



ANNEXURE 21.2

Curriculum of the programmes in the Existing Institution - Ramachandra College of Engineering

DETAILED PROJECT REPORT

For Grant of Deemed to be University Status
under Distinct Category (Existing Institution)



ACADEMIC REGULATIONS (R23)

COURSE STRUCTURE

AND

**B. Tech I to VI SEMESTER DETAILED
SYLLUBUS**

DEPARTMENT OF CIVIL ENGINEERING

(Applicable for batches admitted from 2023-2024)



RAMACHANDRA COLLEGE OF ENGINEERING

[ME]

NH-16, Bypass Road, Vatluru (V), Eluru-534007, Eluru District,
Andhra Pradesh, India

B.TECH. - COURSE STRUCTURE – R23
(Applicable from the academic year 2023-24 onwards)

INDUCTION PROGRAMME

S.No.	Course Name	Category	L-T-P-C
1	Physical Activities -- Sports, Yoga and Meditation, Plantation	MC	0-0-6-0
2	Career Counselling	MC	2-0-2-0
3	Orientation to all branches -- career options, tools, etc.	MC	3-0-0-0
4	Orientation on admitted Branch -- corresponding labs, tools and platforms	EC	2-0-3-0
5	Proficiency Modules & Productivity Tools	ES	2-1-2-0
6	Assessment on basic aptitude and mathematical skills	MC	2-0-3-0
7	Remedial Training in Foundation Courses	MC	2-1-2-0
8	Human Values & Professional Ethics	MC	3-0-0-0
9	Communication Skills -- focus on Listening, Speaking, Reading, Writing skills	BS	2-1-2-0
10	Concepts of Programming	ES	2-0-2-0

B.Tech. – I Semester

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

B.Tech. – II Semester

S.No.	Category	Title	L/D	T	P	Credit
1	BS&H	Communicative English	2	0	0	2
2	BS&H	Engineering Chemistry	3	0	0	3
3	BS&H	Differential Equations & Vector Calculus	3	0	0	3
4	Engineering Science	Basic Civil & Mechanical Engineering	3	0	0	3
5	Professional Core	Engineering Mechanics	3	0	0	3
6	BS&H	Engineering Chemistry Lab	0	0	2	1
7	BS&H	Communicative English Lab	0	0	2	1
8	Engineering Science	Engineering Workshop	0	0	3	1.5
9	Professional Core	Engineering Mechanics & Building Practices Lab	0	0	3	1.5
10	BS&H	Health and wellness, Yoga and Sports	-	-	1	0.5
Total			14	0	11	19.5

**COURSE STRUCTURE
DEPARTMENT OF CIVIL ENGINEERING**

III Semester						
S. No	Category	Courses	L	T	P	Credits
1	BS	Numerical Techniques And Statistical Methods	3	0	0	3
2	HSMC	Universal human values–understanding harmony and Ethical human conduct	2	1	0	3
3	Engineering Science	Surveying	3	0	0	3
4	Professional Core	Strength of Materials	3	0	0	3
5	Professional Core	Fluid Mechanics	3	0	0	3
6	Professional Core	Surveying Lab	0	0	3	1.5
7	Professional Core	Strength of Materials Lab	0	0	3	1.5
8	Skill Enhancement Course	Building Planning and Drawing	1	0	2	2
9	Audit Course	Environmental Science	2	0	0	-
Total			17	1	8	20

IV Semester						
S. No	Category	Courses	L	T	P	Credits
1	Management Course-I	Managerial Economics and Financial Analysis	2	0	0	2
2	Engineering Science/ Basic Science	Engineering Geology	2	0	0	2
3	Professional Core	Concrete Technology	2	0	0	2
4	Professional Core	Structural Analysis	3	0	0	3
5	Professional Core	Hydraulics &Hydraulic Machinery	3	0	0	3
6	Professional Core	Concrete Technology Lab	0	0	3	1.5
7	Professional Core	Engineering Geology Lab	0	0	3	1.5
8	Skill Enhancement course	Remote Sensing & Geographical Information Systems	1	0	2	2
9	Engineering Science	Design Thinking & Innovation	1	0	2	2
10	Professional Core	Building materials and Construction	2	0	0	2
Total			17	1	10	21
Mandatory Community Service Project Internship of 08 weeks duration during Summer vacation						

COURSE STRUCTURE
DEPARTMENT OF CIVIL ENGINEERING

V Semester						
S.No	Category	Title	L	T	P	Credits
1	Professional Core	Design and Drawing of Reinforced Concrete Structures	3	0	0	3
2	Professional Core	Engineering Hydrology	3	0	0	3
3	Professional Core	Geotechnical Engineering -I	3	0	0	3
4	Professional Elective-I	1. Advanced structural analysis 2. Architecture and town planning 3. Construction Technology and Management	3	0	0	3
5	Open Elective-I	1. Green Buildings 2. Construction technology and management 3. Climate Change impact on Eco system	3	0	0	3
6	Professional Core	Geotechnical Engineering Lab	0	0	2	1
7	Professional Core	Fluid Mechanics & Hydraulic Machines Lab	0	0	2	1
8	Professional Core	Auto Cad lab	0	0	2	1
9	Skill Enhancement course	Estimation, Specifications & Contracts	0	1	2	2
10	Engineering Science	Tinkering Lab	0	0	2	1
	Evaluation of Community Service Internship		-	-	-	2
Total			15	1	10	23
MC	Minor Course (Student may select from the same specialized minors pool)		3	0	1	4.5
MC	Minor Course through SWAYAM / NPTEL (Minimum 12 Week, 3 credit course)		3	0	0	3
HC	Honors Course (Student may select from the same Honors pool)		3	0	0	3
HC	Honors Course (Student may select from the same Honors Pool)		3	0	0	3

VI Semester						
S.No.	Category	Title	L	T	P	Credits
1	Professional Core	Design and Drawing of Steel Structures	3	0	0	3
2	Professional Core	Highway Engineering	3	0	0	3
3	Professional Core	Environmental Engineering	3	0	0	3
4	Professional Elective-II	1. Ground Improvement Techniques 2. Repair and Rehabilitation of Structures 3. Valuation and Quantity Survey	3	0	0	3
5	Professional Elective-III	1. Finite element method 2. Bridge Engineering 3. Water Resource Engineering	3	0	0	3
6	Open Elective-II	1. Disaster management 2. Sustainability in Engineering practices 3. Water Supply Systems	3	0	0	3
7	Professional Core	Environmental Engineering lab	0	0	3	1.5
8	Professional Core	High Way Engineering lab	0	0	3	1.5
9	Skill Enhancement course	CAD Lab	0	1	2	2
Total			18	1	08	23
10	Audit course	Technical paper writing & IPR	2	0	0	-
Mandatory Industry Internship of 08 weeks duration during summer vacation						

OPEN ELECTIVES OFFERED BY CIVIL ENGINEERING

S.NO	Category	Titles
1	Open Elective -1	1. Green Buildings 2. Construction technology and management 3. Climate Change Impact on Eco system
2	Open Elective-2	1. Disaster management 2. Sustainability in Engineering practices 3. Water Supply Systems
3	Open Elective-3	1. Building technology for engineers 2. Environmental impact assessment
4	Open Elective-4	1. Geo-Spatial Technologies 2. Solid waste management

ACADEMIC REGULATIONS (R23)

COURSE STRUCTURE
AND
B. Tech I to VI SEMESTER DETAILED
SYLLUBUS

DEPARTMENT OF ELECTRICAL AND
ELECTRONICS ENGINEERING
(Applicable for batches admitted from 2023-2024)



RAMACHANDRA COLLEGE OF ENGINEERING
[ME]
NH-16, Bypass Road, Vatluru (V), Eluru-534007, Eluru District,
Andhra Pradesh, India

B.TECH. - COURSE STRUCTURE – R23
(Applicable from the academic year 2023-24 onwards)

INDUCTION PROGRAMME

S.No.	Course Name	Category	L-T-P-C
1	Physical Activities -- Sports, Yoga and Meditation, Plantation	MC	0-0-6-0
2	Career Counselling	MC	2-0-2-0
3	Orientation to all branches -- career options, tools, etc.	MC	3-0-0-0
4	Orientation on admitted Branch -- corresponding labs, tools and platforms	EC	2-0-3-0
5	Proficiency Modules & Productivity Tools	ES	2-1-2-0
6	Assessment on basic aptitude and mathematical skills	MC	2-0-3-0
7	Remedial Training in Foundation Courses	MC	2-1-2-0
8	Human Values & Professional Ethics	MC	3-0-0-0
9	Communication Skills -- focus on Listening, Speaking, Reading, Writing skills	BS	2-1-2-0
10	Concepts of Programming	ES	2-0-2-0

B.Tech. – I Semester

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

B.Tech. – II Semester

S.No.	Category	Title	L/D	T	P	Credit
1	BS&H	Communicative English	2	0	0	2
2	BS&H	Chemistry	3	0	0	3
3	BS&H	Differential Equations & Vector Calculus	3	0	0	3
4	Engineering Science	Basic Civil & Mechanical Engineering	3	0	0	3
5	Professional Core	Electrical Circuit Analysis-I	3	0	0	3
6	BS&H	Chemistry Lab	0	0	2	1
7	BS&H	Communicative English Lab	0	0	2	1
8	Engineering Science	Engineering Workshop	0	0	3	1.5
9	Professional Core	Electrical Circuits Lab	0	0	3	1.5
10	BS&H	Health and wellness, Yoga and Sports	-	-	1	0.5
Total			14	0	11	19.5

Department of Electrical and Electronics Engineering
R-23 Course Structure & Syllabus

B.Tech III Semester

S.No	Category	Title	L	T	P	C
1	BS	Complex Variables & Numerical Methods	3	0	0	3
2	HSMC	Universal human values – understanding harmony and Ethical human conduct	2	1	0	3
3	Engineering Science	Electromagnetic Field Theory	3	0	0	3
4	Professional Core	Electrical Circuit Analysis-II	3	0	0	3
5	Professional Core	DC Machines & Transformers	3	0	0	3
6	Professional Core	Basic Electrical Simulation Lab	0	0	3	1.5
7	Professional Core	DC Machines & Transformers Lab	0	0	3	1.5
8	Skill Enhancement Course	Python Programming	0	1	2	2
9	Audit Course	Environmental Science	2	0	0	-
Total			15	2	10	20

B.Tech IV Semester

S.No	Category	Title	L	T	P	C
1	Management Course- I	Managerial Economics & Financial Analysis	2	0	0	2
2	Engineering Science/Basic Science	Analog Circuits	3	0	0	3
3	Professional Core	Power Systems-I	3	0	0	3
4	Professional Core	Induction and Synchronous Machines	3	0	0	3
5	Professional Core	Control Systems	3	0	0	3
6	Professional Core	Induction and Synchronous Machines Lab	0	0	3	1.5
7	Professional Core	Control Systems Lab	0	0	3	1.5
8	Skill Enhancement course	Data Structures Using Python Lab	0	1	2	2
9	Engineering Science	Design Thinking & Innovation	1	0	2	2
Total			15	1	10	21

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

LIST OF COURSES OFFERED BY EEE

B. TECH – V SEMESTER EEE OFFERED COURSES

S. No.	Category	Title of the Course	L	T	P	C
1	Professional Core	Power Electronics	3	0	0	3
2	Professional Core	Digital Circuits	3	0	0	3
3	Professional Core	Power Systems-II	3	0	0	3
4	Professional Elective - I	1. Signal and systems 2. Computer Architecture and Organisation 3. Communication systems	3	0	0	3
5	Open Elective - I		3	0	0	3
6	Professional Core	Power Electronics Lab	0	0	3	1.5
7	Professional Core	Analog and Digital Circuits Lab	0	0	3	1.5
8	Skill enhancement Course	Soft Skills	0	1	2	2
9	Engineering Science	Tinkering Lab	0	0	2	1
10	Evaluation of Community Service Internship		-	-	-	2
Total			15	1	10	23

Category	Title of the Course	L	T	P	C
MC	Minor Course (Student may select from the same specialized minors pool)	3	0	0	4.5
MC	Minor Course through SWAYAM / NPTEL (Minimum 12 Week, 3 credit course)	3	0	0	3
HC	Honors Course (Student may select from the same Honors pool)	3	0	0	3
HC	Honors Course (Student may select from the same Honors pool)	3	0	0	3

OPEN ELECTIVES (For Other Department Students Except EEE Students)

S. No.	Category	Title of the Course	L	T	P	C
1	Open Elective – I (V Semester)	1. Renewable Energy Sources 2. Concepts of Energy Auditing & Management	3	0	0	3

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

B. TECH – VI SEMESTER EEE OFFERED COURSES

S. No.	Category	Title of the Course	L	T	P	C
1	Professional Core	Electrical Measurements and Instrumentation	3	0	0	3
2	Professional Core	Microprocessors and Microcontrollers	3	0	0	3
3	Professional Core	Power System Analysis	3	0	0	3
4	Professional Elective - II	1. Switchgear and Protection 2. Advanced Control systems 3. Renewable and Distributed Energy Technologies	3	0	0	3
5	Professional Elective - III	1. Electric Drives 2. Digital Signal Processing 3. High Voltage Engineering	3	0	0	3
6	Open Elective - II		3	0	0	3
7	Professional Core	Electrical Measurements and Instrumentation Lab	0	0	3	1.5
8	Professional Core	Microprocessors and Microcontrollers	0	0	3	1.5
9	Skill enhancement Course	IoT Applications of Electrical Engineering Lab	0	1	2	2
10	Audit Course	Research Methodology	2	0	0	-
Total			20	1	08	23

Category	Title of the Course	L	T	P	C
MC	Minor Course (Student may select from the same specialized minors pool)	3	0	0	4.5
MC	Minor Course through SWAYAM / NPTEL (Minimum 12 Week, 3 credit course)	3	0	0	3
HC	Honors Course (Student may select from the same Honors pool)	3	0	0	3
HC	Honors Course (Student may select from the same Honors pool)	3	0	0	3

OPEN ELECTIVES (For Other Department Students Except EEE Students)

S. No.	Category	Title of the Course	L	T	P	C
1	Open Elective – II (VI Semester)	1. Fundamentals of Electric Vehicles 2. Electrical Wiring Estimation and Costing	3	0	0	3



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA
(Established by Govt. of A.P., ACT No.30 of 2008)
KAKINADA – 533 003 (A.P) INDIA
R23 IV Year ELECTRICAL AND ELECTRONICS ENGINEERING

B.Tech. IV Year-I Semester

S.No.	Category	Title	L	T	P	C
1	Professional Core	Power System Operation and Control	3	0	0	3
2	Management Course- II	Energy Management & Auditing	2	0	0	2
3	Professional Elective-IV	1. EHVC & HVDC Transmission Systems 2. Programmable Logic Controllers 3. Electrical Distribution System	3	0	0	3
4	Professional Elective-V	1. Electric Vehicles 2. Switched Mode Power Conversion 3. Design of PV systems	3	0	0	3
5	Open Elective - III	1. Battery Management Systems and Charging Stations 2. Concepts of Smart Grid Technologies	3	0	0	3
6	Open Elective-IV	1. Concepts of Power Quality 2. Quantum Science and Technology	3	0	0	3
7	Skill Enhancement Course	Power Systems Simulation Lab	0	0	4	2
8	Audit Course	Constitution of India	2	0	0	-
9	Internship	Evaluation of Industry Internship	-	-	-	2
Total			16	1	02	21

B.Tech. IV Year-II Semester

S.No.	Category	Title	L	T	P	C
1	PR	Internship and Project	-	-	24	12

ACADEMIC REGULATIONS (R23)

COURSE STRUCTURE
AND
B. Tech I to VI SEMESTER DETAILED
SYLLUBUS

DEPARTMENT OF MECHANICAL
ENGINEERING
(Applicable for batches admitted from 2023-2024)



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B.TECH. - COURSE STRUCTURE – R23
(Applicable from the academic year 2023-24 onwards)

INDUCTION PROGRAMME

S.No.	Course Name	Category	L-T-P-C
1	Physical Activities -- Sports, Yoga and Meditation, Plantation	MC	0-0-6-0
2	Career Counselling	MC	2-0-2-0
3	Orientation to all branches -- career options, tools, etc.	MC	3-0-0-0
4	Orientation on admitted Branch -- corresponding labs, tools and platforms	EC	2-0-3-0
5	Proficiency Modules & Productivity Tools	ES	2-1-2-0
6	Assessment on basic aptitude and mathematical skills	MC	2-0-3-0
7	Remedial Training in Foundation Courses	MC	2-1-2-0
8	Human Values & Professional Ethics	MC	3-0-0-0
9	Communication Skills -- focus on Listening, Speaking, Reading, Writing skills	BS	2-1-2-0
10	Concepts of Programming	ES	2-0-2-0

B.Tech. – I Semester

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

B.Tech. – II Semester

S.No.	Category	Title	L/D	T	P	Credit
1	BS&H	Communicative English	2	0	0	2
2	BS&H	Engineering Chemistry	3	0	0	3
3	BS&H	Differential Equations & Vector Calculus	3	0	0	3
4	Engineering Science	Basic Civil & Mechanical Engineering	3	0	0	3
5	Professional Core	Engineering Mechanics	3	0	0	3
6	BS&H	Engineering Chemistry Lab	0	0	2	1
7	BS&H	Communicative English Lab	0	0	2	1
8	Engineering Science	Engineering Workshop	0	0	3	1.5
9	Professional Core	Computer Graphics & Mechanical Design	0	0	3	1.5
10	BS&H	Health and wellness, Yoga and Sports	-	-	1	0.5
Total			14	0	11	19.5

COURSE STRUCTURE
DEPARTMENT OF MECHANICAL ENGINEERING

III Semester						
S.No.	Category	Title	L	T	P	Credits
1	BS	Numerical Methods and Transform Techniques	3	0	0	3
2	HSMC	Universal Human Values– Understanding Harmony & Ethical Human Conduct	2	1	0	3
3	Engineering Science	Thermodynamics	2	0	0	2
4	Professional Core	Mechanics of Solids	3	0	0	3
5	Professional Core	Material Science and Metallurgy	3	0	0	3
6	Professional Core	Mechanics of Solids and Materials Science Lab	0	0	3	1.5
7	Professional Core	Computer-aided Machine Drawing	0	0	3	1.5
8	Engineering Science	Python programming Lab	0	0	2	1.0
9	Skill Enhancement Course	Embedded Systems and IoT	0	1	2	2
10	Audit Course	Environmental Science	2	0	0	-
Total			15	2	10	20

IV Semester						
S.No.	Category	Title	L	T	P	Credits
1	Management Course- I	Industrial Management	2	0	0	2
2	Basic Science	Complex Variables, Probability and Statistics	3	0	0	3
3	Professional Core	Manufacturing processes	3	0	0	3
4	Professional Core	Fluid Mechanics & Hydraulic Machines	3	0	0	3
5	Professional Core	Theory of Machines	3	2	0	" 5
6	Professional Core	Fluid Mechanics & Hydraulic Machines Lab	0	0	3	1.5
7	Professional Core	Manufacturing processes Lab	0	0	3	1.5
8	Skill Enhancement course	Soft Skills	0	1	2	2
9	Engineering Science	Design Thinking & Innovation	1	0	2	2
Total			15	1	10	21
Mandatory Community Service Project Internship of 08 weeks duration during summer Vacation						

DEPARTMENT OF MECHANICAL ENGINEERING

V Semester						
S.No.	Category	Title	L	T	P	Credits
1	Professional Core	Machine Tools and Metrology	3	0	0	3
2	Professional Core	Thermal Engineering	3	0	0	3
3	Professional Core	Design of Machine Elements	3	0	0	3
4	Professional Elective-I	1) Design for Manufacturing 2) Conventional and futuristic vehicle technology 3) Renewable Energy Technologies 4) Non-destructive Evaluation	3	0	0	3
5	Open Elective-I	Entrepreneurship Development & Venture Creation 1. Sustainable Energy Technologies 2. Applied Operations Research 3. Nano Technology 4. Thermal Management of Electronic systems 5. Entrepreneurship	3	0	0	3
6	Professional Core	Thermal Engineering Lab	0	0	3	1.5
7	Professional Core	Theory of Machines Lab	0	0	3	1.5
8	Skill Enhancement course	Machine tools and Metrology Lab	0	0	4	2
9	Engineering Science	Tinkering Lab	0	0	2	1
10	Evaluation of Community Service Internship	Community Service Internship	-	-	-	2
Total			15	0	10	23
MC	Minor Course (Student may select from the same specialized minors pool)		3	0	3	4.5
MC	Minor Course through SWAYAM / NPTEL (Minimum 12 Week, 3 credit course)		3	0	0	3
HC	Honors Course (Student may select from the same Honors pool)		3	0	0	3
HC	Honors Course (Student may select from the same Honors Pool)		3	0	0	3

DEPARTMENT OF MECHANICAL ENGINEERING

VI Semester						
S.No.	Category	Title	L	T	P	Credits
1	Professional Core	Heat Transfer	3	0	0	3
2	Professional Core	Artificial Intelligence and Machine Learning	3	0	0	3
3	Professional Core	Finite Element Methods	3	0	0	3
4	Professional Elective-II	1. Mechanical Vibrations 2. Advanced Manufacturing Processes 3. Micro Electro Mechanical Systems 4. Sensors and Instrumentation	3	0	0	3
5	Professional Elective-III	1. Energy Storage Technologies 2. Industrial Hydraulics and Pneumatics 3. Industrial Robotics 4. Refrigeration & Air-Conditioning	3	0	0	3
6	Open Elective - II	1. Introduction to Industrial Robotics 2. Industrial Management 3. Additive Manufacturing 4. Vehicle Technology 5. Industrial Safety	3	0	0	3
7	Professional Core	Heat Transfer Lab	0	0	3	1.5
8	Professional Core	Artificial Intelligence and Machine Learning Lab	0	0	3	1.5
9	Skill Enhancement course	Robotics and Drone Technologies Lab	0	0	4	2
10	Audit Course	Technical paper writing and IPR	2	0	0	-
Total			20	0	10	23
Mandatory Industry Internship of 08 weeks duration during summer						

MC	Student may select from the same minors pool	3	0	3	4.5
MC	Minor Course (Student may select from the same specialized minors pool)	3	0	0	3
HC	Student may select from the same honors pool	3	0	0	3
HC	Honors Course (Student may select from the honors pool)	3	0	0	3



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

KAKINADA-533003, Andhra Pradesh, India

B. TECH MECHANICAL ENGINEERING **R23 – IV YEAR COURSE STRUCTURE & SYLLABUS**

B. Tech. – IV Year I Semester

S. No.	Category	Title	L	T	P	Credits
1	Professional Core	CAD/CAM	2	0	0	2
2	Management Course- II	Operations Research	2	0	0	2
3	Professional Core	CAD/CAM Lab	0	0	2	1
4	Professional Elective	Professional Elective-IV	3	0	0	3
5	Professional Elective	Professional Elective-V	3	0	0	3
6	Open Elective - III	1. Finite Element Methods 2. Introduction to Mechatronics 3. Product design and development 4. Advanced Materials 5. Introduction to Smart Manufacturing	3	0	0	3
7	Open Elective-IV	1. Optimization Techniques 2. Advanced Manufacturing Processes 3. Total Quality Management 4. Operations Management 5. Energy Auditing	3	0	0	3
8	Skill Enhancement Course	Mechatronics Lab	0	0	4	2
9	Audit Course	Constitution of India	2	0	0	-
	Internship	Evaluation of Industry Internship	-	-	-	2
Total			18	0	06	21

Professional Elective-IV

1. Mechatronics
2. Computational Fluid Dynamics
3. Functional Materials and Applications
4. Drives and Actuators for Robotics

Professional Elective-V

1. Hydrogen and Fuel Cell Technology
2. Smart Manufacturing
3. Autonomous Systems
4. Embedded Systems and Programming

ACADEMIC REGULATIONS (R23)

COURSE STRUCTURE
AND
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DEPARTMENT OF ELECTRONICS AND
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(Applicable for batches admitted from 2023-2024)



RAMACHANDRA COLLEGE OF ENGINEERING
[ME]
NH-16, Bypass Road, Vatluru (V), Eluru-534007, Eluru District,
Andhra Pradesh, India

B.TECH. - COURSE STRUCTURE – R23
(Applicable from the academic year 2023-24 onwards)

INDUCTION PROGRAMME

S.No.	Course Name	Category	L-T-P-C
1	Physical Activities -- Sports, Yoga and Meditation, Plantation	MC	0-0-6-0
2	Career Counselling	MC	2-0-2-0
3	Orientation to all branches -- career options, tools, etc.	MC	3-0-0-0
4	Orientation on admitted Branch -- corresponding labs, tools and platforms	EC	2-0-3-0
5	Proficiency Modules & Productivity Tools	ES	2-1-2-0
6	Assessment on basic aptitude and mathematical skills	MC	2-0-3-0
7	Remedial Training in Foundation Courses	MC	2-1-2-0
8	Human Values & Professional Ethics	MC	3-0-0-0
9	Communication Skills -- focus on Listening, Speaking, Reading, Writing skills	BS	2-1-2-0
10	Concepts of Programming	ES	2-0-2-0

B.Tech. – I Semester

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

B.Tech. – II Semester

S.No.	Category	Title	L/D	T	P	Credit
1	BS&H	Communicative English	2	0	0	2
2	BS&H	Chemistry	3	0	0	3
3	BS&H	Differential Equations & Vector Calculus	3	0	0	3
4	Engineering Science	Basic Civil & Mechanical Engineering	3	0	0	3
5	Professional Core	Electrical Circuit Analysis-I	3	0	0	3
6	BS&H	Chemistry Lab	0	0	2	1
7	BS&H	Communicative English Lab	0	0	2	1
8	Engineering Science	Engineering Workshop	0	0	3	1.5
9	Professional Core	Electrical Circuits Lab	0	0	3	1.5
10	BS&H	Health and wellness, Yoga and Sports	-	-	1	0.5
Total			14	0	11	19.5

COURSE STRUCTURE
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

III Semester						
S.No.	Category	Title	L	T	P	Credits
1	BS	Probability theory and Random process	3	0	0	3
2	HSMC	Universal Human Values– Understanding Harmony and Ethical Human Conduct	2	1	0	3
3	Engineering Science	Signals and Systems	3	0	0	3
4	Professional Core	Electronic Devices and Circuits	3	0	0	3
5	Professional Core	Switching Theory and Logic Design	3	0	0	3
6	Professional Core	Electronic Devices and Circuits Lab	0	0	3	1.5
7	Professional Core	Switching Theory and Logic Design Lab	0	0	3	1.5
8	Skill Enhancement Course	Data Structures using Python	0	1	2	2
9	Audit Course	Environmental Science	2	0	0	-
Total			16	2	08	20

IV Semester						
S.No.	Category	Title	L	T	P	Credits
1	Management Course- I	Managerial Economics and Financial Analysis	2	0	0	2
2	Engineering Science	Linear Control Systems	3	0	0	3
3	Professional Core	Electromagnetic Waves and Transmission Lines	3	0	0	3
4	Professional Core	Electronic Circuit Analysis	3	0	0	3
5	Professional Core	Analog Communications	3	0	0	3
6	Professional Core	Signals and Systems Lab	0	0	3	1.5
7	Professional Core	Electronic Circuit Analysis lab	0	0	3	1.5
8	Skill Enhancement	Soft Skills	0	1	2	2
9	Engineering Science	Design Thinking & Innovation	1	0	2	2
Total			15	1	10	21
Mandatory Community Service Project Internship of 08weeks duration during summer Vacation						

B.TECH–ELECTRONICS AND COMMUNICATION ENGINEERING

B.Tech. V Semester

S. No.	Category	Title	L	T	P	C
1	Professional Core	Analog & Digital IC Applications	3	0	0	3
2	Professional Core	Digital communications	3	0	0	3
3	Professional Core	Microprocessors and microcontrollers	3	0	0	3
4	Professional Elective - I	1. Digital System Design through HDL 2. Optical Communications 3. Electronic Measurements and Instrumentation 4. Computer Organization and Architecture	3	0	0	3
5	Open Elective-I	Computer Networks	3	0	0	3
6	Professional Core	Analog & Digital IC Applications Lab	0	0	3	1.5
7	Professional Core	Analog and digital communications Lab	0	0	3	1.5
8	Professional Core	Microprocessors and microcontrollers lab	0	0	3	1.5
9	Skill enhancement course	Machine learning lab	0	1	2	2
10	Evaluation of Community Service Internship		-	-	-	2
Total			15	1	11	23.5
MC	Minor Course (Student may select from the same specialized minors pool)		3	0	3	4.5
MC	Minor Course through SWAYAM / NPTEL (Minimum 12 Week, 3 credit course)		3	0	0	3
HC	Honors Course (Student may select from the same Honors pool)		3	0	0	3
HC	Honors Course (Student may select from the same Honors Pool)		3	0	0	3

B.TECH–ELECTRONICS AND COMMUNICATION ENGINEERING

B.Tech. VI Semester

S. No.	Category	Title	L	T	P	C
1	Professional Core	VLSI Design	3	0	0	3
2	Professional Core	Antennas and wave propagation	3	0	0	3
3	Professional Core	Digital Signal Processing	3	0	0	3
4	Professional Elective–II	1.Analog IC Design 2.Satellite Communication 3.Smart and Wireless Instrumentation 4.Machine Learning	3	0	0	3
5	Professional Elective–III	1.Bio Medical Instrumentation 2.Microwave Engineering 3.Embedded Systems 4.Artificial Intelligence	3	0	0	3
6	Open Elective – II		3	0	0	3
7	Professional Core	VLSI Design Lab	0	0	3	1.5
8	Engineering Science	Design of PCB &Antennas lab	0	0	2	1
9	Skill Enhancement course	Applications of LabVIEW for instrumentation and communications	0	1	2	2
10	Audit Course	Research methodology and IPR	2	0	0	-
Total			20	1	07	22.5
Mandatory Industry Internship of 08 weeks duration during summer vacation						
MC	Student may select from the same minors pool		3	0	3	4.5
MC	Minor Course (Student may select from the same specialized minors pool)		3	0	0	3
HC	Student may select from the same honors pool		3	0	0	3
HC	Honors Course (Student may select from the honors pool)		3	0	0	3



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA
(Established by Govt. of A.P., ACT No.30 of 2008)
KAKINADA – 533 003 (A.P) INDIA
R23 IV Year ELECTRONICS AND COMMUNICATION ENGINEERING

B.Tech IV Year I Semester

S.No.	Category	Title	L	T	P	Credits
1	Professional Core	Cellular & Mobile Communications	3	0	0	3
2	Management Course– II	Management Science	2	0	0	2
3	Professional Elective–IV	1. Low Power VLSI Design 2. Coding Theory and Applications 3. DSP Processors and Architectures 4. Soft Computing Techniques	3	0	0	3
4	Professional Elective–V	1. Design for Testability 2. Radar Engineering 3. Digital Image Processing 4. Internet of Things	3	0	0	3
5	Open Elective – III	1. Fundamentals of VLSI Design 2. Digital Electronics 3. Electronic measurements and Instrumentations 4. Optical communications	3	0	0	3
6	Open Elective–IV	1. Principles of Cellular & Mobile communications 2. Fundamentals of Satellite Communications 3. Embedded Systems 4. Transducers and Signal Conditioning	3	0	0	3
7	Skill Enhancement Course	Digital Signal and Image Processing Lab	0	1	2	2
8	Audit Course	Constitution of India	2	0	0	-
9	Internship	Evaluation of Industry Internship	-	-	-	2
Total			19	1	02	21

B.Tech.– IV Year II Semester

S.No.	Category	Title	L	T	P	Credits
1	PR	Internship and Project	-	-	24	12

ACADEMIC REGULATIONS (R23)

COURSE STRUCTURE
AND
B. Tech I to VI SEMESTER DETAILED
SYLLUBUS

DEPARTMENT OF COMPUTER SCIENCE
ENGINEERING
(Applicable for batches admitted from 2023-2024)



RAMACHANDRA COLLEGE OF ENGINEERING
[ME]
NH-16, Bypass Road, Vatluru (V), Eluru-534007, Eluru District,
Andhra Pradesh, India

B.TECH. - COURSE STRUCTURE – R23
(Applicable from the academic year 2023-24 onwards)

INDUCTION PROGRAMME

S.No.	Course Name	Category	L-T-P-C
1	Physical Activities -- Sports, Yoga and Meditation, Plantation	MC	0-0-6-0
2	Career Counselling	MC	2-0-2-0
3	Orientation to all branches -- career options, tools, etc.	MC	3-0-0-0
4	Orientation on admitted Branch -- corresponding labs, tools and platforms	EC	2-0-3-0
5	Proficiency Modules & Productivity Tools	ES	2-1-2-0
6	Assessment on basic aptitude and mathematical skills	MC	2-0-3-0
7	Remedial Training in Foundation Courses	MC	2-1-2-0
8	Human Values & Professional Ethics	MC	3-0-0-0
9	Communication Skills -- focus on Listening, Speaking, Reading, Writing skills	BS	2-1-2-0
10	Concepts of Programming	ES	2-0-2-0

B.Tech. – I Semester

S.No.	Category	Title	L/D	T	P	Credits
1	BS&H	Communicative English	2	0	0	2
2	BS&H	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 C Programming	3	0	0	3
6	BS&H	Chemistry Lab	0	0	2	1
7	Engineering Science	Computer Programming Lab	0	0	3	1.5
8	Engineering Science	IT Workshop	0	0	2	1
9	Engineering Science	Engineering Workshop	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. – II Semester

S.No.	Category	Title	L/D	T	P	Credits
1	BS&H	Differential Equations & Vector Calculus	3	0	0	3
2	BS&H	Engineering Physics	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	Professional Core	Data Structures through C	3	0	0	3
6	BS&H	Communicative English Lab	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	Professional Core	Data Structures through C Lab	0	0	3	1.5
10	BS&H	NSS/NCC/Scouts & Guides/ Community Service	-	-	1	0.5
Total			13	00	15	20.5

COURSE STRUCTURE
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

III Semester						
S.No.	Category	Title	L	T	P	Credits
1	BS&H	Discrete Mathematics & Graph Theory	3	0	0	3
2	BS&H	Universal human values -understanding harmony and Ethical human conduct	2	1	0	3
3	Engineering Science	Digital Logic & Computer Organization	3	0	0	3
4	Professional Core	Advanced Data Structures & Algorithm Analysis	3	0	0	3
5	Professional Core	Object Oriented Programming Through Java	3	0	0	3
6	Professional Core	Advanced Data Structures and Algorithm Analysis Lab	0	0	3	1.5
7	Professional Core	Object Oriented Programming Through Java Lab	0	0	3	1.5
8	Skill Enhancement	Python Programming	0	1	2	2
9	Audit Course	Environmental Science	2	0	0	-
Total			16	2	8	20
IV Semester						
S.No.	Category	Title	L	T	P	Credits
1	Management Course- I	Managerial Economics and Financial Analysis	2	0	0	2
2	Engineering Science/ Basic Science	Probability & Statistics	3	0	0	3
3	Professional Core	Operating Systems	3	0	0	3
4	Professional Core	Database Management Systems	3	0	0	3
5	Professional Core	Software Engineering	2	1	0	3
6	Professional Core	Operating Systems Lab	0	0	3	1.5
7	Professional Core	Database Management Systems Lab	0	0	3	1.5
8	Skill Enhancement Course	Full Stack Development -I	0	1	2	2
9	BS&H	Design Thinking & Innovation	1	0	2	2
Total			14	2	10	21
Mandatory Community Service Project Internship of 08 weeks duration during summer vacation						

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
COURSE STRUCTURE

V Semester						
S.No	Category	Title	L	T	P	Credits
1	Professional Core	Data Warehousing and Data Mining	3	0	0	3
2	Professional Core	Computer Networks	3	0	0	3
3	Professional Core	Formal Languages and Automata Theory	3	0	0	3
4	Professional Elective-I	1. Object Oriented Analysis and Design 2. Artificial Intelligence 3. Microprocessors & Microcontrollers 4. Quantum Computing 5. 12 Week MOOC Swayam / NPTEL course recommended by the BoS	3	0	0	3
5	Open Elective-I	Open Elective-I OR Entrepreneurship Development & Venture Creation	3	0	0	3
6	Professional Core	Data Mining Lab	0	0	3	1.5
7	Professional Core	Computer Networks Lab	0	0	3	1.5
8	Skill Enhancement Course	Full Stack development-2	0	1	2	2
9	Engineering Science	User Interface Design using Flutter / SWAYAM Plus - Android Application Development (with Flutter)	0	0	2	1
Evaluation of Community Service Internship			-	-	-	2
Total			15	1	10	23
MC	Minor Course (Student may select from the same specialized minors pool)		3	0	3	4.5
MC	Minor Course through SWAYAM / NPTEL (minimum 12 week, 3 credit course)		3	0	0	3
HC	Honors Course (Student may select from the same honors pool)		3	0	0	3
HC	Honors Course (Student may select from the same honors pool)		3	0	0	3

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

VI Semester						
S.No	Category	Title	L	T	P	Credits
1	Professional Core	Compiler Design	3	0	0	3
2	Professional Core	Cloud Computing	3	0	0	3
3	Professional Core	Cryptography & Network Security	3	0	0	3
4	Professional Elective-II	1. Software Testing Methodologies 2. Cyber Security 3. DevOps 4. Machine Learning 5. 12 week MOOC Swayam/NPTEL course recommended by the BoS	3	0	0	3
5	Professional Elective-III	1. Software Project Management 2. Mobile Adhoc Networks 3. Natural Language Processing 4. Big Data Analytics 5. Distributed Operating System 6. 12 week MOOC Swayam/NPTEL course recommended by the BoS	3	0	0	3
6	Open Elective – II	Open Elective – II	3	0	0	3
7	Professional Core	Cloud Computing Lab	0	0	3	1.5
8	Professional Core	Cryptography & Network Security Lab	0	0	3	1.5
9	Skill Enhancement course	Soft skills / SWAYAM Plus - 21st Century Employability Skills	0	1	2	2
10	Audit Course	Technical Paper Writing & IPR	2	0	0	-
Total			20	1	08	23
Mandatory Industry Internship / Mini Project of 08 weeks duration during summer vacation						
MC	Minor Course (Student may select from the same specialized minors pool)		3	0	3	4.5
MC	Minor Course (Student may select from the same specialized minors pool)		3	0	0	3
HC	Honors Course (Student may select from the same honors pool)		3	0	0	3
HC	Honors Course (Student may select from the honors pool)		3	0	0	3

* Under Industry Internship interested students can pursue SWAYAM Plus courses viz., Hands-on Masterclass on Data Analytics OR Artificial Intelligence for Real-World Application



B.Tech. IV Year I Semester

S. No.	Category	Title	L	T	P	C
1	Professional Core	Deep Learning	2	1	0	3
2	Management Course- II	Human Resources & Project Management	2	0	0	2
3	Professional Elective-IV	1. Software Architecture & Design Patterns 2. Blockchain Technology 3. Augmented Reality & Virtual Reality 4. Internet of Things 5. 12 week MOOC Swayam/NPTEL course recommended by the BoS	3	0	0	3
4	Professional Elective-V	1. Agile Methodologies 2. Generative AI 3. Computer Vision 4. Cyber Physical Systems 5. 12 week MOOC Swayam / NPTEL course recommended by the BoS	3	0	0	3
5	Open Elective-III		3	0	0	3
6	Open Elective-IV		3	0	0	3
7	Skill Enhancement Course	Prompt Engineering/ SWAYAM Plus - Certificate program in Prompt Engineering and ChatGPT	0	1	2	2
8	Audit Course	Constitution of India	2	0	0	-
9	Internship	Evaluation of Industry Internship /Mini Project	-	-	-	2
Total			18	2	02	21
MC	Minor Course (Student may select from the same specialized minors pool)		3	0	0	3
HC	Honors Course (Student may select from the same honors pool)		3	0	0	3
HC	Honors Course (Student may select from the same honors pool)		3	0	0	3

ACADEMIC REGULATIONS (R23)

COURSE STRUCTURE
AND
B. Tech I to VI SEMESTER DETAILED
SYLLUBUS

**DEPARTMENT OF CSE (ARTIFICIAL
INTELLIGENCE & MACHINE LEARNING)**
(Applicable for batches admitted from 2023-2024)



RAMACHANDRA COLLEGE OF ENGINEERING
[ME]
NH-16, Bypass Road, Vatluru (V), Eluru-534007, Eluru District,
Andhra Pradesh, India

B.TECH. - COURSE STRUCTURE – R23
(Applicable from the academic year 2023-24 onwards)

INDUCTION PROGRAMME

S.No.	Course Name	Category	L-T-P-C
1	Physical Activities -- Sports, Yoga and Meditation, Plantation	MC	0-0-6-0
2	Career Counselling	MC	2-0-2-0
3	Orientation to all branches -- career options, tools, etc.	MC	3-0-0-0
4	Orientation on admitted Branch -- corresponding labs, tools and platforms	EC	2-0-3-0
5	Proficiency Modules & Productivity Tools	ES	2-1-2-0
6	Assessment on basic aptitude and mathematical skills	MC	2-0-3-0
7	Remedial Training in Foundation Courses	MC	2-1-2-0
8	Human Values & Professional Ethics	MC	3-0-0-0
9	Communication Skills -- focus on Listening, Speaking, Reading, Writing skills	BS	2-1-2-0
10	Concepts of Programming	ES	2-0-2-0

B.Tech. – I Semester

S.No.	Category	Title	L/D	T	P	Credits
1	BS&H	Communicative English	2	0	0	2
2	BS&H	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 C Programming	3	0	0	3
6	BS&H	Chemistry Lab	0	0	2	1
7	Engineering Science	Computer Programming Lab	0	0	3	1.5
8	Engineering Science	IT Workshop	0	0	2	1
9	Engineering Science	Engineering Workshop	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. – II Semester

S.No.	Category	Title	L/D	T	P	Credits
1	BS&H	Differential Equations & Vector Calculus	3	0	0	3
2	BS&H	Engineering Physics	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	Professional Core	Data Structures through C	3	0	0	3
6	BS&H	Communicative English Lab	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	Professional Core	Data Structures through C Lab	0	0	3	1.5
10	BS&H	NSS/NCC/Scouts & Guides/ Community Service	-	-	1	0.5
Total			13	00	15	20.5

COURSE STRUCTURE
DEPARTMENT OF CSE (ARTIFICIAL INTELLIGENCE & MACHINE LEARNING)

III SEMESTER						
S. No	Course Code	Courses	L	T	P	Credits
1	BS&H	Discrete Mathematics And Graph Theory	3	0	0	3
2	BS&H	Universal Human Values – Understanding Harmony And Ethical Human Conduct	2	1	0	3
3	Engineering Science	Artificial Intelligence	3	0	0	3
4	Professional Core	Advanced Data Structures & Algorithm Analysis	3	0	0	3
5	Professional Core	Object Oriented Programming Through Java	3	0	0	3
6	Professional Core	Advanced Data Structures & Algorithm Analysis Lab	0	0	3	1.5
7	Professional Core	Object Oriented Programming Through Java Lab	0	0	3	1.5
8	Skill Enhancement course	Python Programming	0	1	2	2
9	Audit Course	Environmental Science	2	0	0	---
Total Credits			16	2	8	20

IV SEMESTER						
S. No	Course Code	Courses	L	T	P	Credits
1	Management Course- I	Optimization Techniques	2	0	0	2
2	Engineering Science/ Basic Science	Probability And Statistics	3	0	0	3
3	Professional Core	Machine Learning	3	0	0	3
4	Professional Core	Database Management System	3	0	0	3
5	Professional Core	Digital Logic & Computer Organization	3	0	0	3
6	Professional Core	Machine Learning Lab	0	0	3	1.5
7	Professional Core	Database Management Systems Lab	0	0	3	1.5
8	Skill Enhancement course	Full Stack Development – 1	0	1	2	2
9	BS&H	Design Thinking & Innovation	1	0	2	2
Total Credits			15	1	2	21
Mandatory Community Service Project Internship of 08weeks duration during summer vacation						

DEPARTMENT OF **CSE (ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING)**

COURSE STRUCTURE

V Semester						
S.No.	Category	Title	L	T	P	Credits
1	Professional Core	Information Retrieval Systems	3	0	0	3
2	Professional Core	Deep Learning	3	0	0	3
3	Professional Core	Operating Systems	3	0	0	3
4	Professional Elective-I	1. Software Engineering 2. Cloud Computing 3. Internet of Things 4. Exploratory Data Analysis with Python 5. Automata Theory & Compiler Design	3	0	0	3
5	Open Elective- I	Open Elective-I OR Entrepreneurship Development & Venture Creation	3	0	0	3
6	Professional Core	Information Retrieval Lab	0	0	3	1.5
7	Professional Core	Deep Learning Lab	0	0	3	1.5
8	Skill Enhancement course	Full Stack development -2	0	1	2	2
9	ES	Tinkering Lab (<i>User Interface Design using Flutter</i>)	0	0	2	1
10	Evaluation of Community Service Project Internship		-	-	-	2
Total			15	1	10	23

DEPARTMENT OF CSE (ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING)

VI Semester						
S.No.	Category	Title	L	T	P	Credits
1	Professional Core	Natural Language Processing	3	0	0	3
2	Professional Core	Computer Networks	3	0	0	3
3	Professional Core	Data Visualization	3	0	0	3
4	Professional Elective-II	1. Software Testing Methodology 2. Cryptography & Network Security 3. DevOps 4. Recommender Systems 5. Any of the 12-Week SWAYAM /NPTEL Course suggested by the BoS	3	0	0	3
5	Professional Elective-III	1. Software Project Management 2. Mobile Adhoc Networks 3. Computer Vision 4. NoSQL Databases 5. Any of the 12-Week SWAYAM /NPTEL Course suggested by the BoS	3	0	0	3
6	Open Elective – II	Open Elective – II	3	0	0	3
7	Professional Core	Computer Networks Lab	0	0	3	1.5
8	Professional Core	Data Visualization Lab	0	0	3	1.5
9	Skill Enhancement Course	Soft Skills	0	1	2	2
10	Audit Course	Technical Paper Writing & IPR	2	-	-	-
Total			20	1	8	23
Mandatory Industry Internship / Mini Project of 08 weeks duration during summer vacation						



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA
KAKINADA – 533 003, Andhra Pradesh, India
R23 B. Tech CSE (AI&ML) COURSE STRUCTURE & SYLLABUS

B. Tech. – IV Year I Semester

S. No.	Category	Title	L	T	P	Credits
1	Professional Core	Reinforcement Learning	3	0	0	3
2	Management Course- II	Human Resource & Project Management	2	0	0	2
3	Professional Elective-IV	1. Responsible A.I. 2. Blockchain Technology 3. Quantum Computing 4. Robotic Process Automation 5. Any of the 12-Week SWAYAM /NPTEL Course suggested by the BoS	3	0	0	3
4	Professional Elective-V	1. Agile Methodologies 2. Augmented Reality & Virtual Reality 3. High Performance Computing 4. Big Data Analytics 5. Any of the 12-Week SWAYAM /NPTEL Course suggested by the BoS	3	0	0	3
5	Open Elective-III		3	0	0	3
6	Open Elective-IV		3	0	0	3
7	Skill Enhancement Course	Prompt Engineering /SWAYAM Plus-Certificate Program in Prompt Engineering and ChatGPT/	0	1	2	2
8	Audit Course	Constitution of India	2	0	0	-
9	Evaluation of Industry Internship / Mini Project		-	-	-	2
Total			19	1	02	21
MC	Student may select from the same minor's pool		3	0	0	3
HC	Student may select from the same honor's pool		3	0	0	3
HC	Student may select from the same honor's pool		3	0	0	3

ACADEMIC REGULATIONS (R23)

COURSE STRUCTURE

AND

B. Tech I to VI SEMESTER DETAILED SYLLUBUS

DEPARTMENT OF CSE (CYBER SECURITY)

(Applicable for batches admitted from 2023-2024)



RAMACHANDRA COLLEGE OF ENGINEERING

[ME]

NH-16, Bypass Road, Vatluru (V), Eluru-534007, Eluru District,
Andhra Pradesh, India

B.TECH. - COURSE STRUCTURE – R23
(Applicable from the academic year 2023-24 onwards)

INDUCTION PROGRAMME

S.No.	Course Name	Category	L-T-P-C
1	Physical Activities -- Sports, Yoga and Meditation, Plantation	MC	0-0-6-0
2	Career Counselling	MC	2-0-2-0
3	Orientation to all branches -- career options, tools, etc.	MC	3-0-0-0
4	Orientation on admitted Branch -- corresponding labs, tools and platforms	EC	2-0-3-0
5	Proficiency Modules & Productivity Tools	ES	2-1-2-0
6	Assessment on basic aptitude and mathematical skills	MC	2-0-3-0
7	Remedial Training in Foundation Courses	MC	2-1-2-0
8	Human Values & Professional Ethics	MC	3-0-0-0
9	Communication Skills -- focus on Listening, Speaking, Reading, Writing skills	BS	2-1-2-0
10	Concepts of Programming	ES	2-0-2-0

B.Tech. – I Semester

S.No.	Category	Title	L/D	T	P	Credits
1	BS&H	Communicative English	2	0	0	2
2	BS&H	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 C Programming	3	0	0	3
6	BS&H	Chemistry Lab	0	0	2	1
7	Engineering Science	Computer Programming Lab	0	0	3	1.5
8	Engineering Science	IT Workshop	0	0	2	1
9	Engineering Science	Engineering Workshop	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. – II Semester

S.No.	Category	Title	L/D	T	P	Credits
1	BS&H	Differential Equations & Vector Calculus	3	0	0	3
2	BS&H	Engineering Physics	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	Professional Core	Data Structures through C	3	0	0	3
6	BS&H	Communicative English Lab	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	Professional Core	Data Structures through C Lab	0	0	3	1.5
10	BS&H	NSS/NCC/Scouts & Guides/ Community Service	-	-	1	0.5
Total			13	00	15	20.5

COURSE STRUCTURE

DEPARTMENT OF CSE CYBER SECURITY

III Semester						
S. No	Category	Title	L	T	P	Credits
1	BS&H	Discrete Mathematics & Graph Theory	3	0	0	3
2	BS&H	Universal human values understanding harmony and Ethical human conduct	2	1	0	3
3	Engineering Science	Digital Logic & Computer Organization	3	0	0	3
4	Professional Core	Advanced Data Structures & Algorithm Analysis	3	0	0	3
5	Professional Core	Object Oriented Programming Through Java	3	0	0	3
6	Professional Core	Advanced Data Structures & Algorithm Analysis Lab	0	0	3	1.5
7	Professional Core	Object Oriented Programming Through Java Lab	0	0	3	1.5
8	Skill Enhancement Course	Python programming	0	1	2	2
9	Audit Course	Environmental Science	2	0	0	0
Total			16	2	8	20

IV Semester						
S. No	Category	Title	L	T	P	Credits
1	Management Course-I	Managerial Economics And Financial Analysis	2	0	0	2
2	Engineering Science/Basic Science	Number Theory & Applications	3	0	0	3
3	Professional Core	Operating Systems	3	0	0	3
4	Professional Core	Database Management Systems	3	0	0	3
5	Professional Core	Computer Networks	3	0	0	3
6	Professional Core	Computer Networks Lab	0	0	3	1.5
7	Professional Core	Database Management Systems Lab	0	0	3	1.5
8	Skill Enhancement Course	Full Stack Development-1	0	1	2	2
9	BS&H	Design Thinking & Innovation	1	0	2	2
Total			15	1	10	21
Mandatory Community Service Project Internship of 08weeks duration during summer vacation						

CSE- CYBER SECURITY

V Semester						
S. No	Category	Title	L	T	P	Credits
1	Professional Core	Cloud Computing	3	0	0	3
2	Professional Core	Introduction to Cyber Security	3	0	0	3
3	Professional Core	Automata Theory & Compiler Design	3	0	0	3
4	Professional Elective-I	1. Software Engineering 2. Wireless Sensor Networks 3. Artificial Intelligence 4. Internet of Things 5. 12-Week MOOC Swayam / NPTEL Course Recommended by the BoS	3	0	0	3
5	Open Elective- I	OR Entrepreneurship Development & Venture Creation	3	0	0	3
6	Professional Core	Cloud Computing Lab	0	0	3	1.5
7	Professional Core	Cyber Security Lab	0	0	3	1.5
8	Skill Enhancement Course	Full Stack Development-II	0	1	2	2
9	Engineering Science	UI Design-Flutter Lab	0	0	2	1
10	Evaluation of Community Service Internship		-	-	-	2
Total			15	1	10	23

CSE- CYBER SECURITY

VI Semester						
S. No	Category	Title	L	T	P	Credits
1	Professional Core	Cyber Crimes & Digital Forensics	3	0	0	3
2	Professional Core	Cryptography & Network Security	3	0	0	3
3	Professional Core	Machine Learning	3	0	0	3
4	Professional Elective-II	1. Software Testing Methodologies 2. DevOps 3. Microprocessors & Microcontrollers 4. Applied Cryptography 5. 12-WeekMOOC Swayam/NPTEL Course Recommended by the BoS	3	0	0	3
5	Professional Elective-III	1. Software Project Management 2. Mobile Adhoc Networks 3. Natural Language Processing 4. Security Assessment and Risk Analysis 5. 12-week MOOC Swayam/NPTEL Course Recommended by the BoS	3	0	0	3
6	Open Elective – II	Offered By Other Department	3	0	0	3
7	Professional Core	Cryptography & Network Security Lab	0	0	3	1.5
8	Professional Core	Cyber Crimes & Digital Forensics Lab	0	0	3	1.5
9	Skill Enhancement course	Soft skills OR IELTS	0	1	2	2
10	Audit Course	Technical Paper Writing & IPR	2	0	0	0
Total			20	1	08	23
Mandatory Industry Internship Of 08 Weeks Duration During Summer Vacation						

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA***(Established by Govt. of A.P. ,ACT No. 30 of 2008)***KAKINADA –533003 (A.P) INDIA****R23 CSE IV YEAR CYBER SECURITY SYLLABUS****B.Tech. – IV Year I Semester**

S.No.	Category	Title	L	T	P	Credits
1	Professional Core	Blockchain Technology	3	0	0	3
2	Management Course- II	Human Resource Management	2	0	0	2
3	Professional Elective-IV	1. Software Architecture & Design Patterns 2. Network Management Systems and Operations 3. Deep Learning 4. Malware Analysis & Reverse Engineering 5. 12-week MOOC Swayam/NPTEL course recommended by the BoS	3	0	0	3
4	Professional Elective-V	1. Augmented Reality & Virtual Reality 2. Intrusion Detection and Prevention System 3. Metaverse 4. Cyber Laws and Security Policies 5. 12-week MOOC Swayam/NPTEL course recommended by the BoS	3	0	0	3
5	Open Elective-III		3	0	0	3
6	Open Elective-IV		3	0	0	3
7	Skill Enhancement Course	Ethical Hacking	0	1	2	2
8	Audit Course	Constitution of India	2	0	0	0
9	Internship	Evaluation of Industry Internship	-	-	-	2
Total			19	1	02	21

B.Tech. –IV Year II Semester

S.No.	Category	Title	L	T	P	Credits
1	Internship & Project Work	Full semester Internship & Project Work	0	0	24	12

ACADEMIC REGULATIONS (R23)

COURSE STRUCTURE
AND
B. Tech I to VI SEMESTER DETAILED
SYLLUBUS

DEPARTMENT OF CSE
(INTERNET OF THINGS)
(Applicable for batches admitted from 2023-2024)



RAMACHANDRA COLLEGE OF ENGINEERING
[ME]
NH-16, Bypass Road, Vatluru (V), Eluru-534007, Eluru District,
Andhra Pradesh, India

B.TECH. - COURSE STRUCTURE – R23
(Applicable from the academic year 2023-24 onwards)

INDUCTION PROGRAMME

S.No.	Course Name	Category	L-T-P-C
1	Physical Activities -- Sports, Yoga and Meditation, Plantation	MC	0-0-6-0
2	Career Counselling	MC	2-0-2-0
3	Orientation to all branches -- career options, tools, etc.	MC	3-0-0-0
4	Orientation on admitted Branch -- corresponding labs, tools and platforms	EC	2-0-3-0
5	Proficiency Modules & Productivity Tools	ES	2-1-2-0
6	Assessment on basic aptitude and mathematical skills	MC	2-0-3-0
7	Remedial Training in Foundation Courses	MC	2-1-2-0
8	Human Values & Professional Ethics	MC	3-0-0-0
9	Communication Skills -- focus on Listening, Speaking, Reading, Writing skills	BS	2-1-2-0
10	Concepts of Programming	ES	2-0-2-0

B.Tech. – I Semester

S.No.	Category	Title	L/D	T	P	Credits
1	BS&H	Communicative English	2	0	0	2
2	BS&H	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 C Programming	3	0	0	3
6	BS&H	Chemistry Lab	0	0	2	1
7	Engineering Science	Computer Programming Lab	0	0	3	1.5
8	Engineering Science	IT Workshop	0	0	2	1
9	Engineering Science	Engineering Workshop	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. – II Semester

S.No.	Category	Title	L/D	T	P	Credits
1	BS&H	Differential Equations & Vector Calculus	3	0	0	3
2	BS&H	Engineering Physics	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	Professional Core	Data Structures through C	3	0	0	3
6	BS&H	Communicative English Lab	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	Professional Core	Data Structures through C Lab	0	0	3	1.5
10	BS&H	NSS/NCC/Scouts & Guides/ Community Service	-	-	1	0.5
Total			13	00	15	20.5

**COURSE STRUCTURE
 DEPARTMENT OF CSE INTERNET OF THINGS**

III Semester						
S. No	Category	Title	L	T	P	Credits
1	BS&H	Discrete Mathematics & Graph Theory	3	0	0	3
2	BS&H	Universal human values understanding harmony and Ethical human conduct	2	1	0	3
3	Engineering Science	Digital Logic & Computer Organization	3	0	0	3
4	Professional Core	Advanced Data Structures & Algorithm Analysis	3	0	0	3
5	Professional Core	Object Oriented Programming Through Java	3	0	0	3
6	Professional Core	Advanced Data Structures & Algorithm Analysis Lab	0	0	3	1.5
7	Professional Core	Object Oriented Programming Through Java Lab	0	0	3	1.5
8	Skill Enhancement Course	Python programming	0	1	2	2
9	Audit Course	Environmental Science	2	0	0	0
Total			16	2	8	20

IV Semester						
S. No	Category	Title	L	T	P	Credits
1	Management Course- I	Managerial Economics And Financial Analysis	2	0	0	2
2	Engineering Science/ Basic Science	Number Theory & Applications	3	0	0	3
3	Professional Core	Operating Systems	3	0	0	3
4	Professional Core	Database Management Systems	3	0	0	3
5	Professional Core	Computer Networks	3	0	0	3
6	Professional Core	Computer Networks & Operating Systems Lab	0	0	3	1.5
7	Professional Core	Database Management Systems Lab	0	0	3	1.5
8	Skill Enhancement Course	Full Stack Development-1	0	1	2	2
9	BS&H	Design Thinking & Innovation	1	0	2	2
Total			15	1	10	21
Mandatory Community Service Project Internship of 08weeks duration during summer vacation						

DEPARTMENT OF CSE (INTERNET OF THINGS)

COURSE STRUCTURE

DEPARTMENT OF CSE(INTERNET OF THINGS) ENGINEERING

V Semester						
S.No.	Category	Title	L	T	P	Credits
1	Professional Core	Internet of Things	3	0	0	3
2	Professional Core	Microprocessors & Microcontrollers	3	0	0	3
3	Professional Core	Embedded Systems	3	0	0	3
4	Professional Elective-I	1. Software Engineering 2. Wireless Sensor Networks 3. Artificial Intelligence 4. Cryptography & Network Security 5.12-week MOOC Swayam/NPTEL course recommended by the BoS	3	0	0	3
5	Open Elective- I	Other Department Course OR Entrepreneurship Development & Venture Creation	3	0	0	3
6	Professional Core	Internet Of Things And Embedded Systems Lab	0	0	3	1.5
7	Professional Core	Microprocessors & Microcontrollers Lab	0	0	3	1.5
8	Skill Enhancement Course	Full Stack Development-2	0	1	2	2
9	Engineering Sciences	UI Design-FlutterLab	0	0	2	1
10.	Evaluation of Community Service Internship		-	-	-	2
Total						

DEPARTMENT OF CSE (INTERNET OF THINGS)

VI Semester						
S.No.	Category	Title	L	T	P	Credits
1	Professional Core	IoT Data Analytics	3	0	0	3
2	Professional Core	Cloud Computing	3	0	0	3
3	Professional Core	Machine Learning	3	0	0	3
4	Professional Elective-II	1.DevOps 2.IOT Security 3.Multi Agent Systems 4.Automata Theory & Compiler Design 6.12 week MOOC Swayam/NPTEL course recommended by the BoS	3	0	0	3
5	Professional Elective-III	1. Block Chain Technologies 2. Natural Language Processing 3. Security Assessment and Risk Analysis 4. Android application development. 12 week MOOC Swayam/NPTEL course recommended by the BoS	3	0	0	3
6	Open Elective – III	Other Department Course OR Entrepreneurship Development & Venture Creation	3	0	0	3
7	Professional Core	Cloud Computing Lab	0	0	3	1.5
8	Professional Core	IOT Data Analytics Lab	0	0	3	1.5
9	Skill Enhancement Course	Soft skills OR IELTS	0	1	2	2
10.	Audit Course	Technical Paper Writing & IPR	2	0	0	0
Total						



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

(Established by Govt. of A.P., ACT No.30 of 2008)

KAKINADA –533003 (A.P) INDIA

R23 B. Tech IV YEAR CSE (IoT) SYLLABUS

IV Year I Semester

S.No.	Category	Title	L	T	P	Credits
1	Professional Core	IoT Applications development on Cloud Platform	3	0	0	3
2	Management Course- II	Software Project management	2	0	0	2
3	Professional Elective-IV	Ad-hoc and Sensor Networks/ Malware Analysis and Reverse Engineering Crypto Currency Technologies Designing IOT Architectures 12 week MOOC Swayam/NPTEL course recommended by the BoS	3	0	0	3
4	Professional Elective-V	Cyber Physical Systems Intrusion Detection and Prevention System Industry IOT Augmented Reality & Virtual Reality 12 week MOOC Swayam/NPTEL course recommended by the BoS	3	0	0	3
5	Open Elective-III		3	0	0	3
6	Open Elective-IV		3	0	0	3
7	Skill Enhancement Course	Ethical Hacking	0	1	2	2
8	Audit Course	Constitution of India	2	0	0	0
9	Internship	Evaluation of Industry Internship	-	-	-	2
Total			19	01	02	21

IV Year II Semester

S.No.	Category	Title	L	T	P	Credits
1	Internship & Project Work	Full Semester Internship & Project Work	0	0	24	12

ACADEMIC REGULATIONS (R23)

COURSE STRUCTURE
AND
B. Tech I to VI SEMESTER DETAILED
SYLLUBUS

**DEPARTMENT OF ARTIFICIAL
INTELLIGENCE & DATA SCIENCES**
(Applicable for batches admitted from 2023-2024)



RAMACHANDRA COLLEGE OF ENGINEERING
[ME]
NH-16, Bypass Road, Vatluru (V), Eluru-534007, Eluru District,
Andhra Pradesh, India

B.TECH. - COURSE STRUCTURE – R23
(Applicable from the academic year 2023-24 onwards)

INDUCTION PROGRAMME

S.No.	Course Name	Category	L-T-P-C
1	Physical Activities -- Sports, Yoga and Meditation, Plantation	MC	0-0-6-0
2	Career Counselling	MC	2-0-2-0
3	Orientation to all branches -- career options, tools, etc.	MC	3-0-0-0
4	Orientation on admitted Branch -- corresponding labs, tools and platforms	EC	2-0-3-0
5	Proficiency Modules & Productivity Tools	ES	2-1-2-0
6	Assessment on basic aptitude and mathematical skills	MC	2-0-3-0
7	Remedial Training in Foundation Courses	MC	2-1-2-0
8	Human Values & Professional Ethics	MC	3-0-0-0
9	Communication Skills -- focus on Listening, Speaking, Reading, Writing skills	BS	2-1-2-0
10	Concepts of Programming	ES	2-0-2-0

B.Tech. – I Semester

S.No.	Category	Title	L/D	T	P	Credits
1	BS&H	Communicative English	2	0	0	2
2	BS&H	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 C Programming	3	0	0	3
6	BS&H	Chemistry Lab	0	0	2	1
7	Engineering Science	Computer Programming Lab	0	0	3	1.5
8	Engineering Science	IT Workshop	0	0	2	1
9	Engineering Science	Engineering Workshop	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. – II Semester

S.No.	Category	Title	L/D	T	P	Credits
1	BS&H	Differential Equations & Vector Calculus	3	0	0	3
2	BS&H	Engineering Physics	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	Professional Core	Data Structures through C	3	0	0	3
6	BS&H	Communicative English Lab	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	Professional Core	Data Structures through C Lab	0	0	3	1.5
10	BS&H	NSS/NCC/Scouts & Guides/ Community Service	-	-	1	0.5
Total			13	00	15	20.5

COURSE STRUCTURE
DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

III Semester						
S. No	Category	Title	L	T	P	Credits
1	BS&H	Discrete Mathematics & Graph Theory	3	0	0	3
2	BS&H	Universal human values understanding harmony and Ethical human conduct	2	1	0	3
3	Engineering Science	Database Management Systems	3	0	0	3
4	Professional Core	Advanced Data Structures & Algorithm Analysis	3	0	0	3
5	Professional Core	Object Oriented Programming Through Java	3	0	0	3
6	Professional Core	Advanced Data Structures & Algorithm Analysis Lab	0	0	3	1.5
7	Professional Core	Object Oriented Programming Through Java Lab	0	0	3	1.5
8	Skill Enhancement Course	Python programming	0	1	2	2
9	Audit Course	Environmental Science	2	0	0	0
Total			16	2	8	20

IV Semester						
S. No	Category	Title	L	T	P	Credits
1	Management Course-I	Managerial Economic and Financial Analysis	2	0	0	2
2	Engineering Science/ Basic Science	Statistical methods for Data Science	3	0	0	3
3	Professional Core	Artificial Intelligence	3	0	0	3
4	Professional Core	Introduction to Data Science	3	0	0	3
5	Professional Core	Digital Logic & Computer Organization	3	0	0	3
6	Professional Core	Artificial Intelligence Lab	0	0	3	1.5
7	Professional Core	Data Science using Python Lab	0	0	3	1.5
8	Skill Enhancement course	Full Stack Development-1	0	1	2	2
9	BS&H	Design Thinking & Innovation	1	0	2	2
Total			15	1	10	21

Mandatory Community Service Project Internship of 08weeks duration during summer vacation

DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

COURSE STRUCTURE

DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

V Semester						
S.No.	Category	Title	L	T	P	Credits
1	Professional Core	Data Warehousing and Data Mining	3	0	0	3
2	Professional Core	Principles of Machine Learning	3	0	0	3
3	Professional Core	Data Visualization	3	0	0	3
4	Professional Elective-I	1.ObjectOrientedAnalysisand Design 2.Soft computing 3.Internet of Things 4.Exploratory Data Analysis with Python	3	0	0	3
5	Open Elective- I	Other Department Course OR Entrepreneurship Development	3	0	0	3
6	Professional Core	Data Warehousing and Machine Learning Lab	0	0	3	1.5
7	Professional Core	Data Visualization Lab	0	0	3	1.5
8	Skill Enhancement course	Full Stack Development-2 / SWAYAM Plus – Data Engineer / AI Engineer	0	1	2	2
9	ES	Tinkering Lab (User Interface design using Flutter)	0	0	2	1
	Evaluation of Community Service Internship			-	-	-
Total			15	1	10	23

DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

VI Semester						
S.No.	Category	Title	L	T	P	Credits
1	Professional Core	Big Data Analytics	3	0	0	3
2	Professional Core	Deep Learning	3	0	0	3
3	Professional Core	Natural Language Processing	3	0	0	3
4	Professional Elective-II	1.Cryptography&Network Security 2.Operating Systems 3.Recommender Systems 4.Computer Vision 5.Automata Theory & Compiler Design	3	0	0	3
5	Professional Elective-III	1.Quantum Computing 2.NoSQL databases 3.Cloud Computing 4.Social Media Analytics Any of the 12-Week SWAYAM /NPTEL Course suggested by the BoS	3	0	0	3
6	Open Elective – II	Other Department Course	3	0	0	3
7	Professional Core	Deep Learning & Natural Language Processing Lab	0	0	3	1.5
8	Professional Core	Big Data Analytics Lab	0	0	3	1.5
9	Skill Enhancement course	Soft skills / SWAYAM Plus - 21st Century Employability Skills	0	1	2	2
10	Audit Course	Technical Paper Writing & IPR	2	0	0	-
Total			20	1	8	23
*Mandatory Industry Internship/Mini Project of 08 weeks duration during summer vacation						



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA
KAKINADA – 533 003, Andhra Pradesh, India

B. TECH (AI&DS) (R23) COURSE STRUCTURE & SYLLABUS

B. Tech. – IV Year I Semester

S. No.	Category	Title	L	T	P	Credits
1	Professional Core	Generative A.I.	3	0	0	3
2	Management Course-II	Human Resource & Project Management	2	0	0	2
3	Professional Elective-IV	1. Agentic AI 2. Blockchain Technology 3. DevOps 4. Robotic Process Automation 5. Any of the 12-Week SWAYAM/NPTEL Course suggested by the BoS	3	0	0	3
4	Professional Elective-V	1. Explainable AI 2. Expert Systems 3. Reinforcement Learning 4. High Performance Computing 5. Any of the 12-Week SWAYAM / NPTEL Course suggested by the BoS	3	0	0	3
5	Open Elective-III		3	0	0	3
6	Open Elective-IV		3	0	0	3
7	Skill Enhancement Course	Prompt Engineering / SWAYAM Plus - Certificate program in Prompt Engineering and ChatGPT / Data Engg*	0	1	2	2
8	Audit Course	Constitution of India	2	0	0	-
9	Internship	Evaluation of Industry Internship / Mini Project	-	-	-	2
Total			19	1	02	21
MC	Student may select from the same minor's pool		3	0	0	3
HC	Student may select from the same honors pool		3	0	0	3
HC	Student may select from the same honors pool		3	0	0	3

M.Tech – Power Electronics

Course Structure & Syllabus

I Semester

S.No	Course No	Category	Course Name	P.Os	L	T	P	C	Marks
1		PC	Electrical Machine Modeling and Analysis		3	0	0	3	100
2		PC	Analysis of Power Electronic Converters		3	0	0	3	100
3		PE	Elective – I i. Modern Control Theory ii. Power Quality and Custom Power Devices iii. Programmable Logic Controllers & Applications		3	0	0	3	100
4		PE	Elective – II i. Artificial Intelligence Techniques ii. Renewable Energy Technologies iii. HVDC Transmission and Flexible AC Transmission Systems		3	0	0	3	100
5			Research Methodology and IPR		2	0	0	2	100
6			Power Electronics Simulation Laboratory		0	0	4	2	100
7			Power Converters Laboratory		0	0	4	2	100
8			Audit Course – 1		2	0	0	0	100
					16	0	8	18	800

II Semester

S.No	Course No	Category	Course Name	P.Os	L	T	P	C	Marks
1		PC	Switched Mode Power Conversion		3	0	0	3	100
2		PC	Power Electronic Control of Electrical Drives		3	0	0	3	100
3		PE	Elective – III i. Control & Integration of Renewable Energy Systems ii. Hybrid Electric Vehicles iii. Digital Control Systems		3	0	0	3	100
4		PE	Elective – IV i. Advanced Digital Signal Processing ii. Applications of Power Converters iii. Microcontrollers		3	0	0	3	100
5			Electric Drives Simulation Laboratory		0	0	4	2	100
6			Electric Drives Laboratory		0	0	4	2	100
7			Mini Project with Seminar		0	0	4	2	100
8			Audit Course – 2		2	0	0	0	100
					14	0	12	18	800

III Semester

S.No	Course No	Category	Course Name	P.Os	L	T	P	C	Marks
1		PE	Program Elective – V i. Digital Signal Processing Controlled Drives ii. Smart Grid Technologies iii. Modeling & Simulation of Power Electronic Systems		3	0	0	3	100
2		OE	Open Elective i. Industrial Safety ii. Energy Audit, Conservation & Management iii. Composite Materials		3	0	0	3	100
3			Dissertation Phase - I (to be continued and evaluated next semester)		0	0	20	10	---
					6	0	20	16	200

IV Semester

S.No	Course No	Category	Course Name	T	P	C	Marks
1			Dissertation Phase-II (continued from III semester)	0	32	16	100
				0	32	16	100

Audit course 1 & 2

1. English for Research Paper Writing
2. Disaster Management
3. Sanskrit for Technical Knowledge
4. Value Education
5. Constitution of India
6. Pedagogy Studies
7. Stress Management by Yoga
8. Personality Development through Life Enlightenment Skills.

M.Tech – Machine Design

Course Structure and Syllabus

I Semester

S.No.	Code	Subject	L	T	P	Credits
1	MD101	Advanced Mechanics of Solids	3	0	0	3
2	MD102	Mechanical Vibrations and Acoustics	3	0	0	3
3	Programme Elective – I MD 103	MD1031 Design of Modern Vehicle Systems	3	0	0	3
		MD 1032 Product Design				
		MD 1033 Geometric Modeling				
		MD 1034 Fracture Mechanics				
		MD 1035 Advanced Mechanisms				
4	Programme Elective –II MD 104	MD 1041 Non-Destructive Evaluation	3	0	0	3
		MD 1042 Robotics				
		MD 1043 Design for Manufacturing & Assembly				
		MD 1044 Multi Body Dynamics				
		MD 1045 Vision Systems and Image Processing				
5	MD105	Machine Dynamics Lab	0	0	4	2
6	MD106	Design Practice Lab-I	0	0	4	2
7	MD107	Research Methodology and IPR	2	0	0	2
8	MD108	Soft Skills	2	0	0	0
Total						18

II Semester

S.No.	Code	Subject	L	T	P	Credits
1	MD201	Advanced Finite Element Methods	3	0	0	3
2	MD202	Advanced Machine Design	3	0	0	3
3	Programme Elective – III MD 203	MD 2031 Theory of Plasticity	3	0	0	3
		MD 2032 Signal Analysis and Condition Monitoring				
		MD 2033 Computational Fluid Dynamics				
		MD 2034 Composite Materials				
		MD 2035 Soft Computing				
4	Programme Elective – IV MD 204	MD 2041 Experimental Techniques and data analysis	3	0	0	3
		MD 2042 Design with advanced Materials				
		MD 2043 Mechatronics				
		MD 2044 Tribology				
		MD 2045 Experimental Modal Analysis				
5	MD205	Computational Mathematics Lab	0	0	4	2
6	MD206	Design Practice Lab-II	0	0	4	2
7	MD207	Value Education	2	0	0	0
8	MD208	Mini Project with Seminar	0	0	4	2
Total						18

III Semester

S.No.	Code	Subject	L	T	P	Credits
1	Programme Elective – V* MD 301	MD 3011 Industrial Robotics	3	0	0	3
		MD 3012 Advanced Optimization Techniques				
		MD 3013 Additive Manufacturing				
		MD 3014 Mechanics of Composite Materials				
		MD 3015 Vehicle Dynamics				
2	Open Elective	1. Nano Technology 2. Optimization Techniques 3. Industrial Safety	3	0	0	3
3	Dissertation	Dissertation Phase -I	0	0	20	10
Total						16

* Students going for Industrial Project/ Thesis will complete programme elective and open elective courses through MOOCs

IV Semester

S.No.	Code	Subject	L	T	P	Credits
1	Dissertation	Dissertation Phase -II	0	0	32	16
Total						16

Courses offered by Mechanical Engineering Department to other departments as Open electives.

S.No.	Code	Subject	L	T	P	Credits
1	MD 3021	Industrial Robotics	3	0	0	3
2	MD 3022	Operations Research	3	0	0	3
3	MD 3023	Additive Manufacturing	3	0	0	3
4	MD 3024	Experimental Techniques and Data Analysis	3	0	0	3

M.Tech – VLSI

Course Structure & Syllabus

I Semester								
S.No	Course No	Course Name	P.Os	Category	L	T	P	Credits
1	PC	CMOS Analog IC Design			3	0	0	3
2	PC	CMOS Digital IC design			3	0	0	3
3	PE	1. VLSI Technology 2. Nanomaterials and Nanotechnology 3. MEMS Technology			3	0	0	3
4	PE	1. Device Modeling 2. Nano-electronics 3. Photonics			3	0	0	3
5		Research methodology and IPR			2	0	0	2
6	Lab 1	CMOS Analog IC Design Lab			0	0	4	2
7	Lab 2	CMOS Digital IC Design Lab			0	0	4	2
8	Aud 1	Audit course-1			2	0	0	0
Total								18
II Semester								
S.No	Course No	Course Name	P.Os	Category	L	T	P	Credits
1	PC	Mixed Signal & RF IC Design			3	0	0	3
2	PC	Physical Design Automation			3	0	0	3
3	PE	1. Design For Testability 2. IOT & its Applications 3. VLSI Signal Processing			3	0	0	3
4	PE	1. Network Security & Cryptography 2. Microcontrollers & programmable Digital Signal Processors 3. Low Power VLSI Design			3	0	0	3
5	Lab 1	Mixed Signal IC Design Lab			0	0	4	2
6	Lab 2	Physical Design Automation Lab			0	0	4	2
7	MP	Mini Project			0	0	4	2
8	Aud 2	Audit Course – 2			2	0	0	0
Total								18

*Students be encouraged to go to Industrial Training/Internship for at least 2-3 weeks during semester break.

III Semester*								
S.No	Course No	Course Name	P.Os	Category	L	T	P	Credits
1	PE	1. Scripting Languages for VLSI 2. Digital System Design & Verification 3. Hardware Software co-design			3	0	0	3
2	OE	1. Business Analytics 2. Industrial Safety 3. Operations Research 4. Cost Management of Engineering Projects 5. Composite Materials 6. Waste to Energy			3	0	0	3
3	Dissertation	Dissertation Phase -I /Industrial Project (to be continued and evaluated next semester)			0	0	20	10 [#]
Total								16

[#]Evaluated and Displayed in IV Semester Marks list.

*Students going for Industrial Project/Thesis will complete these courses through MOOCs

IV Semester								
S.No	Course No	Course Name	P.Os	Category	L	T	P	Credits
1	Dissertation	Project/ Dissertation Phase-II (continued from III semester)			0	0	32	16
Total								16

Audit Course 1& 2

1. English for Research Paper Writing
2. Disaster Management
3. Sanskrit for Technical Knowledge
4. Value Education
5. Constitution of India
6. Pedagogy Studies
7. Stress Management by Yoga
8. Personality Development through Life Enlightenment Skills

M.Tech – CSE
Course Structure & Syllabus
I-SEMESTER

S.No	Course Code	Courses	Category	L	T	P	C	
1	MTCSE1101	Program Core-1 Mathematical Foundations of Computer Science	PC	3	0	0	3	
2	MTCSE1102	Program Core-2 Advanced Data Structures & Algorithms	PC	3	0	0	3	
3	MTCSE1103	Program Elective-1 1. Big Data Analytics 2. Digital Image Processing 3. Advanced Operating Systems	PE	3	0	0	3	
4	MTCSE1104	Program Elective-2 1. Advanced Computer Networks 2. Internet of Things 3. Object Oriented Software Engineering	PE	3	0	0	3	
5	MTCSE1105	Research Methodology and IPR	CC			0	2	
6	MTCSE1106	Laboratory-1 Advanced Data Structures & Algorithms Lab	LB	0	0	4	2	
7	MTCSE1107	Laboratory-2 Advanced Computing Lab	LB	0	0	4	2	
8	MTCSE1108	Audit Course-1*	AC	2	0	0	0	
Total Credits								18

***Student has to choose any one audit course listed below.**

II SEMESTER

S.No	Course Code	Courses	Category	L	T	P	C	
1	MTCSE1201	Program Core-3 Machine learning	PC	3	0	0	3	
2	MTCSE1202	Program Core-4 MEAN Stack Technologies	PC	3	0	0	3	
3	MTCSE1203	Program Elective-3 1. Advanced Databases and Mining 2. Ad Hoc & Sensor Networks 3. Soft Computing	PE	3	0	0	3	
4	MTCSE1204	Program Elective-4 1. Cloud Computing 2. Principles of computer security 3. High Performance Computing	PE	3	0	0	3	
5	MTCSE1205	Laboratory-3 Machine Learning with python lab	LB	0	0	4	2	
6	MTCSE1206	Laboratory-4 MEAN Stack Technologies Lab	LB	0	0	4	2	
7	MTCSE1207	Mini Project with Seminar	MP	2	0	0	2	
8	MTCSE1208	Audit Course-2 *	AC	2	0	0	0	
Total Credits								18

***Student has to choose any one audit course listed below.**

Audit Course 1 & 2:

- | | |
|---------------------------------------|--|
| 1. English for Research Paper Writing | 5. Constitution of India |
| 2. Disaster Management | 6. Pedagogy Studies |
| 3. Sanskrit for Technical Knowledge | 7. Stress Management by Yoga |
| 4. Value Education | 8. Personality Development through Life Enlightenment Skills |

III-SEMESTER

S.No	Course Code	Courses	Category	L	T	P	C
1	MTCSE2101	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	PE	3	0	0	3
2	MTCSE2102	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	OE	3	0	0	3
3	MTCSE2103	Dissertation-I/ Industrial Project #	PJ	0	0	20	10
Total Credits							16

#Students going for Industrial Project/Thesis will complete these courses through MOOCs

M. Tech. (CSE) IV SEMESTER

S.No	Course Code	Courses	Category	L	T	P	C
1	MTCSE2201	Dissertation-II	PJ	0	0	32	16
Total Credits							16

Open Electives offered by the Department of CSE

1. Python Programming
2. Principles of Cyber Security
3. Internet of Things
4. Machine Learning
5. Digital forensics
6. Next Generation Databases

M.Tech – AI&DS

Course Structure & Syllabus

I SEMESTER

S.No	Course Code	Courses	Category	L	T	P	C
1		Program Core-1 Artificial Intelligence	PC	3	0	0	3
2		Program Core-2 Data Science Applications	PC	3	0	0	3
3		Program Elective-1 1. Data Mining 2. Big Data Analytics 3. High Performance Computing	PE	3	0	0	3
4		Program Elective-2 1. Cloud Computing 2. Internet of Things 3. Social Media Analytics	PE	3	0	0	3
5		Research Methodology and IPR	AC	2	0	0	2
6		Laboratory-1 Data Science Applications Lab	LB	0	0	4	2
7		Laboratory-2 Advanced Computing Lab	LB	0	0	4	2
8		Audit Course-1*	AC	2	0	0	0
Total Credits							18

**Student has to choose any one audit course listed below.*

II SEMESTER

S.No	Course Code	Courses	Category	L	T	P	C
1		Program Core-3 Deep Learning	PC	3	0	0	3
2		Program Core-4 Data Analysis using SQL and Excel	PC	3	0	0	3
3		Program Elective-3 1. Natural Language Processing 2. Recommender Systems 3. Data Visualization	PE	3	0	0	3
4		Program Elective-4 1. AI Chatbots 2. NOSQL Databases 3. Reinforcement Learning	PE	3	0	0	3
5		Laboratory-3 Deep Learning Lab	LB	0	0	4	2
6		Laboratory-4 Data Analysis using SQL and Excel Lab	LB	0	0	4	2
7		Mini Project with Seminar	MP	2	0	0	2
8		Audit Course-2*	AC	2	0	0	0
TotalCredits							18

**Student has to choose any one audit course listed below.*

Audit Course 1 & 2:

1. English for Research Paper Writing
2. Disaster Management
3. Sanskrit for Technical Knowledge
4. Value Education
5. Constitution of India
6. Pedagogy Studies
7. Stress Management by Yoga
8. Personality Development through Life Enlightenment Skills

III SEMESTER

S.No	Course Code	Courses	Category	L	T	P	C
1		Program Elective-5 1. Multivariate Analysis 2. Exploratory Data Analysis 3. MOOCs-1 (NPTEL/SWAYAM) -Any 12 Week PG Level course related to the programme which is not listed in the course structure	PE	3	0	0	3
2		Open Elective 1. MOOCs-2 (NPTEL/SWAYAM) - Any 12 week PG Level course on Engineering/ Management/ Mathematics offered by other than parent department 2. Course offered by other departments in the college	OE	3	0	0	3
3		Dissertation-I/Industrial Project	PJ	0	0	20	10
Total Credits							16

**Students going for Industrial Project/Thesis will complete these courses through MOOCs*

IV- SEMESTER

S.No	Course Code	Courses	Category	L	T	P	C
1		Dissertation-II	PJ	0	0	32	16
Total Credits							16

Open Elective Subjects

1. OPTIMIZATION TECHNIQUES
2. MODELING AND SIMULATION TECHNIQUES
3. BIOINFORMATICS
4. OPERATIONS RESEARCH

MBA - COURSE STRUCTURE – R23

(Applicable from the academic year 2023-24 onwards)

S.No.	Course Name	Category	L-T-P-C
1	Physical Activities -- Sports, Yoga and Meditation, Plantation	MC	0-0-6-0
2	Career Counseling	MC	2-0-2-0
3	Orientation to all branches -- career options, tools, etc.	MC	3-0-0-0
4	Orientation on admitted Branch -- corresponding labs, tools and platforms	EC	2-0-3-0
5	Proficiency Modules & Productivity Tools	ES	2-1-2-0
6	Assessment on basic aptitude and mathematical skills	MC	2-0-3-0
7	Remedial Training in Foundation Courses	MC	2-1-2-0
8	Human Values & Professional Ethics	MC	3-0-0-0
9	Communication Skills -- focus on Listening, Speaking, Reading, Writing skills	BS	2-1-2-0
10	Concepts of Programming	ES	2-0-2-0

I SEMESTER

S N	Cour se Cod e	Courses	Marks	L	T	P	C
1	C-101	Management and Organizational Behavior	100	4	0	0	4
2	C-102	Managerial Economics	100	4	0	0	4
3	C-103	Accounting for Managers	100	4	0	0	4
4	C-104	Quantitative Analysis for Business Decisions	100	4	0	0	4
5	C-105	Legal and Business Environment	100	4	0	0	4
6	C-106	Business Communication and Soft skills	100	4	0	0	4
7	C-107 Open Elective	Cross Cultural Management Rural Innovationprojects MOOCs : SWAYAM/NPTEL- Related to Management Courses other than listed courses in the syllabus	100	4	0	0	4
8	C – 108	Business Communication and Soft Skills (lab)	50	0	0	2	2
9	C-109	Information Technology – Lab1(Spreadsheet andTally)	50	0	0	2	2
Total			800	28	0	4	32

II SEMESTER

S.NO	Course Code	Courses	Marks	L	T	P	C
1	C-201	Financial Management	100	4	0	0	4
2	C-202	Human Resource Management	100	4	0	0	4
3	C-203	Marketing Management	100	4	0	0	4
4	C-204	Operations Management	100	4	0	0	4
5	C-205	Business Research Methods	100	4	0	0	4
6	C-206 open elective	1. Project Management 2. Technology Management 3. Lean Management 4. Database Management System	100	4	0	0	4
7	C-207	IT-lab 2 (Programming R)	50	0	0	2	2
TOTAL			650	24	0	2	26

MBA – III Semester – Course Structure

S.No	Course Code	Title	Marks	L	T	P	C
1	C-301	Strategic Management	100	4	0	0	4
2	C-302	Operations Research	100	4	0	0	4
3	E-301	Elective – 1	100	4	0	0	3
4	E-302	Elective – 2	100	4	0	0	3
5	E-303	Elective – 3	100	4	0	0	3
6	E-304	Elective – 4	100	4	0	0	3
7	C-304	Industrial Project based on Summer Internship	150	4	0	0	4
TOTAL			750	28	0	0	24

III SEMESTER - ELECTIVES Human Resource Management

S.No	Course Code	Title
1	EH-301	Leadership and Change Management
2	EH-302	Performance Evaluation and Compensation Management
3	EH-303	Human Resource Metrics and Analytics
4	EH-304	Human Capital Management
5	EH-305	Manpower Planning, Recruitment, and Selection

III SEMESTER - ELECTIVES FINANCE

S.No	Course Code	Title
1	EF-301	Investment Analysis and Portfolio Management
2	EF-302	Managing Banks and Financial Institutions
3	EF-303	Financial Markets and Services
4	EF-304	Mergers, Acquisitions and Corporate Restructuring
5	EF-305	Taxation

III SEMESTER - ELECTIVES MARKETING

S.No	Course Code	Title
1	EM-301	Consumer Behaviour
2	EM-302	Retail Management
3	EM-303	Customer Relationship Management
4	EM-304	Strategic Marketing Management
5	EM-305	Digital and Social Media Marketing

MBA – IV Semester – Course Structure

S.No	Course Code	Title	Marks	L	T	P	C
1	C-401	Supply Chain Management and Analytics	100	4	0	0	4
2	C-402	Innovation and Entrepreneurship	100	4	0	0	4
3	E-401	Elective – 5	100	4	0	0	3
4	E-402	Elective – 6	100	4	0	0	3
5	E-403	Elective – 7	100	4	0	0	3
6	E-404	Elective – 8	100	4	0	0	3
7	C-403	Comprehensive Viva-voce	50	4	0	0	2
TOTAL			650	28	0	0	22

IV SEMESTER-ELECTIVES

Human Resource Management

S.No	Course Code	Title
1	EH-401	Labor Welfare and employment laws
2	EH-402	International HRM
3	EH-403	Employee Relations and Engagement
4	EH-404	Human Resources Development
5	EH-405	Strategic HRM

IV SEMESTER-ELECTIVES

FINANCE

S.No	Course Code	Title
1	EF-401	Financial Derivatives
2	EF-402	Global Financial Management
3	EF-403	Financial Risk Management
4	EF-404	Strategic Financial Management
5	EF-405	Behavioural Finance

IV SEMESTER - ELECTIVES

MARKETING

S.No	Course Code	Title
1	EM-401	Services Marketing
2	EM-402	Promotional and Distribution Management
3	EM-403	Green Marketing
4	EM-404	Advertising and Brand Management
5	EM-405	Global Marketing Management

BBA Course Structure
As per R 24 Regulation

SEMESTER-I

S.No.	Course Code	Course Title	L	T	P	Credit
1	AEC	General English	1	1	0	2
2	AEC	Additional courses-Telugu/Sanskrit/Hindi	1	1	0	0
3	AEC	Business Communication-I	1	1	0	2
4	MDE	Indian science Engineering & Technology(Past, Present & Future)	2	0	0	2
5	VAC	Environmental Science and Sustainability	2	0	0	2
6	CC	Principles of Management	3	1	0	4
7	CC	Financial Accounting	3	1	0	4
8	CC	Business Statistics and Logic	3	1	0	4
TOTAL						20

SEMESTER II

S.No.	Course Code	Course Title	L	T	P	Credit
1	CC201	Human Behaviour and Organization	3	1	0	4
2	CC202	Marketing Management	3	1	0	4
3	CC203	Business Economics	3	1	0	4
4	SEC201	Emerging Technologies and application	1	0	2	2
5	MDE201	Media Literacy and Critical Thinking	1	1	0	2
6	VAC201	Indian Constitution	2	0	0	2
7	AEC201	Business Communication-II	1	1	0	2
8	AEC202	Additional Course- Indian or Foreign Language(1-1-0))[optional course]*	1	1	0	0*
TOTAL						20

BBA III Semester

S. No.	Course Code	Course Title	L	T	P	Credit
1	CC	Business Laws	4	0	0	4
2	CC	Fundamentals of E-Commerce	3	0	0	3
3	CC	Business Environment	3	0	0	3
4	CC	Operations Management	4	0	0	4
5	MDE	Business Ethics	2	0	0	2
6	SEC	Management Information system (MIS)	2	0	0	2
7	VAC	Information Technology – Lab (Spreadsheet Tally)	0	0	4	2
TOTAL						20

BBA IV Semester

S. No.	Course Code	Course Title	L	T	P	Credit
1	CC	Human Resource Management		4	0	4
2	CC	Research Methodology		3	0	3
3	CC	Operations Research		4	0	4
4	CC	Cross culture Management		3	0	3
5	VAC	Public Health Management		2	0	2
6	SEC	Entrepreneurship Development		2	0	2
7	SEC	Design of New Start –up (Mini project)		0	4	2
TOTAL						20



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

(Established by Govt. of A.P., ACT No.30 of 2008)

KAKINADA – 533 003 (A.P) INDIA

R24 BBA III & IV YEAR COURSE STRUCTURE AND SYLLABUS

V SEMESTER

S.No.	Course Code	Course Title	L	T	P	Credit
1	Elective-1	Sales and Advertisement Management (OR) Logistics management	3	1	0	4
2	Elective-2	Change Management (OR) Labour Legislation	3	1	0	4
3	Elective-3	Security Analysis and Portfolio (OR) Corporate Finance	3	1	0	4
4	Elective-4	Supply Chain Management (OR) Project Management	3	1	0	4
5	SEC	Entrepreneurship Development Project (or) Venture Capital Development Project		0	4	4
TOTAL						20

VI SEMESTER

S.No.	Course Code	Course Title	L	T	P	Credit
1	Elective-1	Services Marketing (OR) Brand Management	3	1	0	4
2	Elective-2	Financial Derivatives (OR) Financial Analytics	3	1	0	4
3	Elective-3	Performance & Compensation Management (OR) Employee Relations and workplace culture	3	1	0	4
4	Elective-4	Production and materials management (or) Total Quality Management	3	1	0	4
5	SEC	Internship & Viva- voce		0	4	4
TOTAL						20



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

(Established by Govt. of A.P., ACT No.30 of 2008)

KAKINADA – 533 003 (A.P) INDIA

R24 BBA III & IV YEAR COURSE STRUCTURE AND SYLLABUS

VII SEMESTER

S.No.	Course Code	Course Title	L	T	P	Credit
1	Core	Business Analytics	3	1	0	4
2	Elective-1	Retail Marketing (OR) Industrial Marketing	3	1	0	4
3	Elective-2	Financial Markets & Services (OR) Behavioural Financial Management	3	1	0	4
4	Elective-3	Employee welfare (OR) Industrial Safety Environment	3	1	0	4
5	Elective-4	Six sigma methodologies (OR) Lean Management	3	1	0	4
TOTAL						20

VIII SEMESTER

S.No.	Course Code	Course Title	L	T	P	Credit
1	Core	Emerging Technologies for Business	3	1	0	4
2	Elective-1	Sustainable Marketing (OR) Digital Marketing	3	1	0	4
3	Elective-2	International Trade and Finance (OR) Global Financial Management	3	1	0	4
4	Elective-3	Cross cultural Management (OR) International Human Resource Management	3	1	0	4
5	Elective-4	Analytics in Operations (OR) Global Operations Management	3	1	0	4
TOTAL						20