsnunna.org/

EXPERIENTIAL LEARNING

M.TECH-MACHINE DESIGN- PROGRAM STRUCTURE

I Year - I Semester						
S. No.	Subjects	L	T	P	Credits	Category
1	Advanced Mechanics of Solids	3	0	0	3	PCC
2	Mechanical Vibrations and Acoustics	3	0	0	3	PCC
3	Design of Modern Vehicle Systems Product Design Geometric Modeling Fracture Mechanics Advanced Mechanisms	3	0	0	3	PEC
4	Non-Destructive Evaluation Robotics Design for Manufacturing & Assembly Multi Body Dynamics Vision Systems and Image Processing	3	0	0	3	PEC
5	Machine Dynamics Lab	0	0	4	2	PCC
6	Design Practice Lab-I	0	0	4	2	PCC
7	Research Methodology and IPR	2	0	0	2	HSMC
8	Soft Skills	2	0	0	0	HSMC
	Total	16	0	8	18	

I Year - II Semester						
S. No.	Subjects	L	T	P	Credits	Category
1	Advanced Finite Element Methods	3	0	0	3	PCC
2	Advanced Machine Design	3	0	0	3	PCC
3	Theory of Plasticity Signal Analysis and Condition Monitoring Computational Fluid Dynamics Composite Materials Soft Computing	3	0	0	3	PEC
4	Experimental Techniques and data analysis Design with advanced Materials Mechatronics Tribology Experimental Modal Analysis	3	0	0	3	PEC
5	Computational Mathematics Lab	0	0	4	2	PCC
6	Design Practice Lab-II	0	0	4	2	PCC
7	Value Education	2	0	0	0	HSMC
8	Mini Project with Seminar	0	0	4	2	SEM
	Total	14	0	12	18	

II Year - I Semester						
S. No.	Subjects	L	T	P	Credits	Category
1	Industrial Robotics Advanced Optimization Techniques Additive Manufacturing Mechanics of Composite Materials Vehicle Dynamics	3	0	0	3	PEC
2	OPEN ELECTIVE	3	0	0	3	OEC
3	Dissertation Phase -I	0	0	20	10	PROJ
	Total	6	0	20	16	

II Year - II Semester						
S. No.	Subjects	L	T	P	Credits	Category
1	Dissertation Phase -II	0	0	32	16	PROJ
	Total	0	0	32	16	

M.TECH-STRUCTURAL ENGINEERING-PROGRAM STRUCTURE

I-I - Semester						
S.No	Course Name	Category	L	T	P	C
1	Theory of Elasticity	PCC	3	0	--	3
2	Structural Dynamics	PCC	3	0	--	3
3	Elective I	EL	3	0	--	3
	a)Matrix Analysis of Structures					
	b) Analytical & Numerical Methods for Structural Engineering					
	c) Design of RCC Foundations					
4	Program Elective II	EL	3	0	--	3
	a)Bridge Engineering					
	b)Repair and Rehabilitation of Structures					
	c) Advanced Reinforced Concrete Design					
5	Advanced Concrete Technology	PCC	2	0	0	2
6	Advanced Concrete Technology Laboratory	PCC	-	--	4	2
7	Advanced Structural Engineering Laboratory	PCC	-	--	4	2
8	Audit Course –1 English for Research PaperWriting DisasterManagement Sanskrit for TechnicalKnowledge ValueEducation	Audit	2	0	0	0
Total						**18**

I-II – Semester						
S.No.	Course Name	Category	L	T	P	C
1	Finite Element Methods in Structural Engineering	PCC	3	0	--	3
2	Theory of Plates and Shells	PCC	3	0	--	3
3	Elective III a)Stability of Structures b)Advanced Steel Design c) Analysis of Offshore Structures	EL	3	0	--	3
4	Elective IV a) Earthquake Resistant Design of Buildings b)Precast and Prefabricated Structures c)Earth Retaining Structures	EL	3	0	--	3
5	Computer Aided Design Laboratory	PCC	--	--	4	2
6	Structural Design laboratory	PCC	--	--	4	2
7	Audit Course-2 Constitution of India Stress Management by Yoga Personality Development through Life Enlightenment Skills.	SEM	0	0	4	2
8	Mini Project With Seminar	Audit	2	0	0	0
Total						**18**

II – I Semester						
S.No.	Course Name	Category	L	T	P	C
1	Elective 5: Program Elective / MOOCS** a)Design of prestressed Concrete Structures b)Structural Health Monitoring c)Industrial Structures	EL	3	0	--	3
2	Open Elective / MOOCS** a) Artificial Intelligence Technique b) Construction Management c) Green Technology	EL	3	0	--	3
3	Dissertation Phase-I / Industrial Project (To be continued and Evaluated next Semester)*	PROJECT	--	--	20	10
Total Credits						**16**

II - II Semester						
S. No.	Course Name	Category	L	T	P	C
1	Project / Dissertation Phase II (Continued from III Semester)	PROJECT	0	0	32	16
Total Credits						**16**

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M.TECH-CSE-PROGRAM STRUCTURE

I Year - I Semester						
S. No.	**Subjects**	**L**	**T**	**P**	**Credits**	**Category**
1	Mathematical Foundations of Computer Science	3	0	0	3	PC
2	Advanced Data Structures & Algorithms	3	0	0	3	PC
3	Program Elective-1 1. Big Data Analytics 2. Digital Image Processing 3. Advanced Operating Systems	3	0	0	3	PE
4	Program Elective-2 1. Advanced Computer Networks 2. Internet of Things 3. Object Oriented Software Engineering	3	0	0	3	PE
5	Research Methodology and IPR	3	0	0	2	HS
6	Advanced Data Structures & Algorithms Lab	0	0	4	2	PC
7	Advanced Computing Lab	0	0	4	2	PC
8	Audit Course-1* English for Research Paper Writing Disaster Management Sanskrit for Technical Knowledge Value Education	2	0	0	0	AC
	Total	**17**	**0**	**8**	**18**	

I Year - II Semester						
S. No.	**Subjects**	**L**	**T**	**P**	**Credits**	**Category**
1	Machine learning	3	0	0	3	PC
2	MEAN Stack Technologies	3	0	0	3	PC
3	Program Elective-3 1. Advanced Databases and Mining 2. Ad Hoc & Sensor Networks 3. Soft Computing	3	0	0	3	PE
4	Program Elective-4 1. Cloud Computing 2. Principles of computer security 3. High Performance Computing	3	0	0	3	PE
5	Machine Learning with python lab	0	0	4	2	PC
6	MEAN Stack Technologies Lab	0	0	4	2	PC
7	Mini Project with Seminar	2	0	0	2	MP

8	Audit Course-2 * Constitution of India Pedagogy Studies Stress Management by Yoga Personality Development through	2	0	0	0	AC
	Total	**16**	**0**	**8**	**18**	

II Year - I Semester

S. No.	Subjects	L	T	P	Credits	Category
1	Program Elective-5 1. Deep Learning 2. Social Network Analysis 3. MOOCs-1 (NPTEL/SWAYAM) 12 Week Program related to the programme which is not listed in the course structure	3	0	0	3	PE
2	Open Elective 1. MOOCs-2 (NPTEL/SWAYAM)-Any 12 Week Course on Engineering/ Management/ Mathematics offered by other than parent department 2. Course offered by other departments in the college	3	0	0	3	OE
3	Dissertation-I/ Industrial Project	0	0	20	10	PJ
	Total	**6**	**0**	**20**	**16**	

II Year - II Semester

S. No.	Subjects	L	T	P	Credits	Category
1	Dissertation-II	0	0	32	16	PJ
	Total	**0**	**0**	**32**	**16**	

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M.TECH-EMBEDDED SYSTEM-PROGRAM STRUCTURE

I Year - I Semester

S. No.	Subjects	L	T	P	Credits	Category
1	Embedded System Design	3	0	0	3	PCC
2	Microcontrollers and Programmable Digital Signal Processors	3	0	0	3	PCC
3	**Elective 1** 1. Digital Signal and Image Processing 2. Parallel Processing 3. VLSI signal processing	3	0	0	3	PEC
4	**Elective II** 1.1. Programming Languages for Embedded Systems 2. System Design with Embedded Linux 3. CAD of Digital System	3	0	0	3	PEC
5	Embedded System Design Lab(using Embedded-C)	0		4	2	PCC
6	Microcontrollers and Programmable Digital Signal Processors Lab	0		4	2	PCC
7	Research methodology and IPR	2	0	0	0	HSMC
8	**Audit course-1** English for Research Paper Writing Disaster Management Sanskrit for Technical Knowledge Value Education	2	0	0	0	AUD 1
	Total Credits				18	

I Year - II Semester

S.No.	Subjects	L	T	P	Credits	Category
1	Digital System Design	3	0	0	3	PCC
2	Real Time Operating Systems	3	0	0	3	PCC
5	**Elective III** 1.Memory Architectures 2. SoC Design 3. Sensors &Actuators	3	0	0	3	PEC
6	**Elective IV** 1. Communication Buses and Interfaces 2. Network Security and Cryptography 3. Physical design automation	3	0	0	3	PEC
7	Real Time Operating Systems Lab	0	0	4	2	PCC
8	Digital System Design Lab	0	0	4	2	PCC
9	Mini Project	0	0	4	2	MP

10	Audit Course – 2 Constitution of India Pedagogy Studies Stress Management by Yoga Personality Development through Life Enlightenment Skills	2	0	0	0	AUD 2
	Total Credits				18	

II Year - I Semester						
S. No.	Subjects	L	T	P	Credits	Category
1	1. IOT and its Applications 2. Hardware Software co-design 3. Artificial Intelligence	3	--	--	3	PEC
2	1. Business Analytics 2. Industrial Safety 3. Operations Research 4. Cost Management of Engineering Projects 5. Composite Materials 6. Waste to Energy	3	--	--	3	OE
3	Dissertation Phase -I /Industrial Project (to be continued and evaluated next semester)	0	--	20	10	Dissertation
	Total Credits				20	

II Year - II Semester						
S. No.	Subjects	L	T	P	Credits	Category
1	Project/ Dissertation Phase-II (continued from III semester)	--	--	32	16	Dissertation
	Total Credits				16	

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M.TECH- POWER ELECTRONICS AND ELECTRICAL DRIVES

I YEAR I SEM						
S.No	**Category**	**Course Name**	**L**	**T**	**P**	**C**
1	PC	Electrical Machine Modeling and Analysis	3	0	0	3
2	PC	Analysis of Power Electronic Converters	3	0	0	3
3	PE	Elective– I i. Modern Control Theory ii. Power Quality and Custom Power Devices iii. Programmable Logic Controllers & Applications	3	0	0	3
4	PE	Elective– II i. Artificial Intelligence Techniques ii. Renewable Energy Technologies iii. HVDC Transmission and Flexible C Transmission Systems	3	0	0	3
5		Research Methodology and IPR	2	0	0	2
6		Power Electronics Simulation Laboratory	0	0	4	2
7		Power Converters Laboratory	0	0	4	2
8		Audit Course– 1	2	0	0	0
		Total credits				18

I Year - II Semester						
S.No	**CourseName**	**L**	**T**	**P**	**C**	**Category**
1	Switched Mode Power Conversion	3	0	0	3	PC
2	Power Electronic Control of Electrical Drives	3	0	0	3	PC
3	Elective– III i. Control& Integration of Renewable Energy Systems ii. Hybrid Electric Vehicles iii. Digital Control Systems	3	0	0	3	PE
4	Elective– IV i. Advanced Digital Signal Processing ii. Applications of Power Converters iii. Microcontrollers	3	0	0	3	PE
5	Electric Drives Simulation Laboratory	0	0	4	2	
6	Electric Drives Laboratory	0	0	4	2	
7	Mini Project with Seminar	0	0	4	2	
8	Audit Course– 2	2	0	0	0	
	Total credits				18	

II Year - I Semester						
S.No	**CourseName**	**L**	**T**	**P**	**C**	**Category**
1	Program Elective– V i. Digital Signal Processing Controlled Drives ii. Smart Grid Technologies iii. Modeling & Simulation of Power Electronic Systems	3	0	0	3	PE
2	Open Elective i. Industrial Safety ii. Energy Audit, Conservation & Management iii.Composite Materials	3	0	0	3	OE
3	Dissertation Phase-I (to be continued and evaluated next semester)	0	0	20	10	
	Total credits				16	

II Year - II Semester				
S.No	**CourseName**	**T**	**P**	**C**
1	Dissertation Phase-II (continued from III semester)	0	32	16
	Total credits			16

MBA-PROGRAM STRUCTURE

I Year - I Semester						
S. No.	**Subjects**	**L**	**T**	**P**	**Credits**	**Category**
1	Principles of Management				3	PC
2	Managerial Economics				3	PC
3	Accounting for Managers				3	PC
4	Managerial Communication & Soft skills				3	PC
5	Business Environment				3	PC
6	Quantitative Analysis for Business Decision				3	PC
7	IT – LAB				3	PC
	Total Credits				21	

I Year - II Semester						
S. No.	**Subjects**	**L**	**T**	**P**	**Credits**	**Category**
1	Financial Management				3	PC
2	Human Resource Management				3	PC

3	Marketing Management				3	PC
4	Production and Operations Management				3	PC
5	Business Research Methods				3	PC
6	Organizational Behavior				3	PC
7	Mini Project *				2	PROJ
	Seminar on Mini Project				2	PROJ
	Total Credits				22	

II Year - III Semester

S. No.	Subjects	L	T	P	Credits	Category
1	Strategic Management				3	PC
2	Legal Aspects of Business				3	PC
3	Business Ethics & Corporate Governance				3	PC
4	**Elective-1** Leadership Management Security Analysis & Portfolio Managementt Consumer Behavior				9	PE
5	**Elective-2** Compensation and Reward Management Banking and Insurance Management Retail Management				9	PE
6	**Elective-3** Performance Management Advance Management Accounting Customer Relationship Management				9	PE
7	**Elective-4** Strategic Human Resource Management Strategic Financial Management Strategic Marketing Management				9	PE
	Total Credits				**45**	

II Year - IV Semester

S. No.	Subjects	L	T	P	Credits	Category
1	Logistic and Supply Chain Management	4			3	PC
2	Entrepreneurship Development	4			3	PC
3	**Elective-5** Organizational Development & Change - Management Financial Markets and Services Services Marketing				9	PE
6	Project				10	PROJ

4	**Elective-6** Global HRM Global Financial Management Promotional Distribution Management				9	PE
5	**Elective-7** Labor Welfare & Legislation Risk Management Global Marketing Management				9	PE
6	**Elective-8** Management of Industrial Relations Tax Management Supply Chain Management				9	PE
7	Major Project & Comprehensive Viva				8	PROJ
	Total Credits				**50**	

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KAKINADA – 533 003, Andhra Pradesh, India
DEPARTMENT OF CIVIL ENGINEERING

COURSE STRUCTURE

B.Tech. – I Year I Semester

S.No.	Category	Title	L/D	T	P	Credits
1	BS&H	Engineering Physics	3	0	0	3
2	BS&H	Linear Algebra & Calculus	3	0	0	3
3	Engineering Science	Basic Electrical & Electronics Engineering	3	0	0	3
4	Engineering Science	Engineering Graphics	1	0	4	3
5	Engineering Science	Introduction to Programming	3	0	0	3
6	Engineering Science	IT Workshop	0	0	2	1
7	BS&H	Engineering Physics Lab	0	0	2	1
8	Engineering Science	Electrical & Electronics Engineering Workshop	0	0	3	1.5
9	Engineering Science	Computer Programming Lab	0	0	3	1.5
10	BS&H	NSS/NCC/Scouts & Guides/Community Service	-	-	1	0.5
Total			**13**	**00**	**15**	**20.5**

B.Tech. – I Year II Semester

S.No.	Category	Title	L	T	P	Credits
1	BS&H	Communicative English	2	0	0	2
2	BS & H	Engineering Chemistry / Chemistry / Fundamental Chemistry	3	0	0	3
3	Engineering Science	Differential Equations & Vector Calculus	3	0	0	3
4	Engineering Science	Basic Civil & Mechanical Engineering	3	0	0	3
5	Professional Core	Engineering Mechanics/Network Analysis/ Data structures (Branch specific)	3	0	0	3
6	BS&H	Communicative English Lab	0	0	2	1
7	BS&H	Engineering Chemistry / Chemistry / Fundamental Chemistry Lab	0	0	2	1
8	Engineering Science	Engineering Workshop	0	0	3	1.5
9	Professional Core	Engineering Mechanics & Building Practices Lab Engineering Mechanics Lab/Network Analysis Lab/ Data structures Lab	0	0	3	1.5
10		Health and wellness, Yoga and Sports	-	-	1	0.5
Total			**14**	**00**	**11**	**19.5**

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DEPARTMENT OF CIVIL ENGINEERING

II Year – I SEMESTER

S. No	Course Code	Course Title	L	T	P	Credits
1	BSC301	Mathematics -III (Vector Calculus, Transforms and PDE)	3	0	0	3
2	PCC301	Strength of Materials - I	3	0	0	3
3	PCC302	Fluid Mechanics	3	0	0	3
4	PCC302	Surveying and Geometrics	3	0	0	3
5	PCC303	Highway Engineering	3	0	0	3
6	PCC304	Concrete Technology Lab	0	0	3	1.5
7	PCC305	Highway Engineering Lab	0	0	3	1.5
8	PCC306	Surveying Field Work – I (Lab)	0	0	3	1.5
9	SC301	**Skill oriented course***	1	0	2	2
10	MC301	Constitution of India	2	0	0	0
		Total Credits				**21.5**

II YEAR – II SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	PC401	Complex Variables and Statistical Methods	3	0	0	3
2	PC402	Strength of Materials -II	3	0	0	3
3	ES401	Hydraulics and Hydraulic Machinery	3	0	0	3
4	PC403	Environmental Engineering	3	0	0	3
5	PC404	Managerial Economics & Financial Analysis	3	0	0	3
6	PC405	Environmental Engineering Lab	0	0	3	1.5
7	PC406	Strength of Material Lab	0	0	3	1.5
8	PC407	Fluid Mechanics & Hydraulics Machinery Lab	0	0	3	1.5
9	SC401	**Skill oriented course***	1	0	2	2
		Total Credits				**21.5**
Honors/ Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)			3	1	0	4

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III YEAR – I SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	PC501	Professional Core courses (STRUCTURAL ANALYSIS)	3	0	0	3
2	PC502	Professional Core courses (DESIGN AND DRAWING OF REINFORCED CONCRETE STRUCTURES)	3	0	0	3
3	PC503	Professional Core courses (GEOTECHNICAL ENGINEERING-1)	3	0	0	3
4	OE501	Open Elective Course/Job Oriented elective (OE-1)	3	0	0	3
5	PE501	Professional Elective courses	3	0	0	3
6	PC504	Professional Core courses Lab Survey Camp (Field work)	0	0	3	1.5
7	PC505	Professional Core courses Lab (GEOTECHNICAL ENGINEERING LAB)	0	0	3	1.5
8	PC501	Skill advanced course/ soft skill course* Design of Special Structure, Chimney, Hinge Tanks designs, spill ways etc.,	1	0	2	2
9	MC501	Mandatory Course (AICTE Suggested) Professional Ethics and Human Values	2	0	0	0
10	PR501	Summer Internship 2Months (Mandatory) after second year (to be evaluated during V semester)	0	0	3	1.5
		Total Credits				**21.5**
Honors/ Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)			3	1	0	4

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DEPARTMENT OF CIVIL ENGINEERING

III YEAR – II SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	PC601	Professional Core courses (DESIGN AND DRAWING OF STEEL STRUCTURES)	3	0	0	3
2	PC602	Professional Core courses (WATER RESOURCE ENGINEERING)	3	0	0	3
3	PC603	Professional Core courses (GEOTECHNICAL ENGINEERING-II)	3	0	0	3
4	PE601	Professional Elective courses	3	0	0	3
5	OE601	Open Elective Course/Job oriented elective (OE-2)	3	0	0	3
6	PC604	Professional Core courses Lab (ESTIMATION, COSTING AND CONTRACTS)	0	0	3	1.5
7	PC605	Professional Core courses Lab (REMOTE SENSING & GIS LAB)	0	0	3	1.5
8	PC606	Professional Core courses Lab CIVIL ENGINEERING PRACTICE	0	0	3	1.5
9	SC601	Skill advanced course/ soft skill course* Computational Tools	1	0	2	2
10	MC601	Mandatory course (AICTE) (EMPLOYABILITY SKILLS)	2	0	0	0
11	PR601	Industrial/Research Internship (Mandatory) 2 Months	0	0	3	1.5
		Total Credits				**23**
Honors/ Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)			3	1	0	4

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IV YEAR – I SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	PE701	Professional Elective -III	3	0	0	3
2	PE702	Professional Elective -IV	3	0	0	3
3	PE703	Professional Elective -V	3	0	0	3
4	OE701	Open Elective Courses/ Job oriented elective (OE-III)	2	0	2	3
5	OE702	Open Elective Course/Job oriented elective (OE-IV)	2	0	2	3
6	HSC701	*Humanities and Social Science Elective	3	0	0	3
7	SC701	Skill advanced course/ soft skill course* Project planning, town planning,	1	0	2	2
8	PR701	Industrial/Research Internship 2 Months (Mandatory) after third year (to be evaluated during VII semester)	0	0	3	1.5
		Total Credits				**21.5**
Honors/ Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)			3	1	0	4

***There is a provision for the Universities/Institutions to implement AICTE mandatory course "Universal Human Values 2: Understanding Harmony" under Humanities and social science Elective in seventh semester for 3 credits.**

IV YEAR – II SEMESTER

S.NO	CATEGORY	COURSE TITLE	L	T	P/D	C
1	Major Project	PROJ	-	-	-	12
		INTERNSHIP (6 Months)				
		Total Credits				**12**

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COURSE STRUCTURE

B.Tech. – I Year I Semester

S.No.	Category	Title	L/D	T	P	Credits
1	BS&H	Communicative English	2	0	0	2
2	BS&H	Engineering Chemistry/ Chemistry/Fundamental Chemistry	3	0	0	3
3	BS&H	Linear Algebra & Calculus	3	0	0	3
4	Engineering Science	Basic Civil & Mechanical Engineering	3	0	0	3
5	Engineering Science	Introduction to Programming	3	0	0	3
6	BS&H	Communicative English Lab	0	0	2	1
7	BS&H	Engineering Chemistry/ Chemistry/Fundamental Chemistry Lab	0	0	2	1
8	Engineering Science	Engineering Workshop	0	0	3	1.5
9	Engineering Science	Computer Programming Lab	0	0	3	1.5
10	BS&H	Health and wellness, Yoga and Sports	-	-	1	0.5
Total			**14**	**00**	**11**	**19.5**

B.Tech. – I Year II Semester

S.No.	Category	Title	L/D	T	P	Credits
1	BS&H	Engineering Physics	3	0	0	3
2	BS & H	Differential Equations & Vector Calculus	3	0	0	3
3	Engineering Science	Basic Electrical and Electronics Engineering	3	0	0	3
4	Engineering Science	Engineering Graphics	1	0	4	3
5	Engineering Science	IT Workshop	0	0	2	1
6	Professional Core	Data Structures / Electrical Circuit Analysis – I (Branch specific)	3	0	0	3
7	BS&H	Engineering Physics Lab	0	0	2	1
8	Engineering Science	Electrical and Electronics Engineering Workshop	0	0	3	1.5
9	Professional Core	Data Structures Lab / Electrical Circuit Analysis – I Lab	0	0	3	1.5
10		NSS/NCC/Scouts & Guides/Community Service	-	-	1	0.5
Total			**13**	**00**	**15**	**20.5**

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

II B.Tech – I Semester

Sl. No	Course Components	Subjects	L	T	P	Credits
1	BSC	Mathematics– IV	3	0	0	3
2	PCC	Electronic Devices and Circuits	3	0	0	3
3	PCC	Electrical Circuit Analysis –II	3	0	0	3
4	PCC	DC Machines and Transformers	3	0	0	3
5	PCC	Electro Magnetic Fields	3	0	0	3
6	PCC	Electrical Circuits Lab	0	0	3	1.5
7	PCC	DC Machines and Transformers Lab	0	0	3	1.5
8	PCC	Electronic Devices and Circuits lab	0	0	3	1.5
9	SC	Skill oriented course - Design of Electrical Circuits using Engineering Software Tools	0	0	4	2
10	MC	Professional Ethics & Human Values	2	0	0	0
		Total Credits	**21.5**			

II B.Tech – II Semester

Sl. No	Course Components	Subjects	L	T	P	Credits
1	ESC	Python Programming	3	0	0	3
2	PCC	Digital Electronics	3	0	0	3
3	PCC	Power System-I	3	0	0	3
4	PCC	Induction and Synchronous Machines	3	0	0	3
5	HSMC	Managerial Economics & Financial Analysis	3	0	0	3
6	ESC	Python Programming Lab	0	0	3	1.5
7	PCC	Induction and Synchronous Machines Lab	0	0	3	1.5
8	PCC	Digital Electronics Lab	0	0	3	1.5
9	SC	Skill oriented course- IoT Applications of Electrical Engineering Lab	0	0	4	2
		Total Credits	**21.5**			
		Minors Course*	4	0	0	4
		Honors Course*	4	0	0	4

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

III B.Tech – I Semester

Sl. No	Course Components	Subjects	L	T	P	Credits
1	PCC	Power Systems-II	3	0	0	3
2	PCC	Power Electronics	3	0	0	3
3	PCC	Control Systems	3	0	0	3
4	OEC	Open Elective- I/ Job Oriented Elective-I	3	0	0	3
5	PEC	Professional Elective - I	3	0	0	3
6	PCC	Control Systems Lab	0	0	3	1.5
7	PCC	Power Electronics Lab	0	0	3	1.5
8	SC	Soft Skill Course:Employability Skills	2	0	0	2
9	MC	Environmental Science	2	0	0	0
10	PROJ	Summer Internship 2 Months (Mandatory) after second year (to be evaluated during V semester)	0	0	0	1.5
		TotalCredits	**21.5**			
		Minors Course*	4	0	0	4
		Honors Course*	4	0	0	4

III B.Tech – II Semester

Sl. No	Course Components	Subjects	L	T	P	Credits
1	PCC	Microprocessors and Microcontrollers	3	0	0	3
2	PCC	Electrical Measurements and Instrumentation	3	0	0	3
3	PCC	Power System Analysis	3	0	0	3
4	PEC	Professional Elective - II	3	0	0	3
5	OEC	Open Elective –II/ Job Oriented Elective-II	3	0	0	3
6	PCC	Electrical Measurements and Instrumentation Lab	0	0	3	1.5
7	PCC	Microprocessors and Microcontrollers Lab	0	0	3	1.5
8	PCC	Power Systems and Simulation Lab	0	0	3	1.5
9	SC	**Skill Advanced Course:** Machine Learning with Python	2	0	0	2
10	MC	Research Methodology	2	0	0	0
		Total Credits	**21.5**			
		Minors Course*	4	0	0	4
		Honors Course*	4	0	0	4

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

IV B.Tech – I Semester

Sl. No	Course Components	Subjects	L	T	P	Credits
1	PEC	Professional Elective – III	3	0	0	3
2	PEC	Professional Elective – IV	3	0	0	3
3	PEC	Professional Elective – V	3	0	0	3
4	OEC	Open Elective- III/Job Oriented Elective-III	3	0	0	3
5	OEC	Open Elective-IV /Job Oriented Elective-IV	3	0	0	3
6	HSMC	Universal Human Values-2: Understanding Harmony	3	0	0	3
7	SC	**Skill Advanced Course** Machine Learning with PythonLab	0	0	4	2
8	PROJ	Industrial / Research Internship 2 Months (Mandatory) after third year (to be evaluated during VII Semester)	0	0	3	3
		Total Credits	**23**			
		Minors Course*	4	0	0	4
		Honors Course*	4	0	0	4

IVB.TechIISemester

Sl. No	Course Components	Subjects	L	T	P	Credits
1	Major Project	Project work, seminar and internship in industry (6 Months)	--	--	--	12
		Total Credits	**12**			

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DEPARTMENT OF MECHANICAL ENGINEERING

COURSE STRUCTURE

B.Tech. – I Year I Semester

S.No.	Category	Title	L/D	T	P	Credits
1	BS&H	Engineering Physics	3	0	0	3
2	BS&H	Linear Algebra & Calculus	3	0	0	3
3	Engineering Science	Basic Electrical & Electronics Engineering	3	0	0	3
4	Engineering Science	Engineering Graphics	1	0	4	3
5	Engineering Science	Introduction to Programming	3	0	0	3
6	Engineering Science	IT Workshop	0	0	2	1
7	BS&H	Engineering Physics Lab	0	0	2	1
8	Engineering Science	Electrical & Electronics Engineering Workshop	0	0	3	1.5
9	Engineering Science	Computer Programming Lab	0	0	3	1.5
10	BS&H	NSS/NCC/Scouts & Guides/Community Service	-	-	1	0.5
Total			**13**	**00**	**15**	**20.5**

B.Tech. – I Year II Semester

S.No.	Category	Title	L	T	P	Credits
1	BS&H	Communicative English	2	0	0	2
2	BS & H	Engineering Chemistry / Chemistry / Fundamental Chemistry	3	0	0	3
3	Engineering Science	Differential Equations & Vector Calculus	3	0	0	3
4	Engineering Science	Basic Civil & Mechanical Engineering	3	0	0	3
5	Professional Core	Engineering Mechanics/Network Analysis/ Data structures (Branch specific)	3	0	0	3
6	BS&H	Communicative English Lab	0	0	2	1
7	BS&H	Engineering Chemistry / Chemistry / Fundamental Chemistry Lab	0	0	2	1
8	Engineering Science	Engineering Workshop	0	0	3	1.5
9	Professional Core	Engineering Mechanics & Building Practices Lab Engineering Mechanics Lab/Network Analysis Lab/ Data structures Lab	0	0	3	1.5
10		Health and wellness, Yoga and Sports	-	-	1	0.5
Total			**14**	**00**	**11**	**19.5**

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DEPARTMENT OF MECHANICAL ENGINEERING

II YEAR I SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	BSC-5	Vector Calculus, Fourier Transforms and PDE(M-III)	3	0	0	3
2	PCC-1	Mechanics of Solids	3	0	0	3
3	PCC-2	Fluid Mechanics & Hydraulic Machines	3	0	0	3
4	PCC-3	Production Technology	3	0	0	3
5	PCC-4	Kinematics of Machinery	3	0	0	3
6	PCC-L1	Computer Aided Engineering Drawing Practice	0	0	3	1.5
7	PCC-L2	Fluid Mechanics & Hydraulic Machines Lab	0	0	3	1.5
8	PCC-L3	Production Technology Lab	0	0	3	1.5
9	SOC-1	Drafting and Modeling Lab	0	0	4	2
10	MC-3	Essence of Indian Traditional Knowledge	2	0	0	0
		Total Credits				**21.5**

II YEAR II SEMESTER

S. No	Course Code	Course Title	L	T	P	Credits
1	ESC-6	Material Science & Metallurgy	3	0	0	3
2	BSC-6	Complex Variables and Statistical Methods	3	0	0	3
3	PCC-5	Dynamics of Machinery	3	0	0	3
4	PCC-6	Thermal Engineering-I	3	0	0	3
5	HSC-2	Industrial Engineering and Management	3	0	0	3
6	ESC-L4	Mechanics of Solids and Metallurgy Lab	0	0	3	1.5
7	PCC-L6	Machine Drawing Practice	0	0	3	1.5
8	PCC-L7	Theory of Machines Lab	0	0	3	1.5
9	SOC-2	Python Programming Lab	1	0	2	2
		Total Credits				**21.5**
Honors/Minor courses			**4**	**0**	**0**	**4**

* At the end of II Year II Semester, students must complete summer internship spanning between 1 to 2 months (Minimum of 6 weeks), @ Industries/ Higher Learning Institutions/ APSSDC.

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DEPARTMENT OF MECHANICAL ENGINEERING

III B.TECH I SEMESTER

S No	Code	Course Title	Hours			Credits
			L	T	P	
1	PCC-7	Thermal Engineering-II	3	0	0	3
2	PCC-8	Design of Machine Members-I	3	0	0	3
3	PCC-9	Machining, Machine Tools & Metrology	3	0	0	3
4	OE-1	1. Sustainable Energy Technologies 2. Operations Research 3. Nano Technology 4. Thermal Management of Electronic systems	3	0	0	3
5	PE-1	1. Finite Element Methods 2. Industrial Robotics 3. Advanced Materials 4. Renewable Energy Sources 5. Mechanics of Composites 6. MOOCs (NPTEL/ Swayam) Course (12 Week duration)	3	0	0	3
6	PCC-L6	Machine Tools Lab	0	0	3	1.5
7	PCC-L7	Thermal Engineering Lab	0	0	3	1.5
8	SOC-3	Advanced Communication Skills Lab	1	0	2	2
9	MC – 4	Professional Ethics and Human Values	2	0	0	0
Evaluation of Summer Internship which is completed at the end of II B.Tech II Semester						1.5
					Total credits	**21.5**
Honors/Minor courses			**4**	**0**	**0**	**4**

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DEPARTMENT OF MECHANICAL ENGINEERING

III B.TECH II SEMESTER

S.No	Code	Course Title	Hours			Credits
			L	T	P	
1	PCC-10	Heat Transfer	3	0	0	3
2	PCC-11	Design of Machine Members-II	3	0	0	3
3	PCC-12	Introduction to Artificial Intelligence and Machine Learning	3	0	0	3
4	PE-2	1. Automobile Engineering 2. Smart Manufacturing 3. Advanced Mechanics of Solids 4. Statistical Quality Control 5. Industrial Hydraulics and Pneumatics 6. MOOCs (NPTEL/ Swayam) Course (12 Week duration)	3	0	0	3
5	OE-2	7. Industrial Robotics 8. Essentials of Mechanical Engineering 9. Advanced Materials 10. Introduction to Automobile Engineering	3	0	0	3
6	PCC-L8	Heat Transfer Lab	0	0	3	1.5
7	PCC-L9	CAE&CAM Lab	0	0	3	1.5
8	PCC-L10	Measurements & Metrology Lab	0	0	3	1.5
9	SOC-4	Artificial Intelligence and Machine Learning Lab	0	0	4	2
10	MC - 5	Research Methodology and IPR	2	0	0	0
					Total credits	**21.5**
Honors/Minor courses			**4**	0	0	**4**

* At the end of III Year II Semester, students shall complete summer internship spanning between 1 to 2 months at Industries/ Higher Learning Institutions/ APSSDC.

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DEPARTMENT OF MECHANICAL ENGINEERING

III B.TECH II SEMESTER

S.No	Code	Course Title	Hours			Credits
			L	T	P	
1	PE-3	1. Mechanical Vibrations 2. Operations Research 3. Unconventional Machining Processes 4. Computational Fluid Dynamics 5. Gas Dynamics and Jet Propulsion 6. MOOCs (NPTEL/Swayam) Course (12 Week duration)	3	0	0	3
2	PE-4	7. Automation in Manufacturing 8. Power Plant Engineering 9. Big Data Analytics 10. Production Planning and Control 11. Condition Monitoring 12. MOOCs (NPTEL/Swayam) Course (12 Week duration)	3	0	0	3
3	PE-5	13. Advanced Manufacturing Processes 14. Mechatronics 15. Refrigeration & Air-Conditioning 16. Additive Manufacturing 17. Non Destructive Evaluation 18. MOOCs (NPTEL/Swayam) Course (12 Week duration)	3	0	0	3
4	OE-3	19. Additive Manufacturing 20. Mechatronics 21. Finite Element Methods 22. Introduction to Artificial Intelligence &Machine Learning	3	0	0	3
5	OE-4	23. Optimization Techniques 24. Smart Manufacturing 25. Safety Engineering 26. Operations Management	3	0	0	3
6	HSC-3	27. Universal Human Values: Understanding Harmony	3	0	0	3
7	SOC-5	28. Mechatronics Lab	0	0	4	2
Evaluation of Summer Internship which is completed at the end of III B.Tech II Semester						3
					Total credits	**23**
Honors/Minor courses			4	0	0	**4**

IV B.TECH II SEMESTER

S No.	Category	Code	Course Title	Hours per week			Credits
				L	T	P	
1	Major Project	PROJ	Project work*	0	4	16	12
					Total credits		**12**

*Students can complete Project work @ Industries/ Higher Learning Institutions/ APSSDC.

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

COURSE STRUCTURE

B.Tech. – I Year I Semester

S.No.	Category	Title	L/D	T	P	Credits
1	BS&H	Engineering Physics	3	0	0	3
2	BS&H	Linear Algebra & Calculus	3	0	0	3
3	Engineering Science	Basic Electrical & Electronics Engineering	3	0	0	3
4	Engineering Science	Engineering Graphics	1	0	4	3
5	Engineering Science	Introduction to Programming	3	0	0	3
6	Engineering Science	IT Workshop	0	0	2	1
7	BS&H	Engineering Physics Lab	0	0	2	1
8	Engineering Science	Electrical & Electronics Engineering Workshop	0	0	3	1.5
9	Engineering Science	Computer Programming Lab	0	0	3	1.5
10	BS&H	NSS/NCC/Scouts & Guides/Community Service	-	-	1	0.5
Total			**13**	**00**	**15**	**20.5**

B.Tech. – I Year II Semester

S.No.	Category	Title	L	T	P	Credits
1	BS&H	Communicative English	2	0	0	2
2	BS & H	Engineering Chemistry / Chemistry / Fundamental Chemistry	3	0	0	3
3	Engineering Science	Differential Equations & Vector Calculus	3	0	0	3
4	Engineering Science	Basic Civil & Mechanical Engineering	3	0	0	3
5	Professional Core	Engineering Mechanics/Network Analysis/ Data structures (Branch specific)	3	0	0	3
6	BS&H	Communicative English Lab	0	0	2	1
7	BS&H	Engineering Chemistry / Chemistry / Fundamental Chemistry Lab	0	0	2	1
8	Engineering Science	Engineering Workshop	0	0	3	1.5
9	Professional Core	Engineering Mechanics & Building Practices Lab Engineering Mechanics Lab/Network Analysis Lab/ Data structures Lab	0	0	3	1.5
10		Health and wellness, Yoga and Sports	-	-	1	0.5
Total			**14**	**00**	**11**	**19.5**

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II Year –I Semester

S. No	Category	Name of the Subject	L	T	P	Credits
1	PC	Electronic Devices and Circuits	3	1	0	3
2	PC	Switching Theory and Logic Design	3	1	0	3
3	PC	Signals and Systems	3	1	0	3
4	BS	Mathematics-III (Transforms and Vector Calculus)	3	1	0	3
5	BS	Random Variables and Stochastic Processes	3	1	0	3
6	LC	OOPS through Java Lab	0	0	2	1.5
7	LC	Electronic Devices and Circuits -Lab	0	0	2	1.5
8	LC	Switching Theory and Logic Design–Lab	0	0	2	1.5
9	SC	Python Programming	0	0	4	2
					Total Credits	**21.5**

II Year – II Semester

S. No	Category	Name of the subject	L	T	P	Credits
1	PC	Electronic Circuit Analysis	3	1	0	3
2	PC	Digital IC Design	3	1	0	3
3	PC	Analog Communications	3	0	0	3
4	ES	Linear control Systems	3	1	0	3
5	HS	Management and Organizational Behavior	3	0	0	3
6	LC	Electronic Circuit Analysis Lab	0	0	3	1.5
7	LC	Analog Communications Lab	0	0	3	1.5
8	LC	Digital IC Design Lab	0	0	3	1.5
9	SC	Soft Skills	0	0	4	2
10	MC	Constitution of India	3	0	0	0
					Total Credits	**21.5**
Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)						**4**

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III Year - I Semester

S. No	Category	Name of the subject	L	T	P	Credits
1	PC	Analog ICs and Applications	3	0	0	3
2	PC	Electromagnetic Waves and Transmission Lines	3	0	0	3
3	PC	Digital Communications	3	0	0	3
4	OE1	Open Elective Course/Job oriented elective-1	2	0	2	3
5	PE1	Professional Elective courses -1	3	0	0	3
6	LC	Analog ICs and Applications LAB	0	0	3	1.5
7	LC	Digital Communications Lab	0	0	3	1.5
8	SC	Data Structures using Java Lab	0	0	4	2
9	MC	Indian Traditional Knowledge	2	0	0	0
	Summer Internship 2 Months (Mandatory) after second year (to be evaluated during V semester		0	0	0	1.5
					Total credits	**21.5**
	Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)					**4**

PE1:	**OE1:**
1. Antenna and Wave Propagation 2. Electronic Measurements and Instrumentation 3. Computer Architecture & Organization	Candidate should select the subject from list of subjects offered by other departments

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

III Year –II Semester

S. No	Category	Name of the subject	L	T	P	Credits
1	PC	Microprocessor and Microcontrollers	3	1	0	3
2	PC	VLSI Design	3	0	0	3
3	PC	Digital Signal Processing	3	0	0	3
4	PE2	Professional Elective courses - 2	3	0	0	3
5	OE 2	Open Elective Course/Job oriented elective -2	2	0	2	3
6	LC	Microprocessor and Microcontrollers - Lab	0	0	3	1.5
7	LC	VLSI Design Lab	0	0	3	1.5
8	LC	Digital Signal Processing Lab	0	0	3	1.5
9	SC	ARM based/ Aurdino based Programming	1	0	2	2
10	MC	Research Methodology	2	0	0	0
					Total credits	**21.5**
	Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)					**4**

Industrial/Research Internship (Mandatory) 2 Months during summer vacation

PE2:	**OE2:**
1. Microwave Engineering 2. Mobile & Cellular Communication 3. Embedded Systems 4. CMOS Analog IC Design	Candidate should select the subject from list of subjects offered by other departments

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IV Year –I Semester

S. No	Category	Name of the subject	L	T	P	Credits
1	PE	Professional Elective courses -3	3	0	0	3
2	PE	Professional Elective courses -4	3	0	0	3
3	PE	Professional Elective courses -5	3	0	0	3
4	OE	Open Elective Courses/ Job oriented elective -3	2	0	2	3
5	OE	Open Elective Courses/ Job oriented elective -4	2	0	2	3
6	HS	***Humanities and Social Science Elective**	3	0	0	3
7	SC	**Designer tools (HFSS,** Microwave Studio CST. Cadence Virtuoso. Synopsys, Mentor Graphics, Xilinx.)	1	0	2	2
Industrial/Research Internship 2 Months (Mandatory) afterthird year (to be evaluated during VII semester			0	0	0	3
					Total credits	**23**
	Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)					**4**

PE 3:	PE5:
1. Optical Communication 2. Digital Image Processing 3. Low Power VLSI Design	1. Radar engineering 2. Pattern recognition & Machine Learning 3. Internet of Things
PE4:	
1. Satellite Communications 2. Soft Computing Techniques 3. Digital IC Design using CMOS	

IV Year – II Semester

S. No.	Category	Code	Course Title	Hours per week			Credits
1	Major Project	PROJ	Project work, seminar and internship inindustry	-	-	-	12
INTERNSHIP (6 MONTHS)							
						Total credits	**12**

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA
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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE STRUCTURE

B.Tech. – I Year I Semester

S.No.	Category	Title	L/D	T	P	Credits
1	BS&H	Communicative English	2	0	0	2
2	BS&H	Engineering Chemistry/ Chemistry/Fundamental Chemistry	3	0	0	3
3	BS&H	Linear Algebra & Calculus	3	0	0	3
4	Engineering Science	Basic Civil & Mechanical Engineering	3	0	0	3
5	Engineering Science	Introduction to Programming	3	0	0	3
6	BS&H	Communicative English Lab	0	0	2	1
7	BS&H	Engineering Chemistry/ Chemistry/Fundamental Chemistry Lab	0	0	2	1
8	Engineering Science	Engineering Workshop	0	0	3	1.5
9	Engineering Science	Computer Programming Lab	0	0	3	1.5
10	BS&H	Health and wellness, Yoga and Sports	-	-	1	0.5

B.Tech. – I Year II Semester

S.No.	Category	Title	L/D	T	P	Credits
1	BS&H	Engineering Physics	3	0	0	3
2	BS & H	Differential Equations & Vector Calculus	3	0	0	3
3	Engineering Science	Basic Electrical and Electronics Engineering	3	0	0	3
4	Engineering Science	Engineering Graphics	1	0	4	3
5	Engineering Science	IT Workshop	0	0	2	1
6	Professional Core	Data Structures / Electrical Circuit Analysis – I (Branch specific)	3	0	0	3
7	BS&H	Engineering Physics Lab	0	0	2	1
8	Engineering Science	Electrical and Electronics Engineering Workshop	0	0	3	1.5
9	Professional Core	Data Structures Lab / Electrical Circuit Analysis – I Lab	0	0	3	1.5
10		NSS/NCC/Scouts & Guides/Community Service	-	-	1	0.5
Total			**13**	**00**	**15**	**20.5**

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

II Year – I SEMESTER

S. No	Course Code	Courses	L	T	P	Credits
1	BS	Mathematics III	3	0	0	3
2	CS	Object Oriented Programming through C++	3	0	0	3
3	CS	Operating Systems	3	0	0	3
4	CS	Software Engineering	3	0	0	3
5	CS	Mathematical Foundations of Computer Science	3	0	0	3
6	CS	Object Oriented Programming through C++ Lab	0	0	3	1.5
7	CS	Operating Systems Lab	0	0	3	1.5
8	CS	Software Engineering Lab	0	0	3	1.5
9	SO	Skill oriented Course - I 1) Applications of Python - Num Py 2) Web Application Development Using FullStack - Frontend Development –Module -I	0	0	4	2
10	MC	Constitution of India	2	0	0	0
Total Credits			**21.5**			

II Year – II SEMESTER

II Year – II SEMESTER						
S. No	**Course Code**	**Courses**	**L**	**T**	**P**	**Credits**
1	BS	Probability and Statistics	3	0	0	3
2	CS	Database Management Systems	3	0	0	3
3	CS	Formal Languages and Automata Theory	3	0	0	3
4	ES	Java Programming	3	0	0	3
5	HS	Managerial Economics and Financial Accountancy	3	0	0	3
6	CS	Database Management Systems Lab	0	0	2	1
7	CS	R Programming Lab	0	1	2	2
8	ES	Java Programming Lab	0	0	3	1.5
9	SO	**Skill Oriented Course - II** 1) Applications of Python-Pandas **OR** 2) Web Application Development Using Full Stack -Frontend Development –Module-II	0	0	4	2
Total Credits			**21.5**			
10	Minor	Operating Systems[$]	3	0	2	4
11	Honors	Any course from the Pool, as per the opted track	4	0	0	4

$- Integrated Course

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III B. Tech – I Semester						
S.No	**Course Code**	**Courses**	**Hours per week**			**Credits**
			L	**T**	**P**	**C**
1	PC	Computer Networks	**3**	**0**	**0**	**3**
2	PC	Design and Analysis of Algorithms	**3**	**0**	**0**	**3**
3	PC	Data Warehousing and Data Mining	**3**	**0**	**0**	**3**
4	Open Elective/Job Oriented	**Open Elective-I**	**3**	**0**	**0**	**3**
5	PE	**Professional Elective-I**	**3**	**0**	**0**	**3**
6	PC	Data Warehousing and Data Mining Lab	**0**	**0**	**3**	**1.5**
7	PC	Computer Networks Lab	**0**	**0**	**3**	**1.5**
8	SO	**Skill Oriented Course - III** 1. Animation course: Animation Design 2.Continuous Integration and Continuous Delivery using Dev Ops	**0**	**0**	**4**	**2**
9	MC	Employability Skills-I	**2**	**0**	**0**	**0**
10	PR	**Summer Internship 2 Months (Mandatory) after second year (to be evaluated during V semester**	**0**	**0**	**0**	**1.5**
Total credits						**21.5**
11	Minor	Database Management Systems[$]	3	0	2	4
12	Honors	Any course from the Pool, as per the opted track	4	0	0	4

$- Integrated Course

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III B. Tech – II Semester						
S.No	**CourseCode**	**Courses**	**Hours per week**			**Credits**
			L	**T**	**P**	**C**
1	PC	Machine Learning	**3**	**0**	**0**	**3**
2	PC	Compiler Design	**3**	**0**	**0**	**3**
3	PC	Cryptography and Network Security	**3**	**0**	**0**	**3**
4	PE	**Professional Elective-II**	**3**	**0**	**0**	**3**
5	Open Elective /Job Oriented	Open Elective-II	**3**	**0**	**0**	**3**
6	PC	Machine Learning using Python Lab	**0**	**0**	**3**	**1.5**
7	PC	Compiler Design Lab	**0**	**0**	**3**	**1.5**
8	PC	Cryptography and Network Security Lab	**0**	**0**	**3**	**1.5**
9	SO	**Skill Oriented Course - IV** 1. Big Data**:**Spark 2. MEAN Stack Technologies-Module I- MongoDB, Express.js, Angular JS Node.js and AJAX	**0**	**0**	**4**	**2**
10	MC	Employability skills-II	**2**	**0**	**0**	**0**
Total credits						**21.5**
Industrial/Research Internship(Mandatory) 2 Months during summer vacation						
11	Minor	Data Structures and Algorithms$^{\$}$	3	0	2	4
12	Honors	Any course from the Pool, as per the opted track	4	0	0	4
Minor course through SWAYAM			**-**	**-**	**-**	**2**

$- Integrated Course

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IV B. Tech –I Semester						
S.No	**Course Code**	**Course Title**	**Hoursperweek**			**Credits**
			L	**T**	**P**	**C**
1	PE	**Professional Elective-III** 1.Cloud Computing 2.Neural Networks and Soft Computing 3.Ad-hoc and Sensor Networks 4.Cyber Security & Forensics	**3**	**0**	**0**	**3**
2	PE	**Professional Elective-IV** 1. Deep Learning Techniques 2. Social Networks & Semantic Web 3. Computer Vision 4.MOOCS-NPTEL/SWAYAM	**3**	**0**	**0**	**3**
3	PE	**Professional Elective-V** 1.Block-Chain Technologies 2.Wireless Network Security 3.Ethical Hacking 4.MOOCS-NPTEL/SWAYAM	**3**	**0**	**0**	**3**
4	Open Elective /Job Oriented	**Open Elective III** Open Electives offered by other departments/ API and Microservices (Job Oriented Course)	**3**	**0**	**0**	**3**
5	Open Elective /Job Oriented	**Open Elective-IV** Open Electives offered by other departments/ Secure Coding Techniques (Job Oriented Course)	**3**	**0**	**0**	**3**
6	HS	Universal Human Values 2: Understanding Harmony	**3**	**0**	**0**	**3**
7	SO	1. PYTHON: Deep Learning /APSSDC offered Courses 2. MEAN Stack Technologies-Module II-MongoDB, Express.js, Angular JS Node.js, and AJAX	**0**	**0**	**4**	**2**
8	PR	**Industrial/Research Internship 2 months (Mandatory) after third year (to be evaluated during VII semester**	**0**	**0**	**0**	**3**
Total credits						**23**
9	Minor	Software Engineering$ / any other from PART-B (For Minor)	3	0	2	4
10	Honors	Any course from the Pool, as per the opted track	4	0	0	4
		Minor course through SWAYAM	-	-	-	**2**

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IV B. Tech –II Semester						
S.No	**Course Code**	**Course Title**	**Hours per week**			**Credits**
			L	**T**	**P**	**C**
1	Project	Major Project Work, Seminar Internship	-	-	-	**12**
					Total credits	**12**

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Suggested Courses for Honors Program

POOL1- AI & ML	**POOL2- Systems Engineering**
1. Mathematics for Machine Learning 2. Text Mining and Time Series Analysis 3. Natural Language Processing 4. Reinforcement Learning	1. Data Communications and Information Coding Theory 2. Internet of Things 3. Service Oriented Architectures 4. Design of Secure Protocols 5. Network Coding

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COURSE STRUCTURE

B.Tech. – I Year I Semester

S.No.	Category	Title	L/D	T	P	Credits
1	BS&H	Engineering Physics	3	0	0	3
2	BS&H	Linear Algebra & Calculus	3	0	0	3
3	Engineering Science	Basic Electrical & Electronics Engineering	3	0	0	3
4	Engineering Science	Engineering Graphics	1	0	4	3
5	Engineering Science	Introduction to Programming	3	0	0	3
6	Engineering Science	IT Workshop	0	0	2	1
7	BS&H	Engineering Physics Lab	0	0	2	1
8	Engineering Science	Electrical & Electronics Engineering Workshop	0	0	3	1.5
9	Engineering Science	Computer Programming Lab	0	0	3	1.5
10	BS&H	NSS/NCC/Scouts & Guides/Community Service	-	-	1	0.5
Total			**13**	**00**	**15**	**20.5**

B.Tech. – I Year II Semester

S.No.	Category	Title	L	T	P	Credits
1	BS&H	Communicative English	2	0	0	2
2	BS & H	Engineering Chemistry / Chemistry / Fundamental Chemistry	3	0	0	3
3	Engineering Science	Differential Equations & Vector Calculus	3	0	0	3
4	Engineering Science	Basic Civil & Mechanical Engineering	3	0	0	3
5	Professional Core	Engineering Mechanics/Network Analysis/ Data structures (Branch specific)	3	0	0	3
6	BS&H	Communicative English Lab	0	0	2	1
7	BS&H	Engineering Chemistry / Chemistry / Fundamental Chemistry Lab	0	0	2	1
8	Engineering Science	Engineering Workshop	0	0	3	1.5
9	Professional Core	Engineering Mechanics & Building Practices Lab Engineering Mechanics Lab/Network Analysis Lab/ Data structures Lab	0	0	3	1.5
10		Health and wellness, Yoga and Sports	-	-	1	0.5
Total			**14**	**00**	**11**	**19.5**

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II Year- I Semester

S. No	Course Code	Subject	L	T	P	Credits
1	BS	Mathematics III (Vector Calculus, Transforms and PDE)	3	0	0	3
2	PC	Surveying and Leveling	3	0	0	3
3	ES	Fluid Mechanics and Open Channel Hydraulics	3	0	0	3
4	ES	Properties and Strength of Materials	3	0	0	3
5	PC	Farm Power and Tractor Systems	3	0	0	3
6	PC	Surveying and Leveling Lab	0	0	3	1.5
7	ES	Fluid Mechanics and Open Channel Hydraulics Lab	0	0	3	1.5
8	PC	Field Operation and Maintenance of Tractors Lab	0	0	3	1.5
9	SOC	Agricultural Machinery Design using CAD/CAM Skill Oriented Course (Lab)	1	0	2	2
10	MC	Constitution of India				0
		Total Credits				**21.5**

II Year- II Semester

S. No	Course Code	Subject	L	T	P	Credits
1	PC	Heat and Mass Transfer	3	0	0	3
2	PC	Ground Water Hydrology, Wells and Pumps	3	0	0	3
3	PC	Theory of Structures	3	0	0	3
4	PC	Soil Mechanics	3	0	0	3
5	HSS	Managerial Economics and FinancialAnalysis	3	0	0	3
6	PC	Heat and Mass Transfer Lab	0	0	3	1.5
7	PC	Theory of Structures Lab	0	0	3	1.5
8	PC	Soil Mechanics Lab	0	0	3	1.5
9	SOC	Analysis/Simulation using MATLABSkill Oriented Course (Lab)	1	0	2	2
10		Industrial/Research Internship (Mandatory) 2 Months…to be evaluated in III year I semester				
		Total Credits				**21.5**
		Honors (Pool-1)/Minor Courses	3	1	0	**4**

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III Year - I Semester

S. No	Course Code	Subject	L	T	P	Credits
1	PC	Farm Machinery and Equipment - I	3	0	0	3
2	PC	Surface Water Hydrology	3	0	0	3
3	PC	Post Harvest Engineering of Cereals, Pulses and Oilseeds	3	0	0	3
4	OE	**Open Elective - I**	3	0	0	3
5	PE	**Professional Elective- I** 1. Seed Processing and Storage Engineering 2. Greenhouse Technology 3. Tractor Design and Testing	3	0	0	3
6	PC	Theory of Machines Lab	0	0	3	1.5
7	PC	Electrical Circuits Lab	0	0	3	1.5
8	SOC	Advanced Communication Skills Lab	1	0	2	2
9	MC	Professional Ethics and Human Values	2	0	0	0
10	PR	Summer Internship 2 Months (Mandatory) after second year (to be evaluated during V semester)				1.5
		Total Credits				**21.5**
		Honors (Pool-2)/Minor Courses	3	1	0	**4**

III Year - II Semester

S. No	Course Code	Subject	L	T	P	Credits
1	PC	Soil and Water Conservation Engineering	3	0	0	3
2	PC	Farm Machinery and Equipment - II	3	0	0	3
3	PC	Agricultural Process Engineering	3	0	0	3
4	PE	**Professional Elective II** 1. Food Packaging Technology 2. Watershed Management 3. Human Engineering and Safety	3	0	0	3
5	OE	**Open Elective - II**	3	0	0	3
6	PC	Soil and Water Conservation Engineering Lab	0	0	3	1.5
7	PC	Farm Machinery and Equipment Lab	0	0	3	1.5
8	PC	Agricultural Process Engineering Lab	0	0	3	1.5
9	SOC	Structural Design with ANSYS	1	0	2	2
10	MC	Employability Skills	2	0	0	0
11		Industrial/Research Internship (Mandatory) 2 Months… to be evaluated in IV year I semester				
		Total Credits				**21.5**
		Honors (Pool-3)/Minor Courses	3	1	0	**4**

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IV Year – I Semester

S. No	Course Code	Subject	L	T	P	Credits
1	PE	**Professional Elective III** 1. Irrigation and Drainage Engineering 2. Production Technology of AgriculturalMachinery 3. Food Plant Design and Management	3	0	0	3
2	PE	**Professional Elective IV** 1. Design of Soil and Water Conservation a. and FarmSystems 2. Food Process Equipment Design 3. Design of Agricultural Machinery	3	0	0	3
3	PE	**Professional Elective -V** 1. Micro Irrigation Engineering 2. Mechatronics in Agricultural Engineering 3. Dairy and Food Engineering	3	0	0	3
4	OE	**Open Elective III**	3	0	0	3
5	OE	**Open Elective - IV**	3	0	0	3
6	HSS	Universal Human Values: 2 Understanding Harmony	3	0	0	3
7	SOC	Computational Fluid Dynamics with FLUENT	1	0	2	2
8	PR	Industrial/Research Internship 2 Months (Mandatory) after third year (to be evaluated during VII semester)				3
		Total Credits				**23.0**
		Honors (Pool-4)/Minor Courses	3	1	0	**4**

IV Year – II Semester

S. No	Course Code	Subject	L	T	P	Credits
1	PR	Major Project	0	0	0	12