B.TECH. I YEAR COURSE STRUCTURE AND SYLLABUS (R16)
(Common for Civil, ME, AE, ME (M), MME, AU, Mining, Petroleum, CEE, ME (Nanotech))

Applicable From 2017-18 Admitted Batch

I YEAR I SEMESTER

S. No	Course Code	Course Title	L	T	P	Credits
1	MA101BS	Mathematics-I	3	11	0	3
2	MA102BS	Mathematics-II	4	l	0	4
3	PH103BS	Engineering Physics	3	0	0	. 3
4	CS104ES	Computer Programming in C	3	0	0	3
5	ME105ES	Engineering Mechanics	3	0	0	3
6	ME106ES	Engineering Graphics	2	0	4	4
7	PH107BS	Engineering Physics Lab	0	0	3	2
8	CS108ES	Computer Programming in C Lab	0	0	3	2
9	*EA109MC	NSS	0	0	0	0
		Total Credits	18	2	10	24

I YEAR II SEMESTER

S. No	Course Code	Course Title	L	T	P	Credits
1	AP201BS	Applied Physics	3	0	0	3
$-\frac{1}{2}$	CH202BS	Engineering Chemistry	4	0	0	4
	MA203BS	Mathematics-III	4	1	0	4
4	EN204HS	Professional Communication in English	3	0	0	3
	EE205ES	Basic Electrical and Electronics Engineering	4	0	0	4
6	CH206BS	Engineering Chemistry Lab	0	0	3	2
7	EN207HS	English Language Communication Skills Lab	0	0	3_	2
8	ME208ES	Engineering Workshop	0	0	3	2
9	*EA209MC	NCC/NSO	0	0_	0	0
		Total Credits	18	1	9	24

*Mandatory Course- Satisfactory/Unsatisfactory

B.TECH. CIVIL ENGINEERING II, III, IV YEARS COURSE STRUCTURE & SYLLABUS (R16)

Admitted From 2016-17 Admitted Batch

II YEAR I SEMESTER

S. No	Course Code	Course Title	L	T	P	Credits
1	MA301BS	Mathematics - IV	4	1	0	4
2	CE302ES	Strength of Materials - I	4	1	0	-14
3	CE303ES	Fluid Mechanics - I	4	1	0	4
4	CE304ES	Building Materials, Construction and Planning	3	0	0	_3
5	CE305ES	Surveying	3	0_	0	3
6	CE306ES	Strength of Material Lab	0	0	3	2
7	CE307ES	Computer Aided Drafting Lab	0_	0	3	_ 2
8	CE308ES	Surveying Lab - I	0	0	3	2
9	*MC300HS	Gender Sensitization Lab	0	0	3	0
		Total Credits	18	3	12	24

II YEAR II SEMESTER

S. No	Course Code	Course Title	L	T	P	Credits
1	CE401ES	Strength of Material - II	4	1	0	4
2	CE402ES	Fluid Mechanics - II	4	1	0	4
- 3	CE403ES	Structural Analysis	4	1	0	4
. 4	CV404ES	Engineering Geology	3	0	0	3
5	SM405MS	Business Economic and Financial Analysis	3	0	0	3
6	CE406ES	Fluid Mechanics Lab	0	0	3	2
7	CE408ES	Surveying Lab - II	0	0	3	2
8	CV407ES	Engineering Geology Lab	0.	0	3	2
9	*MC400ES	Environmental Science and Technology	3	0	0	0
·-		Total Credits	21	-3	9_	24

B.TECH. CIVIL ENGINEERING III YEAR COURSE STRUCTURE & SYLLABUS (R16)

Admitted From 2016-17 Admitted Batch

III YEAR I SEMESTER

S. No Course		Course Title	L	т	P	Credits
5	Code	Course Title	"		F	Credits
1	CE501PC	Concrete Technology	4	0	0	4
2	CE502PC	Design of Reinforced Concrete Structures	4	1	0	4
3	CE503PC	Water Resources Engineering	4	0	0	4
4	SM504MS	Fundamentals of Management	3	0	0	3
5		Open Elective –I	3	0	0	3
6	CE505PC	Concrete Technology Lab	0	0	3	2
7	CE506PC	Geographical Information Systems Lab	0	0	3	2
8	CE507PC	Hydraulics and Hydraulic Machinery Lab	0	0	3	2
9	*MC500HS	Professional Ethics	3	0	0	0
		Total Credits	21	1	9	24

III YEAR II SEMESTER

S. No	Course Code	Course Title	L	Т	P	Credits
1	CE601PC	Design of Steel Structures	4	1	0	4
2	CE602PC	Environmental Engineering	4	0	0	4
_ 3	CE603PC	Soil Mechanics	4	0	0	4
4		Open Elective-II	3	0	0	3
5		Professional Elective-I	3	0	0	3
6	CE604PC	Soil Mechanics Lab	0	0	3	2
7	CE605PC	Computer Aided Design - II Lab	0	0	3	2
8	EN606HS	Advanced English Communication Skills Lab	0	0	3	2
		Total Credits	18	1	9	24

^{*}During Sumer Vacation between III and IV Years: Industry Oriented Mini Project

Professional Elective - I

CE611PE	Air Pollution and Control.	500
CE612PE	Advanced Structural Analysis.	
CE613PE	Ground Water Development and Management.	
CE614PE	Earth and Rock fill Dams and Slope Stability.	

*Open Elective subjects' syllabus is provided in a separate document.

*Open Elective - Students should take Open Electives from The List of Open Electives Offered by Other Departments/Branches Only.

Ex: - A Student of Mechanical Engineering can take Open Electives from all other departments/branches except Open Electives offered by Mechanical Engineering Dept.

B.TECH. CIVIL ENGINEERING IV YEAR COURSE STRUCTURE & SYLLABUS (R16)

Admitted From 2016-17 Admitted Batch

IV YEAR I SEMESTER

S. No	Course Code	Course Title	L	Т	P	Credits
1	CE701PC	Transportation Engineering	4	0	0	4
2	CE702PC	Estimation Quantity Surveying and Valuation	4	1	0	4
3		Professional Elective - II	3	0	0	3
4		Professional Elective - III	3	0	0	3
5		Professional Elective -IV	3	0	0	3
6	CE703PC	Transportation Engineering Lab	0	0	3	2
7	CE704PC	Environmental Engineering Lab	0	0	3	2
8	CE705PC	Industry Oriented Mini Project	0	0	3	2
9	CE706PC	Seminar	0	0	2	1
		Total Credits	17	1	11	24

IV YEAR II SEMESTER

S. No	Course Code	Course Title	L	Т	P	Credits
1		Open Elective - III	3	0	0	3
2		Professional Elective -V	3	0	0	3
3		Professional Elective -VI	3	0	0	3
4	CE801PC	Major Project	0	0	30	15
		Total Credits	9	0	30	24

Professional Elective - I

CE611PE	Air Pollution and Control.
CE612PE	Advanced Structural Analysis.
CE613PE	Ground Water Development and
	Management.
CE614PE	Earth and Rock fill Dams and Slope
	Stability.

Professional Elective - II

CE721PE	Stochastic Hydrology.
CE722PE	Construction Technology and Management.
CE723PE	Foundation Engineering.
CE724PE	Rehabilitation and Retrofitting of Structures.

Professional Elective – III

CE731PE	Watershed Management.
CE732PE	Prestressed Concrete.
CE733PE	Ground Improvement Techniques.
CE734PE	Railway and Airport Engineering.

Professional Elective – IV

CE741PE	Traffic Engineering.
CE742PE	Bridge Engineering.
CE743PE	Soil Dynamics and Machine Foundation.
CE744PE	Irrigation and Hydraulic Structures.

Professional Elective – V

CE851PE	Waste Management.
CE852PE	Pavement Design.
CE853PE	Elements of Earthquake Engineering.
CE854PE	Water Resources Systems Analysis.

Professional Elective – VI

	19
CE861PE	Finite Element Methods for Civil
	Engineering.
CE862PE	Geoenvironmental Engineering.
CE863PE	Design and Drawing of Irrigation Structures.
CE864PE	Industrial Waste Water Treatment.

^{*}Open Elective subjects' syllabus is provided in a separate document.

Ex: - A Student of Mechanical Engineering can take Open Electives from all other departments/branches except Open Electives offered by Mechanical Engineering Dept.

^{*}Open Elective - Students should take Open Electives from The List of Open Electives
Offered by Other Departments/Branches Only.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD LIST OF OPEN ELECTIVES OFFERED BY VARIOUS DEPARTMENTS FOR B.TECH. III AND IV YEARS

S.	Name of the Department	Open Elective – I	Open Elective – II
No.	Offering Open Electives	(Semester – V)	(Semester – VI)
1	Aeronautical Engg.	AE511OE: Introduction	AE621OE: Introduction to
		to Space Technology	Aerospace Engineering
2	Automobile Engg.	CE511OE: Disaster	MT621OE: Data Structures
	1	Management	MT622OE: Artificial
		MT512OE: Intellectual	Neural Networks
		Property Rights	
3	Biomedical Engg.	BM511OE: Reliability	BM621OE: Medical
		Engineering	Electronics
4	Civil Engg.	CE511OE: Disaster	CE621OE: Remote
		Management.	Sensing and GIS
	1 Name 1		CE622OE: Geo-
			Informatics
	1:		CE623OE: Intellectual
			Property Rights
5	Civil and Environmental	CE511OE: Disaster	CN621OE: Environmental
	Engg.	Management	Impact Assessment
			CE623OE: Intellectual
			Property Rights
6	Computer Science and Engg.	CS511OE: Operating	CS621OE: Java
	/ Information Technology	Systems	Programming
		CS512OE: Database	CS622OE: Software
		Management Systems	Testing Methodologies
			CS623OE: Cyber Security
7	Electronics and	EC5110E: Principles of	EC621OE: Principles of
	Communication Engg. /	Electronic	Computer Communications
	Electronics and Telematics	Communications	and Networks
	Engg.		
8	Electronics and Computer	EM511OE: Scripting	EM621OE: Soft
	Engg.		A STATE OF THE STA
	T-21.65	Languages	Computing Techniques
9	Electrical and Electronics	Languages EE511OE: Non-	Computing Techniques EE621OE: Design
9			EE621OE: Design
9	Electrical and Electronics	EE511OE: Non-	EE621OE: Design Estimation and Costing of
9	Electrical and Electronics	EE511OE: Non- Conventional Power Generation	EE621OE: Design Estimation and Costing of Electrical Systems
9	Electrical and Electronics	EE511OE: Non- Conventional Power Generation EE512OE: Electrical	EE621OE: Design Estimation and Costing of Electrical Systems EE622OE: Energy Storage
9	Electrical and Electronics	EE511OE: Non- Conventional Power Generation EE512OE: Electrical Engineering Materials	EE621OE: Design Estimation and Costing of Electrical Systems EE622OE: Energy Storage Systems
9	Electrical and Electronics	EE511OE: Non- Conventional Power Generation EE512OE: Electrical Engineering Materials EE513OE:	EE621OE: Design Estimation and Costing of Electrical Systems EE622OE: Energy Storage Systems EE623OE: Introduction to
9	Electrical and Electronics	EE511OE: Non- Conventional Power Generation EE512OE: Electrical Engineering Materials EE513OE: Nanotechnology	EE621OE: Design Estimation and Costing of Electrical Systems EE622OE: Energy Storage Systems EE623OE: Introduction to Mechatronics
	Electrical and Electronics Engg.	EE511OE: Non- Conventional Power Generation EE512OE: Electrical Engineering Materials EE513OE:	EE621OE: Design Estimation and Costing of Electrical Systems EE622OE: Energy Storage Systems EE623OE: Introduction to Mechatronics EI621OE: Industrial
	Electrical and Electronics Engg. Electronics and	EE511OE: Non-Conventional Power Generation EE512OE: Electrical Engineering Materials EE513OE: Nanotechnology EI511OE: Electronic Measurements and	EE621OE: Design Estimation and Costing of Electrical Systems EE622OE: Energy Storage Systems EE623OE: Introduction to Mechatronics
	Electrical and Electronics Engg. Electronics and Instrumentation Engg.	Conventional Power Generation EE512OE: Electrical Engineering Materials EE513OE: Nanotechnology EI511OE: Electronic Measurements and Instrumentation	EE621OE: Design Estimation and Costing of Electrical Systems EE622OE: Energy Storage Systems EE623OE: Introduction to Mechatronics EI621OE: Industrial Electronics
10	Electrical and Electronics Engg. Electronics and	EE5110E: Non- Conventional Power Generation EE5120E: Electrical Engineering Materials EE5130E: Nanotechnology EI5110E: Electronic Measurements and Instrumentation ME5110E: Optimization	EE621OE: Design Estimation and Costing of Electrical Systems EE622OE: Energy Storage Systems EE623OE: Introduction to Mechatronics EI621OE: Industrial Electronics ME621OE: World Class
10	Electrical and Electronics Engg. Electronics and Instrumentation Engg.	EE5110E: Non- Conventional Power Generation EE5120E: Electrical Engineering Materials EE5130E: Nanotechnology EI5110E: Electronic Measurements and Instrumentation ME5110E: Optimization Techniques	EE621OE: Design Estimation and Costing of Electrical Systems EE622OE: Energy Storage Systems EE623OE: Introduction to Mechatronics EI621OE: Industrial Electronics ME621OE: World Class Manufacturing
10	Electrical and Electronics Engg. Electronics and Instrumentation Engg.	EE5110E: Non- Conventional Power Generation EE5120E: Electrical Engineering Materials EE5130E: Nanotechnology EI5110E: Electronic Measurements and Instrumentation ME5110E: Optimization	EE621OE: Design Estimation and Costing of Electrical Systems EE622OE: Energy Storage Systems EE623OE: Introduction to Mechatronics EI621OE: Industrial Electronics ME621OE: World Class

			199
		to Mechatronics ME514OE:	Processes
1	4		
		Fundamentals of	
10	24 1 1 2 2	Mechanical Engineering	
12	Mechanical Engg. (Material	NT5110E: Fabrication	NT621OE: Introduction to
	Science and	Processes	Material Handling
	Nanotechnology)	NT512OE: Non	NT622OE: Non-
		destructive Testing	Conventional Energy
!	1	Methods	Sources
		NT5130E:	NT623OE: Robotics
	84	Fundamentals of	
		Engineering Materials	
13	Mechanical Engg.	MT511OE: Analog and	MT621OE: Data Structures
	(mechatronics)	Digital I.C. Applications	MT622OE: Artificial
1	1	MT512OE: Intellectual	Neural Networks
		Property Rights	MT623OE: Industrial
		MT513OE: Computer	Management
1	•	Organization	anasomoni
14	Metallurgical and Materials	MM5110E: Materials	MM621OE: Science and
1	Engg.	Characterization	Technology of Nano
		Techniques	Materials
ĺ			MM622OE: Metallurgy of
			Non Metallurgists
15	Mining Engg.	MN511OE: Introduction	MN621OE: Coal
''	I Triming Lings.	to Mining Technology	
		l to wining reciniology	Gasification, Coal Bed
16	Petroleum Engg.	DESTION Mentil	Methane and Shale Gas
10	renoieum engg.	PE511OE: Materials	PE621OE: Energy
		Science and Engineering	Management and
		PE512OE: Renewable	Conservation
		Energy Sources	PE622OE: Optimization
		PE513OE:	Techniques
		Environmental	PE623OE:
		Engineering	Entrepreneurship and
			Small Business Enterprises

S. No.	Name of the Department Offering Open Electives	Open Elective –III (Semester – VIII)		
1	Aeronautical Engg.	AE831OE: Air Transportation Systems		
		AE832OE: Rockets and Missiles		
2	Automobile Engg.	AM8310E: Introduction to Mechatronics		
AM832OE: Microprocessors and Microcontroll				
3	Biomedical Engg.	BM831OE: Telemetry and Telecontrol		
		BM832OE: Electromagnetic Interference and		
	<u>'</u>	Compatibility		
4	Civil Engg.	CE831OE: Environmental Impact Assessment		
		CE832OE: Optimization Techniques in Engineering		
ň		CE833OE: Entrepreneurship and Small Business		
0		Enterprises		
5	Civil and Environmental	CN8310E: Remote Sensing and GIS		
	Engg.	CE833OE: Entrepreneurship and Small Business		

	G C	Enterprises
6	Computer Science and	CS831OE: Linux Programming
	Engg. / Information	CS832OE: R Programming
	Technology	CS833OE: PHP Programming
7	Electronics and	EC831OE: Electronic Measuring Instruments
	Communication Engg. /	
	Electronics and Telematics	
	Engg.	
8	Electronics and Computer	EM831OE: Data Analytics
	Engg.	
9	Electrical and Electronics	EE831OE: Entrepreneur Resource Planning
	Engg.	EE832OE: Management Information Systems
	¥.	EE833OE: Organizational Behaviour
10	Electronics and	E1831OE: Sensors and Transducers,
	Instrumentation Engg.	EI832OE: PC Based Instrumentation
11	Mechanical Engg.	ME831OE: Total Quality Management
		ME832OE: Industrial Safety, Health, and
		Environmental Engineering
		ME833OE: Basics of Thermodynamics
		ME834OE: Reliability Engineering
12	Mechanical Engg. (Material	NT8310E: Concepts of Nano Science And Technology
	Science and	NT832OE: Synthesis of Nanomaterials
	Nanotechnology)	NT833OE: Characterization of Nanomaterials
13	Mechanical Engg.	MT831OE: Renewable Energy Sources
	(mechatronics)	MT832OE: Production Planning and Control
		CE833OE: Entrepreneurship and Small Business
		Enterprises
14	Metallurgical and Materials	MM831OE: Design and Selection of Engineering
	Engg.	Materials
15	Mining Engg.	MN831OE: Solid Fuel Technology
		MN832OE: Health & Safety in Mines
16	Petroleum Engg.	PE8310E: Disaster Management
		PE832OE: Fundamentals of Liquefied Natural Gas
		PE833OE: Health, Safety and Environment in
		Petroleum Industry

^{*}Open Elective – Students should take Open Electives from List of Open Electives Offered by Other Departments/Branches Only.

Ex: - A Student of Mechanical Engineering can take Open Electives from all other departments/branches except Open Electives offered by Mechanical Engineering Dept.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD B.Tech. in CIVIL ENGINEERING COURSE STRUCTURE & SYLLABUS (R18)

Applicable From 2018-19 Admitted Batch

I YEAR I SEMESTER

S. No.	Course Code	Course Title	L	Т	Р	Credits
1	MA101BS	Mathematics - I	3	1	0	4
2	PH102BS	Engineering Physics	3	1	0	4
3	CS103ES	Programming for Problem Solving	3	1	0	4
4	ME104ES	Engineering Graphics	1	0	4	3
5	PH105BS	Engineering Physics Lab	0	0	3	1.5
6	CS106ES	Programming for Problem Solving Lab	0	0	3	1.5
7	*MC109ES	Environmental Science	3	0	0	0
		Induction Programme				
		Total Credits	13	3	10	18

I YEAR II SEMESTER

S. No.	Course Code	Course Title	L	T	Р	Credits
1	MA201BS	Mathematics - II	3	1	0	4
2	CH202BS	Chemistry	3	1	0	4
3	ME203ES	Engineering Mechanics	3	1	0	4
4	ME205ES	Engineering Workshop	1	0	3	2.5
5	EN205HS	English	2	0	0	2
6	CH206BS	Engineering Chemistry Lab	0	0	3	1.5
7	EN207HS	English Language and Communication Skills Lab	0	0	2	1
		Total Credits	12	3	8	19.0

II YEAR I SEMESTER

S. No.	Course Code	Course Title	L	Т	Р	Credits
1	CE301PC	Surveying and Geomatics	3	0	0	3
2	CE302PC	Engineering Geology	2	0	0	2
3	CE303PC	Strength of Materials - I	3	1	0	4
4	MA304BS	Probability and Statistics	3	1	0	4
5	CE305PC	Fluid Mechanics	3	1	0	4
6	CE306PC	Surveying Lab	0	0	3	1.5
7	CE307PC	Strength of Materials Lab	0	0	3	1.5
8	CE308PC	Engineering Geology Lab	0	0	2	1
9	*MC309	Constitution of India	3	0	0	0
		Total Credits	17	3	8	21

II YEAR II SEMESTER

S. No.	Course Code	Course Title	L	Т	Р	Credits
1	EE401ES	Basic Electrical and Electronics Engineering	3	0	0	3

2	CE402ES	Basic Mechanical Engineering for Civil Engineers	2	0	0	2
3	CE403PC	Building Materials, Construction and Planning	3	0	0	3
4	CE404PC	Strength of Materials - !I	3	0	0	3
5	CE405PC	Hydraulics and Hydraulic Machinery	3	0	0	3
6	CE406PC	Structural Analysis - I	3	0	0	3
7	CE407PC	Computer aided Civil Engineering Drawing	0	0	3	1.5
8	CE409PC	Hydraulics and Hydraulic Machinery Lab	0	0	3	1.5
9	EE409ES	Basic Electrical and Electronics Engineering Lab	0	0	2	1
10	*MC409	Gender Sensitization Lab	0	0	2	0
		Total Credits	17	0	10	21

III YEAR I SEMESTER

S. No.	Course Code	Course Title	L	Т	P	Gredits
4	CE501	Structural Analysis-II	3	0	0	3
2	CE502PC	Geotechniçal Engineering	3	0	0	3
3	CE503PC	Structural Engineering –I (RCC)	3	1	0	4
4	CE504PC	Transportation Engineering	3	0	0	3
5		Professional Elective-I	3	0	0	3
6	SM505MS	Engineering Economics and Accountancy	2	0	0	2
7	CE506PC	Highway Engineering and Concrete Technology Lab	0	0	3	1.5
8	CE507PC	Geotechnical Engineering Lab	0	0	3	1.5
9	EN508HS	Advanced Communication Skills Lab	0	0	2	1
10	*MC509	Intellectual Property Rights	3	0	0	0
		Total Credits	20	1	8	22

III YEAR II SEMESTER

S. No	Course Code	Course Title	L	T	Р	Credits
1	CE601PC	Hydrology & Water Resources Engineering	3	1	0	4
1 .	CE602PC	Environmental Engineering	3	0	0	3
2	CE603PC	Foundation Engineering	3	0	0	3
3	CE604PC	Structural Engineering -II (Steel)	3	1	0	4
5		Professional Elective -II	3	0	0	3
6		Open Elective –I	3	0	0	3
7	CE605PC	Environmental Engineering Lab	0	0	2	1
8	CE606PC	Computer Aided Design Lab	0	0	2	1
9	*MC609	Environmental Science	3	0	0	0
		Total Credits	21	2	4	22

*MC609 - Environmental Science - Should be Registered by Lateral Entry Students Only.

IV YEAR I SEMESTER

S. No.	Course Code	Course Title	L	Т	Р	Credits
_ 1	CE701PC	Estimation, Costing and Project Management	3	1	0	4
2		Professional Elective –III	3	0	0	3
3		Professional Elective –IV	3	0	0	3



4		Open Elective –II	3	0	0	3
5	SM702MS	Professional Practice law & Ethics	2	0	0	*1 2
6	CE703PC	Industrial Oriented Mini Project/ Summer Internship	0	0	0	2*
7	CE704PC	Seminar	0	0	2	1
8	CE705PC	Project Stage - I	0	0	6	3
Ĺ		Total Credits	14	1	12	21

IV YEAR II SEMESTER

S. No.	Course Code	Course Title	L	T	Р	Credits
1		Professional Elective -V	3	0	0	3
2		Professional Elective –VI	3	0	0	3
3		Open Elective -III	3	0	0	3
4	CE801PC	Project Stage-II	0	0	14	7
		Total Credits	9	0	14	16

*MC - Satisfactory/Unsatisfactory

Note: Industrial Oriented Mini Project/ Summer Internship is to be carried out during the summer vacation between 6th and 7th semesters. Students should submit report of Industrial Oriented Mini Project/ Summer Internship for evaluation.

Professional Elective - I

CE511PE	Concrete Technology
CE512PE	Theory of Elasticity
CE513PE	Rock Mechanics

Professional Elective - II

CE611PE	Prestressed Concrete
CE612PE	Elements of Earth Quake Engineering
CE613PE	Advanced Structural Analysis

Professional Elective-III

CE711PE	Remote Sensing &GIS
CE712PE	Ground Improvement Techniques
CE713PE	Advanced Structural Design

Professional Elective -IV

CE721PE	Irrigation and Hydraulic Structures	
CE722PE	Pipeline Engineering	
CE723PE	Ground Water Hydrology	

Professional Elective –V

CE811PE	Solid Waste Management
CE812PE	Environmental Impact Assessment
CE813PE	Air pollution

Professional Elective -VI

CE821PE	Airports, Railways and Waterways
CE822PE	Urban Transportation Planning
CE823PE	Finite Element Methods for Civil Engineering



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD R18 B.TECH. List of Open Electives Applicable From 2018-19 Admitted Batch

Civil Engineering	Dispotor Described to Dispotor	Daniel Canalas & Olo	
	Management	Remote Sensing & GIS	Environmental Impact Assessment
Computer Science &	1. Entrepreneurship	1. Data Structures	1. Machine Learning
Engineering / Information	2. Fundamentals of Management for	2. Artificial Intelligence	2. Mobile Application Development
Technology	Engineers	3. Python Programming	3. Scripting Languages
	3. Cyber Law & Ethics	4. Java Programming	4. Database Management Systems
Electronics and Instrumentation	Basics of Sensors Technology	Fundamentals of Biomedical	Basics of Virtual Instrumentation
Engineering		Applications	
Electronics and Communication	Fundamentals of Internet of Things	Electronic Sensors	Measuring Instruments
Engineering			
Electrical and Electronics	1. Reliability Engineering	1. Utilization of Electrical Energy	1. Basics of Power Plant Engineering
Engineering	2. Renewable Energy Sources	Electric Drives and Co	2. Energy Sources and Applications
Mechanical Engineering	Quantitative Analysis for Business	Basic Mechanical Engineering	Non-Conventional Sources of energy
	Decisions		
Aeronautical Engineering	Quantitative Analysis for Business Decisions	Basics of Aeronautical Engineering	Elements of Rocket Propulsion
Mechatronics	1. Industrial Management	1. Intellectual Property Rights	1. Fundamentals of Robotics
	2. Non-Conventional Energy Sources	2. Principles of Entrepreneurship	2. Linear and Non-Linear
		3. Basic Mechanical Engineering	Optimization Techniques 3. Total Quality Management
Petroleum Engineering	General Geology	Natural Gas Engineering	Green Fuel Technologies
Metallurgical and Materials	1. Testing of Materials	1. Engineering Materials	1. High Temperature Materials
Engineering	2. Alloy Steels	2. Surface Engineering	2. Light Metals and Alloys
Mining Engineering	Ť		
	2. Coal Gasification, CBM & Shale Gas	2. Material Handling in Mines	2. Remote Sensing and GIS in Mining

*Note: Students should take Open Electives from the List of Open Electives Offered by Other Departments/Branches Only.

Principal

B.TECH I YEAR COURSE STRUCTURE AND SYLLABUS (R16)

(Common for EEE, ECE, CSE, EIE, BME, IT, ETE, ECM, ICE)

Applicable From 2017-18 Admitted Batch

I YEAR I SEMESTER

S. No	Course Code	Course Title	L	T	P	Credits
1	MA101BS	Mathematics-I	3	1	0	3
2	CH102BS	Engineering Chemistry	4	0	0	4
3	PH103BS	Engineering Physics-I	3	0	0	3
4	EN104HS	Professional Communication in English	3	0	0_	3
5	ME105ES	Engineering Mechanics	3	0	0	3
6	EE106ES	Basic Electrical and Electronics Engineering	4_	0	0	4
7	EN107HS	English Language Communication Skills Lab	0	0	3_	2
8	ME108ES	Engineering Workshop	0	0	3	2
9	*EA109MC	NSS	0	0	0	0
		Total Credits	20	1	6	24

I YEAR II SEMESTER

S. No	Course Code	Course Title	L	Т	P	Credits
1	PH201BS	Engineering Physics-II	_ 3 _	0	0	3
2	MA202BS	Mathematics-II	4_	1	0	4
3	MA203BS	Mathematics-III	4	1	0	4
4	CS204ES	Computer Programming in C	3	0	0	3
5	ME205ES	Engineering Graphics	2	0	4	4
6	CH206BS	Engineering Chemistry Lab	0	0	3	2
7	PH207BS	Engineering Physics Lab	0	0	3	2
8	CS208ES	Computer Programming in C Lab	0	0	3	2
9	*EA209MC	NCC/NSO	0	0	0	0
	22370	Total Credits	16	2_	13	24

 $^{{\}bf *Mandatory\ Course-Satisfactory/Unsatisfactory.}$

B.TECH. ELECTRICAL AND ELECTRONICS ENGINEERING

COURSE STRUCTURE & SYLLABUS (2016 - 17)

· II YEAR I SEMESTER

S. No.	Course Code	Course Title	L	Т	P	Credits
1	MA301BS	Mathamatics – IV	4	1_	0	4
2	EE302ES	Electromagnetic Fields	4	1	0	4
3	EE303ES	Electrical Machines-I	4	1	0	4
4	EE304ES	Network Theory	3	0	0_	3
5	EE305ES	Electronic Circuits	3	0	0	3
6	EE306ES	Electrical Machines Lab - I	0	0	3	2
7	EC306ES	Electronic Devices & Circuits Lab	0	0	3	2
8	EE307ES	Networks Lab	0	0	3	2
9	*MC300ES	Environmental Science and Technology	3	0	0	0
		Total Credits	21	3	9	24

H YEAR II SEMESTER

S. No.	Course Code	Course Title	L	Т	P	Credits
1	EC401ES	Switching Theory & Logic Design	3	1	0_	3
2	EE402ES	Power Systems - I	4	1	0	4
3	EE403ES	Electrical Machines – II	4	1	0	4
4	EE404ES	Control Systems	4	1	0	4
5	SM405MS	Business Economics and Financial Analysis	3	0	0	3
6	EE406ES	Control Systems Lab	0	0	3	2
7	EE407ES	Electrical Machines Lab - II	0	0	3	2
8	EE408ES	Electronic Circuits Lab	0	0	3	2
9	*MC400HS	Gender Sensitization Lab	0	0	3	0
		Total Credits	18	4	12	24

Samskruthi College of Engg. & Technology

Samskruthi College of Engg. & Medchal (D)

Kondapur(V), Ghatkesar(M), Medchal (D)

B.TECH. ELECTRICAL AND ELECTRONICS ENGINEERING III YEAR COURSE STRUCTURE & SYLLABUS (R16)

Applicable From 2016-17 Admitted Batch

III YEAR I SEMESTER

S. No.	Course					
	Code	Course Title	L	T	P	Constitution
1	EE501PC	Electrical Measurements & Instrumentation			F	Credits
2	EE502PC	Power Systems - II	4	1	0	4
3	EI503PC	Microprocessors and Mi	4	1	0	4
4	SM504MS	Microprocessors and Microcontrollers	4	1	0	4
5		Fundamentals of Management Open Elective - I	3	0	0	3
6	EE505PC		3	0	0	3
		Electrical Measurements & Instrumentation Lab	0	0	3	2
7	EE506PC	Basic Electrical simulation Lab			1	
8	EI507PC	Microprocessors and Mi	0	0	3	2
9	*MC500HS	Microprocessors and Microcontrollers Lab Professional Ethics	0	0	3	2
		Total Credits	3	0	0	0
		Total Cicuits	21	3	9	24

III YEAR II SEMESTER

S. No.	Course					
	Code	Course Title	$\perp_{\mathbf{L}}$	T	P	C 114
_1	EE601PC	Power Systems Analysis		1		Credits
2	EE602PC	Power Electronics	4	I	0	4
3	EE603PC	Switch Gear and Protection	4	1	0	4
4		Open Elective - II	4	1	0	4
5		Professional Elective - I'	3	0	0	3
6	EE604PC		3	0	0	3
7	EE605PC	Power Systems Lab Power Electronics Lab	0	0	3	2
8	EN606HS		0	0	3	2
-		Advanced English Communication Skills Lab	0	0	3	2
		Total Credits	18	3	9	24

During Summer Vacation between III and IV Years: Industry Oriented Mini Project

Professional Elective - I (PE - I):

EM611PE	Computer Organization
EE612PE	Linear Systems Analysis
EE613PE	Linear and Digital IC Applications
EE614PE	Electrical and Electronics Instrumentation

^{*}Open Elective subjects' syllabus is provided in a separate document.

Ex: - A Student of Mechanical Engineering can take Open Electives from all other departments/branches except Open Electives offered by Mechanical Engineering Dept.

^{*}Open Elective - Students should take Open Electives from the List of Open Electives Offered by Other Departments/Branches Only.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD B.TECH. ELECTRICAL AND ELECTRONICS ENGINEERING IV YEAR COURSE STRUCTURE & SYLLABUS (R16)

Applicable From 2016-17 Admitted Batch

IV YEAR I SEMESTER

S. No.	Course Code	Course Title			T_	
1	EE701PC		L	T	P	Credits
		Power Semiconductor Drives	4	+-		
2	EE702PC	Power System Operation and control		1	0	4
3		Professional Elective - III	4	1	0	4
4			3	0	0	3
5		Professional Elective - III	3	0	0	3
		Professional Elective - IV		-	<u> </u>	
6	EE703PC	Electrical Systems Simulation Lab	3	0	0	3
7	EE704PC	Electrical W. 1.1	0	0	3	2
8		Electrical Workshop	0	0	3	2
	EE705PC	Industry Oriented Mini Project	0	_		
9	EE706PC	Seminar		0	3	2
T		Total Credits	0	0	2	1
		rotal Credits	17	2	11	24

IV YEAR II SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1		Open Elective - III		<u> </u>	<u> </u>	
2		Professional Elective-V	3	0	0	3
3			3	0	0	3
4	EE801PC	Professional Elective-VI	3	0	0	3
		Major Project Total Credits	0	0	30	15
		Total Credits	9	0	30	24

Professional Elective - I (PE - I):

	Zicetive - 1 (FE - 1):
EM611PE	Computer Organization
EE612PE	Linear Systems Analysis
EE613PE	Linear and Digital IC Applications
EE614PE	Electrical and Electronics Instrumentation

Professional Elective - II (PE - II):

EDEC	— (12 II).
EE721PE	Digital Signal Processing
EE722PE	5 that Libressing
EE/22PE	HVDC Transmission
4	Switch Mode Power Supplies
EE724PE	Reliability Engineering
	Remainity Engineering

Professional Elective - III (PE - III):

EE731PE	Digital Control Systems	
EE732PE	Power Quality	- 0
EE733PE	Modern Power Electronics	
EE734PE	Optimization Techniques	

Professional Elective - IV (PE-IV):

EE741PE	Programmable Logic Controllers
EE742PE	EHV AC Transmission Systems
EE743PE	Flexible A.C. Transmission Systems
EE744PE	Special Machines

Professional Elective - V (PE-V):

EE851PE	Artificial Neural Networks and Fuzzy Systems	
EE852PE	Electrical Distribution Systems	
EE853PE	Wind, Solar and Hybrid Energy Systems	
EE854PE	High Voltage Engineering	

Professional Elective - VI (PE-VI):

EE861PE	VLSI Design
EE862PE	Smart Electric Grid
EE863PE	Utilization of Electric Power
EE864PE	Electric and Hybrid Vehicles

^{*}Open Elective subjects' syllabus is provided in a separate document.

*Open Elective - Students should take Open Electives from the List of Open Electives Offered by Other Departments/Branches Only.

Ex: - A Student of Mechanical Engineering can take Open Electives from all other departments/branches except Open Electives offered by Mechanical Engineering Dept.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD LIST OF OPEN ELECTIVES OFFERED BY VARIOUS DEPARTMENTS FOR B.TECH. III AND IV YEARS

S. No.	Name of the Department Offering Open Electives	Open Elective – I (Semester – V)	Open Elective – II (Semester – VI)
1	Aeronautical Engg.	AE511OE: Introduction	AE621OE: Introduction to
		to Space Technology	Aerospace Engineering
2	Automobile Engg.	CE511OE: Disaster	MT621OE: Data Structures
		Management	MT622OE: Artificial
		MT512OE: Intellectual	Neural Networks
		Property Rights	
3	Biomedical Engg.	BM5110E: Reliability	BM621OE: Medical
		Engineering	Electronics
4	Civil Engg.	CE5110E: Disaster	CE621OE: Remote
	86	Management.	Sensing and GIS
			CE622OE: Geo-
			Informatics
			CE623OE: Intellectual
			Property Rights
5	Civil and Environmental	CE511OE: Disaster	CN621OE: Environmental
•	Engg.	Management Management	Impact Assessment
	256.	Wanagement	CE623OE: Intellectual
			Property Rights
6	Computer Science and Engg.	CS511OE: Operating	CS621OE: Java
U	/ Information Technology	Systems Systems	Programming
	/ information reciniology	CS512OE: Database	CS622OE: Software
		Management Systems	Testing Methodologies
		wanagement Systems	CS623OE: Cyber Security
7	Electronics and	EC511OE: Bringinles of	
1	Communication Engg. /	EC511OE: Principles of Electronic	EC621OE: Principles of
	Electronics and Telematics	Communications	Computer Communications and Networks
	Engg.	Communications	and Networks
8	Electronics and Computer	EM511OE: Scripting	EM621OE: Soft
	Engg.	Languages	Computing Techniques
9	Electrical and Electronics	EE511OE: Non-	EE621OE: Design
	Engg.	Conventional Power	Estimation and Costing of
		Generation	Electrical Systems
		EE512OE: Electrical	EE622OE: Energy Storage
		Engineering Materials	Systems
		EE513OE:	EE623OE: Introduction to
		Nanotechnology	Mechatronics
10	Electronics and	EI511OE: Electronic	EI621OE: Industrial
	Instrumentation Engg.	Measurements and	Electronics
		Instrumentation	
11	Mechanical Engg.	ME5110E: Optimization	ME6210E: World Class
4.4	miconamour Dilgg.	Techniques Techniques	Manufacturing
		The second secon	ME622OE: Fundamentals
		ME512OE: Computer	
		Graphics	of Robotics
		ME513OE: Introduction	ME623O Fabrication

		to Mechatronics ME5140E: Fundamentals of Mechanical Engineering	Processes
12	Mechanical Engg. (Material Science and Nanotechnology)	NT5110E: Fabrication Processes NT5120E: Non destructive Testing Methods NT5130E: Fundamentals of Engineering Materials	NT621OE: Introduction to Material Handling NT622OE: Non- Conventional Energy Sources NT623OE: Robotics
13	Mechanical Engg. (mechatronics)	MT511OE: Analog and Digital I.C. Applications MT512OE: Intellectual Property Rights MT513OE: Computer Organization	MT621OE: Data Structures MT622OE: Artificial Neural Networks MT623OE: Industrial Management
14	Metallurgical and Materials Engg.	MM5110E: Materials Characterization Techniques	MM621OE: Science and Technology of Nano Materials MM622OE: Metallurgy of Non Metallurgists
15	Mining Engg.	MN5110E: Introduction to Mining Technology	MN6210E: Coal Gasification, Coal Bed Methane and Shale Gas
16	Petroleum Engg.	PE5110E: Materials Science and Engineering PE5120E: Renewable Energy Sources PE5130E: Environmental Engineering	PE621OE: Energy Management and Conservation PE622OE: Optimization Techniques RE623OE: Entrepreneurship and Small Business Enterprises

S. No.	Name of the Department Offering Open Electives	Open Elective –III (Semester – VIII)
1	Aeronautical Engg.	AE8310E: Air Transportation Systems AE8320E: Rockets and Missiles
2	Automobile Engg.	AM8310E: Introduction to Mechatronics AM8320E: Microprocessors and Microcontrollers
3	Biomedical Engg.	BM8310E: Telemetry and Telecontrol BM8320E: Electromagnetic Interference and Compatibility
4	Civil Engg.	CE831OE: Environmental Impact Assessment CE832OE: Optimization Techniques in Engineering CE833OE: Entrepreneurship and Small Business Enterprises
5	Civil and Environmental Engg.	CN831OE: Remote Sensing and GIS CE833OE: Entrepreneurship and Small Business

		Enterprises
6	Computer Science and	GS8310E: Linux Programming
	Engg. / Information	CS832OE: R Programming
	Technology	CS833OE: PHP Programming
7	Electronics and	EC831OE: Electronic Measuring Instruments
	Communication Engg. /	
	Electronics and Telematics	
	Engg.	
8	Electronics and Computer	EM8310E: Data Analytics
	Engg.	
9	Electrical and Electronics	EE831OE: Entrepreneur Resource Planning
	Engg.	EE832OE: Management Information Systems
		EE833OE: Organizational Behaviour
10	Electronics and	EI8310E: Sensors and Transducers,
	Instrumentation Engg.	E1832OE: PC Based Instrumentation
11	Mechanical Engg.	ME8310E: Total Quality Management
		ME832OE: Industrial Safety, Health, and
		Environmental Engineering
		ME833OE: Basics of Thermodynamics
		ME834OE: Reliability Engineering
12	Mechanical Engg. (Material	NT8310E: Concepts of Nano Science And Technology
	Science and	NT832OE: Synthesis of Nanomaterials
	Nanotechnology)	NT833OE: Characterization of Nanomaterials
13	Mechanical Engg.	MT831OE: Renewable Energy Sources
	(mechatronics)	MT832OE: Production Planning and Control
		CE833OE: Entrepreneurship and Small Business
		Enterprises
14	Metallurgical and Materials	MM8310E: Design and Selection of Engineering
	Engg.	Materials
15	Mining Engg.	MN831OE: Solid Fuel Technology
		MN832OE: Health & Safety in Mines
16	Petroleum Engg.	PE8310E: Disaster Management
	36.	PE832OE: Fundamentals of Liquefied Natural Gas
		PE833OE: Health, Safety and Environment in
		Petroleum Industry

^{*}Open Elective – Students should take Open Electives from List of Open Electives Offered by Other Departments/Branches Only.

Ex: - A Student of Mechanical Engineering can take Open Electives from all other departments/branches except Open Electives offered by Mechanical Engineering Dept.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD B.Tech. in ELECTRICAL AND ELECTRONICS ENGINEERING COURSE STRUCTURE & SYLLABUS (R18)

Applicable From 2018-19 Admitted Batch

I YEAR I SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	MA101BS	Mathematics - I	3	1	0	4
2	CH102BS	Chemistry	3	1	0	4
3	EE103ES	Basic Electrical Engineering	3	0	0	- 3
4	ME105ES	Engineering Workshop	1	0	3	2.5
5	EN105HS	English	2	0	0	2
6	CH106BS	Engineering Chemistry Lab	0	0	3	1.5
7	EN107HS	English Language and Communication Skills Lab	0	0	2	11
8	EE108ES	Basic Electrical Engineering Lab	0	0	2	1
		Induction Programme				
		Total Credits	12	2	10	19

I YEAR II SEMESTER

S. No.	Course Code	Course Title	L	T	Р	Credits
1	MA201BS	Mathematics - II	3	1	0	4
2	AP202BS	Applied Physics	3	1	0	4
3	CS203ES	Programming for Problem Solving	3	1	0	4
4	ME204ES	Engineering Graphics	1	0	4	3
5	AP205BS	Applied Physics Lab	0	0	3	1.5
6	CS206ES	Programming for Problem Solving Lab	0	0	3	1.5
7	*MC209ES	Environmental Science	3	0	0	0
		Total Credits	13	3	10	18

II YEAR I SEMESTER

S. No.	Course	Course Title	L	Т	Р	Credits
	Code					
1	EE301ES	Engineering Mechanics	3	1	0	4
2	EE302PC	Electrical Circuit Analysis	3	1	0	4 .
3	EE303PC	Analog Electronics	3	0_	0_	3
4	EE304PC	Electrical Machines - I	3	1	0	4
5	EE305PC	Electromagnetic Fields	3	0	0	3
6	EE306PC	Electrical Machines Lab - I	0	0	2	1
7	EE307PC	Analog Electronics Lab	0	0	2	1
8	EE308PC	Electrical Circuits Lab	0	0	2	11
9	*MC309	Gender Sensitization Lab	0	0	2	0
		Total Credits	15	3	8	21

IJ YELAR II SEMESTER

S. No.	Course Code	Course Title	L	Т	Р	Credits
1	MA401BS	Laplace Transforms, Numerical Methods & Complex variables	3	1,	0	4

		Total Credits	18	3	6	21
9	*MC409	Constitution of India	3	0	0	0
8	EE408PC	Control Systems Lab	0	0	2	1
7	EE407PC	Electrical Machines Lab - II	0	0	2	1
6	EE406PC	Digital Electronics Lab	0	0	2	1
5	EE405PC	Power System - I	3	0	0	3
4	EE404PC	Control Systems	3	1	0	4
3	EE403PC	Digital Electronics	3	0	0	3
2	EE402PC	Electrical Machines – II	3	1	0	4

III YEAR I SEMESTER

S. No.	Course Code	L	Т	Р	Credits	
1	EE501PE	Power Electronics	3	1	0	4
2	EE502PE	Power System-II	3	1	0	4
3	EE503PE	Measurements and Instrumentation	3	1	0	4
4		Professional Elective-I	3	0	0	3
5	SM504MS	Business Economics and Financial Analysis	3	0	0	3
6	EE505PC	Power System Simulation Lab	0	0	2	1
7	EE506PC	Power Electronics Lab	0	0	2	1
8	EE507PC	Measurements and Instrumentation Lab	0	0	2	1
9	EN508HS	Advanced Communication Skills Lab	0	0	2	1
10	*MC510	Intellectual Property Rights	3	0	0	0
		Total Credits	18	3	8	22

III YEAR II SEMESTER

S. No	Course Code	Course Title	L	Т	Р	Credits	
1		Open Elective-I	3	0	0	3	
2		Professional Elective-II	3	0	0	3	
3	EE601PC	Signals and Systems	2	1	0	3	
4	EE602PC	Microprocessors & Microcontrollers	3	0	0	3	
5	EE603PC	Power System Protection	3	1	0	4	
6	EE604PC	Power System Operation and Control	3	0	0	3	
7	EE605PC	Power System Lab	0	0	2	1	
8	EE606PC	Microprocessors & Microcontrollers Lab	0	0	2	1	
9	EE607PC	Signals and Systems Lab	0	0	2	1	
10	*MC609	Environmental Science	3	0	0	0	
		Total Credits	20	2	6	22	

*MC609 - Environmental Science – Should be Registered by Lateral Entry Students Only.

IV YEAR I SEMESTER

S. No.	Course Code	Course Title	L	Т	Р	Credits
1		Open Elective-II	3	0	0	3
2		Professional Elective-III	3	0	0	3
3		Professional Elective-IV	3	0	0	3
4	SM701MS	Fundamentals of Management for Engineers	3	.0	0	3
5	EE701PC	Electrical & Electronics Design Lab	1	O,	4	3

6	EE702PC	Industrial Oriented Mini Project/ Summer Internship	0	0	4	2*
7	EE703PC	Seminar	0	0	2	1
	EE704PC	Project Stage - I	0	0	6	3
		Total Credits	13	0	16	21

IV YEAR II SEMESTER

S. No.	Course Code	Course Title	L	Т	P	Credits
1		Open Elective-III	3	0	0	3
2		Professional Elective-V	3	0	0	3
3		Professional Elective-VI	3	0	0	3
4	EE801PC	Project Stage - II	0	0	14	7
		Total Credits	9	0	14	16

*MC - Satisfactory/Unsatisfactory

NOTE: Industrial Oriented Mini Project/ Summer Internship is to be carried out during the summer vacation between 6th and 7th semesters. Students should submit report of Industrial Oriented Mini Project/ Summer Internship for evaluation.

Professional Elective - I

EE511PE	Computer Architecture	
EE512PE	High Voltage Engineering	
EE513PE	Electrical Machine Design	

Professional Elective - II

EE611PE	Optimization Techniques	
EE612PE	Power Semiconductor Drives	7134
EE613PE	Wind and Solar Energy systems	

Professional Elective - III

EE711PE	Digital Control systems	
EE712PE	Digital Signal Processing	
EE713PE	Electrical and Hybrid Vehicles	

Professional Elective - IV

EE721PE	IN/DO Transported	
	HVDC Transmission	
EE722PE	Power System Reliability	
EE723PE	Industrial Electrical Systems	

Professional Elective - V

EE811PE	Power Quality & FACTS	
EE812PE	Control Systems Design	
EE813PE	Al Techniques in Electrical Engineering	

Professional Elective - VI

EE821PE	Smart Grid Technologies	
EE822PE	Electrical Distribution Systems	
EE823PE	Advanced Control of Electric Drives	

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD R18 B.TECH. List of Open Electives Applicable From 2018-19 Admitted Batch

	Metallurgical and Materials 1. Testing of Materials 2. Alloy Steels 2. Surface Engineering	Na	gy Sources 2.	1. Industrial Management 1.	ve Analysis for Business	Mechanical Engineering Decisions	0	d Electronics 1. Reliability Engineering 2.		Electronics and Communication Fundamentals of Internet of Things Electronic Sensors		Bas	Technology Engineers Engineers 4. Java Programming	ation 2. Fundamentals of Management for 2.	eurship 1.	Management		Branch III Yr II Sem Open Elective (OE - I) IV Yr I Sem Open I	
Health & Salety III Ivilies	Engineering	Engineering	Principles of Entrepreneurship Basic Mechanical Engineering	Intellectual Property Rights	Basics of Aeronautical Engineering		anical Engineering	Electric Drives and Control		ensors		ls of Biomedical	Ğ.					ctive (OE - II)	-1
2. Remote Sensing and GIS in Mining	Light Metals and Alloys Solid Fuel Technology	Green Fuel Technologies 1. High Temperature Materials	Optimization Techniques 3. Total Quality Management		Elements of Nocycle Lopusco.	The part of Docket Dropulsion	Non-Conventional Sources of energy	2. Energy Sources and Applications	1 Basics of Power Plant Engineering	Miccooningor	Measuring Instruments	Basics of Virtual Itistiumentation	4. Database Management Systems	3 Scripting Languages	. 1	Machine Learning	ETIVITORITIES STEPACES CONTROLLED	Telipopoptal Impact Assessment	Wyr II Sem Open Elective (OE - III)

^{*}Note: Students should take Open Electives from the List of Open Electives Offered by Other Departments/Branches Only.

Trincipal

(Common for Civil, ME, AE, ME (M), MME, AU, Mining, Petroleum, CEE, ME (Nanotech))

I YEAR I SEMESTER

S. No	Course Code	Course Title	L	Т	P	Credits
	MA101BS	Mathematics-I	3	1	0	3
		Mathematics-II	4	1	0	4
2	MA102BS		3	0	0	3
3	PH103BS	Engineering Physics	3	0	0	3
4	CS104ES	Computer Programming in C	3	0	0	3
5	ME105ES	Engineering Mechanics				
6	ME106ES	Engineering Graphics	2	0	4	4
7	PH107BS	Engineering Physics Lab	0	0	3	2
8	CS108ES	Computer Programming in C Lab	0	0	3	2
		NSS	0	0	0	0
9	*EA109MC	Total Credits	18	2	10	24

I YEAR II SEMESTER

S. No	Course	Course Title	L	T	P	Credits
	Code		3	0	0	3
1	AP201BS	Applied Physics		لستسا	0	4
2	CH202BS	Engineering Chemistry	4	0		
3	MA203BS	Mathematics-III	4	1	0	4
4	EN204HS	Professional Communication in English	. 3	0	0	3
	EE205ES	Basic Electrical & Electronics Engineering	4	0	0	4
5		Engineering Chemistry Lab	0	0	3	2
6	CH206BS	Engineering Chemistry Lab	0	0	3	2
7	EN207HS	English Language Communication Skills Lab	ļ	<u> </u>	-	
8	ME208ES	Engineering Workshop	0	0	3	2
9	*EA209MC	NCC/NSO	0	0	0	0
9	ENZONIC	Total Credits	18	1	9	24

*Mandatory Course

B.TECH. MECHANICAL ENGINEERING

COURSE STRUCTURE & SYLLABUS (2016-17)

MI YEAR I SEMESTER

S. No.	Course Code	Course Title	L	Т	P	Credits
	MA301BS	Mathematics - IV	4	1	0	4
2	ME304ES	Thermodynamics	4	1	0	4
3	ME304ES	Kinematics of Machinery	4	1_	0	4
4	ME305ES	Metallurgy and Material Science	3	0	0	3
5	ME303ES	Mechanics of Solids	3	1	0	3
6	ME306ES	Fuels and Lubricants Lab	0	0	3	2
7	ME307ES	Mechanics of Solids Lab	0	0	3	2
8	ME308ES	Metallurgy and Material Science Lab	0	0	3	2
9	*MC300HS	Gender Sensitization Lab	0	0	3	0
	1110300110	Total Credits	18	4	12	24

II YEAR II SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
		Dynamics of Machinery	4	1	0	4
l i	ME403ES	Dynamics of waterings	4	1	0	4
2	ME401ES	Fluid Mechanics and Hydraulic Machines	1 - 1	-		4
3	ME404ES	Machine Drawing	2	U	4	
4	ME405ES	Manufacturing Process	3	0	0	3
5	SM405MS	Business Economic and Financial Analysis	3	0	0	3
	ME406ES	Kinematics and Dynamics Lab	0	0	3	2
6		Fluid Mechanics and Hydraulic Machines Lab	0	0	3	2
7	ME407ES		0	0	3	2
8	ME408ES	Manufacturing Process Lab	+	-		
9	*MC400ES	Environmental Science and Technology	3_	0	0	0
		Total Credits	18	2_	15	24

^{*}Satisfactory/Unsatisfactory

Samskruthi College of Engg. & Technology Samskruthi College of Engg. & Jechnologi Samskruthi College of Engg. & Jechnologi Kondapur(V), Ghalkesar(M), Medchal (D) Kondapur(V), Ghalkesar(M), Medchal (D) Www.ios.universityupdates.in

B.TECH. MECHANICAL ENGINEERING III YEAR COURSE STRUCTURE & SYLLABUS (R16)

Applicable From 2016-17 Admitted Batch

III YEAR I SEMESTER

S. No.	Course Code	Course Title	L	Т	, P	Credits
1	ME501PC	Design of Machine Members - I	4	1	0	4
2	ME502PC	Thermal Engineering-l	4	1	0	4
3	ME503PC	Metrology and Machine Tools	4	1	0	- 4
4	SM504MS	Fundamentals of Management	3	0	0	- 3
5		Open Elective – 1	. 3	0	.0	3
6	ME505PC	Thermal Engineering Lab	0	0	3	2
7	ME506PC	Machine Tools Lab	0	0 -	3	2
8	ME507PC	Engineering Metrology Lab	0	0	3	2
9	*MC500HS	Professional Ethics	3	0	0	0
	10.00	Total Credits	21	3	9	.24

III YEAR II SEMESTER

S. No.	Course Code	Course Title	L	Т	P	Credits
1	ME601PC	Thermal Engineering –II	4	. 1	0	4
2	ME602PC	Design of Machine Members-II	4	1	0	4
3	ME603PC	Heat Transfer	4	1	0	4
4		Open Elective - II	3	0	0	3
5		Professional Elective - I	3	0	0	3
6	ME604PC	Heat Transfer Lab	0	0	3	2
7	ME605PC	CADD and MATLAB	0	0	3	2
8	EN606HS	Advanced English Communication Skills Lab	0	0	3	2
- 12.57		Total Credits	18	3	9	24

During Summer Vacation between III and IV Years: Industry Oriented Mini Project

B.TECH. MECHANICAL ENGINEERING IV YEAR COURSE STRUCTURE & SYLLABUS (R16)

Applicable Fron 2016-17 Admitted Batch

IV YEAR I SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
	ME701PC	CAD/CAM	4	0	0	4
2	ME701PC	Instrumentation and Control System	4	0	0	4
3	WIE7021 C	Professional Elective - If	3	0	0	3
4		Professional Elective - III	3	0	0	3
5		Professional Elective - IV	3	0	0	3
6	ME703PC	CAD/CAM Lab	0	0	3	2
7	ME704PC	Instrumentation and Control Systems Lab	0	0	3	2
8	ME704PC	Industry Oriented Mini Project	0	0	3	2
9	ME706PC	Seminar	0	0	2	1
7	ME7001 C	Total Credits	17	0	11	24

IV YEAR II SEMESTER

S. No.	Course Code	Course Title	L	Т	P	Credits
1	Code	Open Elective – III	3	0	0	3
1		Professional Elective - V	3	0	0	3
2		Professional Elective - VI	3	0	0	3
3	ME801PC	Major Project	0	0	30	15
4	MESUIPC	Total Credits	9	0	30	24

Professional Elective - I

Professiona	Il Elective - I	
ME611PE	Finite Element Methods	
ME612PE	Refrigeration and Air Conditioning	
	Machine Tool Design	
	IC Engines and Gas Turbines	
Contract of the Contract of th		

Professional Elective - II

ME721PE	Composite materials
ME722PE	Industrial Management
ME723PE	Power Plant Engineering
ME724PE	Operations Research

Professional Elective – III

I I OTC 3 STOTE		
	Engineering Tribology	Į.
ME732PE	Computational Fluid Dynamics	5
ME733PE	Robotics	- 3
ME734PE	CNC Technology	

Professional Elective - IV

		II Elective 1
3	ME741 PE	Mechanical Vibrations
	ME742PE	Turbo Machines
	TATALAN TAKENDAR	MEMS
	ME744PB	Additive Manufacturing Technology

Professional Elective - V

	Dicette
ME851PE7	Automation in Manufacturing
C. Landerson	Fluid Power System
	Renewable Energy Sources
ME854PE	Production Planning and Control

Professional Elective - VI

I Elective - VI
Automobile Engineering
Advanced Mechanics of Solids
Unconventional Machining Processes
Advanced Materials Technology

^{*}Open Elective subjects' syllabus is provided in a separate document.

Ex: - A Student of Mechanical Engineering can take Open Electives from all other departments/branches except Open Electives offered by Mechanical Engineering Dept.

^{*}Open Elective - Students should take Open Electives from the List of Open Electives Offered by Other Departments/Branches Only.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD LIST OF OPEN ELECTIVES OFFERED BY VARIOUS DEPARTMENTS FOR B.TECH. III AND IV YEARS

S. No.	Name of the Department	Open Elective – I	Open Elective – II
	Offering Open Electives	(Semester – V)	(Semester – VI)
1	Aeronautical Engg.	AE511OE: Introduction	AE621OE: Introduction to
2	A4	to Space Technology	Aerospace Engineering
2	Automobile Engg.	CE511OE: Disaster	MT621OE: Data Structures
		Management	MT622OE: Artificial
		MT512OE: Intellectual	Neural Networks
2	Di	Property Rights	D146010D
3	Biomedical Engg.	BM5110E: Reliability	BM621OE: Medical
4	Civil Fare	Engineering	Electronics
4	Civil Engg.	CE511OE: Disaster	CE621OE: Remote
		Management.	Sensing and GIS
			CE622OE: Geo-
			Informatics Leading 1
			CE623OE: Intellectual
5	Civil and Environmental	CE511OE: Disaster	Property Rights CN621OE: Environmental
)			
	Engg.	Management	Impact Assessment CE623OE: Intellectual
6	Computer Science and Engg.	CS511OE: Operating	Property Rights CS621OE: Java
U	/ Information Technology	CS511OE: Operating Systems	CS621OE: Java Programming
	/ Information reciniology	CS512OE: Database	CS622OE: Software
		Management Systems	Testing Methodologies
		ivialiagement Systems	CS623OE: Cyber Security
7	Electronics and	EC511OE: Principles of	EC621OE: Principles of
•	Communication Engg. /	Electronic	Computer Communications
	Electronics and Telematics	Communications	and Networks
	Engg.		
8	Electronics and Computer	EM5110E: Scripting	EM621OE: Soft
	Engg.	Languages	Computing Techniques
9	Electrical and Electronics	EE511OE: Non-	EE621OE: Design
	Engg.	Conventional Power	Estimation and Costing of
		Generation	Electrical Systems
9	Į.	EE512OE: Electrical	EE622OE: Energy Storage
		Engineering Materials	Systems
		EE513OE:	EE623OE: Introduction to
		Nanotechnology	Mechatronics on
10	Electronics and	EI5110E: Electronic	EI621OE: Industrial
	Instrumentation Engg.	Measurements and	Electronics
		Instrumentation	
11	Mechanical Engg.	ME5110E: Optimization	ME621OE: World Class
		Techniques	Manufacturing
		ME512OE: Computer	ME622OE: Fundamentals
		Graphics	of Robotics
	F310 14400 I	ME513OE: Introduction	ME623OE: Fabrication

		to Mechatronics	Processes
		ME5140E:	
		Fundamentals of	
<u> </u>		Mechanical Engineering	
12	Mechanical Engg. (Material	NT5110E: Fabrication	NT621OE: Introduction to
	Science and	Processes	Material Handling
!	Nanotechnology)	NT512OE: Non	NT622OE: Non-
		destructive Testing	Conventional Energy
		Methods	Sources
		NT5130E:	NT623OE: Robotics
		Fundamentals of	
		Engineering Materials	<u> </u>
13	Mechanical Engg.	MT511OE: Analog and	MT621OE: Data Structures
	(mechatronics)	Digital I.C. Applications	MT622OE: Artificial
		MT512OE: Intellectual	Neural Networks
		Property Rights	MT623OE: Industrial
		MT513OE: Computer	Management
		Organization	63).
14	Metallurgical and Materials	MM5110E: Materials	MM621OE: Science and
	Engg.	Characterization	Technology of Nano
		Techniques	Materials
			MM622OE: Metallurgy of
			Non Metallurgists
15	Mining Engg.	MN511OE: Introduction	MN621OE: Coal
		to Mining Technology	Gasification, Coal Bed
	<u> </u>		Methane and Shale Gas
16	Petroleum Engg.	PE511OE: Materials	PE621OE: Energy
		Science and Engineering	Management and
		PE512OE: Renewable	Conservation
		Energy Sources	PE622OE: Optimization
		PE513OE:	Techniques
	Ĩ	Environmental	PE623OE:
1 1		Engineering	Entrepreneurship and
			Small Business Enterprises

S.	Name of the Department	Open Elective –III				
No.	Offering Open Electives	(Semester – VIII)				
1 -	Aeronautical Engg.	AE831OE: Air Transportation Systems				
		AE832OE: Rockets and Missiles				
2	Automobile Engg.	AM831OE: Introduction to Mechatronics				
		AM832OE: Microprocessors and Microcontrollers				
3	Biomedical Engg.	BM831OE: Telemetry and Telecontrol				
		BM832OE: Electromagnetic Interference and				
		Compatibility				
4	Civil Engg.	CE831OE: Environmental Impact Assessment				
		CE832OE: Optimization Techniques in Engineering				
		CE833OE: Entrepreneurship and Small Business				
		Enterprises				
5	Civil and Environmental	CN831OE: Remote Sensing and GIS				
	Engg.	CE833OE: Entrepreneurship and Small Business				

		Enterprises
6	Computer Science and	CS831OE: Linux Programming
	Engg. / Information	CS832OE: R Programming
	Technology	CS833OE: PHP Programming
7	Electronics and	EC831OE: Electronic Measuring Instruments
	Communication Engg. /	
	Electronics and Telematics	
	Engg.	
8	Electronics and Computer	EM831OE: Data Analytics
	Engg.	
9	Electrical and Electronics	EE831OE: Entrepreneur Resource Planning
	Engg.	EE832OE: Management Information Systems
	163	EE833OE: Organizational Behaviour
10	Electronics and	E1831OE: Sensors and Transducers,
	Instrumentation Engg.	E1832OE: PC Based Instrumentation
11	Mechanical Engg.	ME831OE: Total Quality Management
		ME8320E: Industrial Safety, Health, and
		Environmental Engineering
		ME833OE: Basics of Thermodynamics
		ME834OE: Reliability Engineering
12		NT831OE: Concepts of Nano Science And Technology
	Science and	NT832OE: Synthesis of Nanomaterials
	Nanotechnology)	NT833OE: Characterization of Nanomaterials
13	Mechanical Engg.	MT831OE: Renewable Energy Sources
	(mechatronics)	MT832OE: Production Planning and Control
		CE833OE: Entrepreneurship and Small Business
<u> </u>		Enterprises
14	Metallurgical and Materials	MM831OE: Design and Selection of Engineering
	Engg.	Materials
15	Mining Engg.	MN831OE: Solid Fuel Technology
		MN832OE: Health & Safety in Mines
16	Petroleum Engg.	PE831OE: Disaster Management
		PE832OE: Fundamentals of Liquefied Natural Gas
		PE833OE: Health, Safety and Environment in
		Petroleum Industry

^{*}Open Elective – Students should take Open Electives from List of Open Electives Offered by Other Departments/Branches Only.

Ex: - A Student of Mechanical Engineering can take Open Electives from all other departments/branches except Open Electives offered by Mechanical Engineering Dept.



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD B.Tech. in MECHANICAL ENGINEERING COURSE STRUCTURE & SYLLABUS (R18)

Applicable From 2018-19 Admitted Batch

I YEAR I SEMESTER

LILA	K I OLINEO I EIK					
S. No.	Course Code	Course Title	L	Т	Р	Credits
1	MA101BS	Mathematics - I	3	1	0	4
2	PH102BS	Engineering Physics	3	1	0	4
3	CS103ES	Programming for Problem Solving	3	1	0	4
4	ME104ES	Engineering Graphics	1	0	4	3
5	PH105BS	Engineering Physics Lab	0	0	3	1.5
6	CS106ES	Programming for Problem Solving Lab	0	0	3	1.5
7	*MC109ES	Environmental Science	3	0	0	0
		Induction Programme				
		Total Credits	13	3	10	18

I YEAR II SEMESTER

S. No.	Course Code	Course Title	L	Т	Р	Credits
1	MA201BS	Mathematics - II	3	1	0	4
2	CH202BS	Chemistry	3	1	0	4
3	ME203ES	Engineering Mechanics	3	1	0	4
4	ME205ES	Engineering Workshop	1	0	3	2.5
5	EN205HS	English	2	0	0	2
6	CH206BS	Engineering Chemistry Lab	0	0	3	1.5
7	EN207HS	English Language and Communication Skills Lab	0	0	2	1_
<u> </u>		Total Credits	12	3	8	19.0

II YEAR I SEMESTER

S. No.	Course Code	Course Title	L	Т	Р	Credits
1	MA301BS	Probability and Statistics & Complex Variables	3	1	0	4
2	ME302PC	Mechanics of Solids	3	1	0	4
3	ME303PC	Material Science and Metallurgy	3	0	0	3
4	ME304PC	Production Technology	3	0	0	3
5	ME305PC	Thermodynamics	3	1_	0	4
6	ME306PC	Production Technology Lab	0	0	2	11
7	ME307PC	Machine Drawing Practice	0	0	2	1
8	ME308PC	Material Science and Mechanics of Solids Lab	0	0	2	1
9	*MC309	Constitution of India	3	0	0	0
		Total Credits	18	3	6	21

II YEAR II SEMESTER

S. No.	Course Code	Course Title	L	Т	Р	Credits
. 1	EE401ES	Basic Electrical and Electronics Engineering	3_	1/0	0	3

2	ME402PC	Kinematics of Machinery	3	1	0	4
3	ME403PC	Thermal Engineering - I	3	1	0	4
3	ME404PC	Fluid Mechanics and Hydraulic Machines	3	1	0	4
5	ME405PC	Instrumentation and Control Systems	3	0	0	3
	EE409ES	Basic Electrical and Electronics Engineering Lab	0	0	2	1
6		Fluid Mechanics and Hydraulic Machines Lab	0	0	2	1
7	ME407PC		0	0	2	1
8	ME408PC	Instrumentation and Control Systems Lab	0		2	0
10	*MC409	Gender Sensitization Lab	<u> </u>	-	-	21
		Total Credits	15	3	8	21

III YEAR I SEMESTER

S. No.	Course	Course Title		T 85 W	Р	Credits
		Dynamics of Machinery	3	1	0	4
1	ME501PC		3	0	0	3
2	ME502PC	Design of Machine Members-I				<u> </u>
3	ME503PC	Metrology & Machine Tools	3_	0	0	3
4	SM504MS	Business Economics & Financial Analysis	3	0_	0	:: 3
-5	ME505PC	Thermal Engineering-II	3	0	0_	3
		Operations Research	3	0	0	3
6	ME506PC		0	0	2	1
7	ME507PC	Thermal Engineering Lab				
8	ME508PC	Metrology & Machine Tools Lab	i 0	0_	2	
9	ME509PC	Kinematics & Dynamics Lab	0	0_	2	1
10	*MC510	Intellectual Property Rights	3	0	0	0
10	MOSTO	Total Credits	21	1	6	22

III YEAR II SEMESTER

	R II SEMESTER	Course Title	L	T	Р	Credits
S. No	Course Code		3	0	0	3
1	ME601PC	Design of Machine Members-II			0	4
2	ME602PC	Heat Transfer	3	11.		
3	ME603PC	CAD & CAM	3	0	0	3
	MILEGOO, C	Professional Elective - I	3	,0	0	3
4		Open Elective - I	3	0	0	3
5			3	0	0	3
6	ME604PC	Finite Element Methods	0	0	2	1
7	ME605PC	Heat Transfer Lab		0	2	+
8	ME606PC	CAD & CAM Lab	0		 	+ 4
9	EN608HS	Advanced Communication Skills lab	0	0	2	
10	*MC609	Environmental Science	3	0	0	0 -
10	IVICOUS	Total Credits	21	1	6	22

IV YEAR I SEMESTER

S. No.	Course	Course Title	Ľ	Т	Р	Credits
	Code	Refrigeration & Air Conditioning	3	0	0	3
1	ME701PC	Professional Elective – II	3	0	0	3
2		Professional Elective – III	3	0	0	3
3		Professional Elective - IV	3	0	0	3
4		Open Elective -II	3	0	0_	3
5	ME702PC	Industrial Oriented Mini Project/ Summer Internship	0	0	0	2*
6	ME703PC	Seminar	0	16	2	1
1	WILL TOOL O	-	100	110		

1 -		ME704PC	Project Stage - I	0	0	6	3
8		WE/U4PC		15	0	12	21
			Total Credits	13	-		

IV YEAR II SEMESTER

S. No.	Course Code	Course Title	L.	Т	P	Credits
1	Code	Professional Elective – V	3	.0	0	3_
-		Professional Elective - VI	3	0	0	3
2		Open Elective - III	3	0	0	3
4	ME801PC	Project Stage - II	0	0	14	1-45
-		Total Credits	9	10	14	16

^{*}MC - Environmental Science - Should be Registered by Lateral Entry Students Only.

Note: Industrial Oriented Mini Project/ Summer Internship is to be carried out during the summer vacation between 6th and 7th semesters. Students should submit report of Industrial Oriented Mini Project/ Summer Internship for evaluation.

Professional Elec	tive - I	
ME611PE	Unconventional Machining Processes	
ME612PE	Machine Tool Design	
ME613PE	Production Planning & Control	

Professional Elective - II

Professional Elec	tive – II	7-2-23
ME741PE	Additive Manufacturing	
ME712PE	Automation in Manufacturing	
ME713PE	MEMS	

Professional Elective - III

Professional Elec	tive – III	
MEZ21PE	Power Plant/Engineering	
ME722PE	Automobile Engineering	
ME723PE	Renewable Energy Sources	

Professional Elective - IV

Professional Elec	ctive - IV	
MEZ31PE	Computational Fluid Dynamics	
ME732PE	Turbo Machinery	
ME733PE	Fluid!Power Systems	

Professional Elective - V

Professional Elec	tive – V	
ME811PE	Industrial Robotics	
ME812PE	Mechanical Vibrations	
MM813PE	Composite Materials	

Professional Elec	tive - VI	
ME821PE	Industrial Management	
ME822PE	Production and Operations Management	
ME823PE	Tribology	

^{*}MC - Satisfactory/Unsatisfactory

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD R18 B.TECH. List of Open Electives Applicable From 2018-19 Admitted Batch

	Mining Engineering	Eligineering.	Metallurgical and Materials	Petroleum Engineering				Mechatronics		Aeronautical Engineering	-	Mechanical Engineering	Engineering	Electrical and Electronics	Engineering	Electronics and Communication	Engineering	Electronics and Instrumentation		Technology	Engineering./ Information	Computer Science &		Civil Engineering	Branch
	Coal Gasffication, CBM & Shale Gas	11	lesting of Materials Alloy Steels	General Georgy	Capacial Caplage		Non-Conventional Energy Sources	1. Industrial Management	Decisions	Quantitative Analysis for Business	Decisions	Quantitative Analysis for Business	2. Renewable Energy Sources			Fundamentals of Internet of Things		Basics of Sensors Technology	8. Cyber Law & Ethics	Engineers	2. Fundamentals of Management for	1. Entrepreneurship	Management	Disaster Preparedness & Planning	III Yr II Sem Open Elective (OE - I)
	1000	Ш	2. Surface Engineering	A CONTRACTOR OF THE CONTRACTOR	Natural Gas Engineering	3. Basic Mechanical Engineering		1. Intellectual Property Rights		Basics of Aeronautical Engineering		Basic Mechanical Engineering	110	1. Outration of Electrical Energy		Ejectronic Sensors	Applications	Fundamentals of Biomedical	4. Java Programming	3. Python Programming		1. Data Structures		Remote Sensing & GIS	JV Yr I Sem Open Elective (OE - II)
7	2. Remote Sensing and GIS in Mining	1. Solid Fuel Technology	2. Light Metals and Alloys	High Temperature Materials	Green Fuel Technologies	3. Total Quality Management	Onlimization Techniques			Elements of Rocket Lippusion		Non-Collegical codices of circist	No Company Courses of energy	2. Energy Sources and Applications	4 Basics of Power Plant Engineering	Medaniil marrinding	Marchine Instruments	Basics of Allmandistration	4. Dalabase Management Cystems	o. ocupung Languages			21	Environmental impact Assessment	IV Yr II Sem Open Elective (OE - III)

^{*}Note: Students should take Open Electives from the List of Open Electives Offered by Other Departments/Branches Only.

B.Tech COURSE STRUCTURE (2016-17)
(Common for EEE, ECE, CSE, EIE, BME, IT, ETE, ECM, ICE)

TYEAR I SEMESTER

S. No	Course Code	Comment		_	,	
1	MA101BS	Course Title	L	T	P	Credits
2		Mathematics-I	-			Credits
	CH102BS	Engineering Chemistry	3		0	3
3	PH103BS	Engineering Physics-I	4	0	0	4
4	EN104HS	Professional Communication in English	3	0	0	
5	ME105ES	Engineering Mechanics	3	0	0	3
6	EE106ES	Basic Flectrical and Di	3	0	0	3
7	EN107HS	Basic Electrical and Electronics Engineering	4	0	0	
8	ME108ES	English Language Communication Skills Lab Engineering Workshop	0	0	3	2
9	*EA109MC	NSS Workshop	0	0	3	2
		Total Credits	0	0	0	0
		OT VIIIO	20	1	6	24

I YEAR II SEMESTER

S. No	Course					
	Code	Course Title	L	T	D	0 11
	PH201BS	Engineering Physics-II		^		Credits
2	MA202BS	Mathematics-II	3	0	0	3
3	MA203BS	Mathematics-III	_ 4	1	0	4
4	CS204ES	Computer Programming in C	4	1	0	4
5	ME205ES	Engineering Graphics	3	0	0	3
6	CH206BS	Engineering Chemistry Lab	2	0	4	4
7	PH207BS	Engineering Physics Lab	0	0	3	2
_ 8	CS208ES	Computer De-	0	0	3	2
	EA209MC	Computer Programming in C Lab NCC/NSO	0	0	3	2
		Total Credits	0	0	0	0
			16	2	13	24

* Mandatory Course.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD B.TECH. ELECTRONICS AND COMMUNICATION ENGINEERING COURSE STRUCTURE & SYLLABUS (2016-17)

II YEAR I SEMESTER

S. No.	Course					7.0
	Code	Course Title		T	P	Constitution
_1	MA301BS	Mathematics – IV		Ι.	1 '	Credits
2	EC302ES	Analog Electronics	4	1	0	4
3	EC303ES	Electrical Technology	4	1	0	4
4	EC304ES	Signals and Stochastic Process	4	1	0	4
5	EC305ES	Network Analysis	3	1	0	3
6	EC306ES	Electronic Devices and Circuits Lab	3	I	0	3
7	EC307ES	Basic Simulation Lab	0	0	3	2
8	EC308ES	Basic Electrical Engineering Lab	0	0	3	2
9	*MC300ES	Environmental Science and Technology	0	0	3	2
		Total Credits	3	0	0	0
		O. valid	21	5	9	24

II YEAR II SEMESTER

S. No.	Course					10
	Code	Course Title	1.	T	Р	Committee
1	EC401ES	Switching Theory and Logic Design		⊥ *	"	Credits
2	EC402ES	Pulse and Digital Circuits	3	1	0	3
3	EE404ES	Control Systems	4	0	0	4
4	EC405ES	Analog Communications	4	1	0	4
5	SM405MS	Business Economics 15:	4	0	0	4
6	EC406ES	Business Economics and Financial Analysis Analog Communications Lab	3	0	0	3
7	EC407ES	Pulse and Digital Circuits Lab	0	0	3	2
8	EC408ES	Analog Electronics Lab	0	0	3	2
9	*MC400HS	Gender Sensitization Lab	0	0	3	2
		Total Credits	0	0	3	0
			18	2	12	24

B.TECH. ELECTRICAL AND ELECTRONICS ENGINEERING III YEAR COURSE STRUCTURE & SYLLABUS (R16)

Applicable From 2016-17 Admitted Batch

III YEAR I SEMESTER

S. No.	Course	Course Title		700		
<u> </u>	Code		L	T	P	Credits
1	EE501PC	Electrical Measurements & Instrumentation	4		0	4
2	EE502PC	Power Systems - II	1 4	-	0	4
3	EI503PC	Microprocessors and Microcontrollers	4		-	4
4	SM504MS	Fundamentals of Management			0	4
5		Open Elective - I	3	0	0	3
6	PESOSDO		3	0	0	3
	EE505PC	Electrical Measurements & Instrumentation	0	0	3	2
		Lab				_
7	EE506PC	Basic Electrical simulation Lab	0	0	3	2
8	EI507PC	Microprocessors and Microcontrollers Lab	0	0	3	
9	*MC500HS	Professional Ethics	+		3	2
] 3	0	0	0
		Total Credits	21	3	9	24

III YEAR II SEMESTER

S. No.	Course Code	Course Title	L	Т	P	Credits
1 .	EE601PC	Power Systems Analysis	4	1	_	
2	EE602PC	Power Electronics	4	1	0	4
3	EE603PC	Switch Gear and Protection	4	1	0	4
4		Open Elective - II	1 3	0	0	4
5		Professional Elective - I	1 3	0	0	3
6	EE604PC	Power Systems Lab	0	0	2	2
7	EE605PC	Power Electronics Lab	0	0	2	$\frac{2}{2}$
8	EN606HS	Advanced English Communication Skills Lab	0	0	3	2
		Total Credits	18	3	9	24

During Summer Vacation between III and IV Years: Industry Oriented Mini Project

Professional Elective - I (PE - I):

EM611PE	Computer Organization
EE612PE	Linear Systems Analysis
EE613PE	Linear and Digital IC Applications
EE614PE	Electrical and Electronics Instrumentation

^{*}Open Elective subjects' syllabus is provided in a separate document.

Ex: - A Student of Mechanical Engineering can take Open Electives from all other departments/branches except Open Electives offered by Mechanical Engineering Dept.

^{*}Open Elective - Students should take Open Electives from the List of Open Electives Offered by Other Departments/Branches Only.

B.TECH. ELECTRONICS AND COMMUNICATION ENGINEERING IV YEAR COURSE STRUCTURE & SYLLABUS (R16)

Applicable From 2016-17 Admitted Batch

IV YEAR I SEMESTER

S.No.	Course			,		
5.110.	Code	Course Title	L	T	P	Credits
1	EC701PC	Microwave Engineering		 	<u> </u>	Cicuits
2		Professional Elective - II	4	0	0	4
3		Professional Elective - III	3	0	0	9.3
4	-	Professional Elective - IV	3	0	0	3
5	EC702PC	VLSI Design	3	0	0	3
6	EC703PC	VLSI and E-CAD Lab	4	0	0	4
7	EC704PC	Microwave Engineering Lab	0	0	3	2
8	EC705PC	Industry Oriented Mini Project	0	0	3	2
9	EC706PC	Seminar	0	0	3	2
-		Total Credits	0	0	2	1
		Total Cicuits	17	0	11	24

IV YEAR II SEMESTER

S.No.	Course				1 100	
	Code	Course Title	L	T	P	Credits
1		Open Elective - III		 _		0.00113
_ 2		Professional Elective -V	3	0	0	3
3		Professional Elective -VI	3	0	0	3
4	EC801PC	Major Project	_ 3	0	0	3
		Total Credits	0	0	30	15
		Total Credits	9	0	30	24

Professional Elective - I

ÆC611PE	Computer organization and operating system
	Digital Image Processing
EC613PE	Spread Spectrum Communications
EC614PE	Digital system Design
	, and the second

Professional Elective - II

EC721PE	Computer Networks
EC722PE	Telecommunication Switching Systems and Networks
The second secon	RF Circuit Design
EC724PE	Artificial Neural Networks
Andrew Market	The state of the s

Professional Elective - III

EC731PE	Cellular and Mobile Communications
EC732PE	Electronics Measurements and Instrumentation
EC733PE	EMI and EMC
	Object Oriented Programming through JAVA
	1.0g. anning urough JAVA

Professional Elective - IV

EC741PE	Optimization Techniques	
EC742PE	Embedded System Design	
EC743PE	Satellite Communications	
EC744PE	Network Security and Cryptography	
	critical and Cryptography	

Professional Elective - V

EC851PE	Optical Communications
EC852PE	Wireless Communications and Networks
EC853PE	Design of Fault Tolerant Systems
EC854PE	Bio Medical Instrumentation

Professional Elective -VI

EC861PE	Radar Systems
	Coding Theory and Techniques
EC863PE	Database Management Systems
EC864PE	Global Positioning System

^{*}Open Elective subjects' syllabus is provided in a separate document.

*Open Elective - Students should take Open Electives from the List of Open Electives Offered by Other Departments/Branches Only.

Ex: - A Student of Mechanical Engineering can take Open Electives from all other departments/branches except Open Electives offered by Mechanical Engineering Dept.

LIST OF OPEN ELECTIVES OFFERED BY VARIOUS DEPARTMENTS FOR R16 B.TECH. ALL YEARS

S. No			Open Elective - II
1	Aeronautical Engg.	(Semester – V)	(Semester – VI)
_	Ties station Lings.	AE5110E: Introduction	I IIII OGGOTIOII L
2	Automobile Engg.	to Space Technology	Aerospace Engineering
_	Tatemosiic Eligg.	CE5110E: Disaster	MT621OE: Data
	1	Management	Structures
		MT512OE: Intellectual	MT622OE: Artificial
3	Biomedical Engg.	Property Rights	Neural Networks
_	S.o.nedicai Liigg.	BM5110E: Reliability	BM6210E: Medical
4	Civil Engg.	Engineering	Electronics
	Civil Eligg.	CE511OE: Disaster	CE621OE: Remote
		Management.	Sensing and GIS
			CE622OE: Geo-
			Informatics
		1	CE623OE: Intellectual
5	Civil and Environmental	2721	Property Rights
,		CE511OE: Disaster	CN621OE: Environmenta
	Engg.	Management	Impact Assessment
		1000	CE623OE: Intellectual
5	0		Property Rights
)	Computer Science and	CS511OE: Operating	CS621OE: Java
	Engg. / Information	Systems	Programming
	Technology	CS512OE: Database	CS622OE: Software
		Management Systems	Testing Methodologies
· ·	El .		CS623OE: Cyber Security
	Electronics and	EC511OE: Principles of	EC621OE: Principles of
	Communication Engg. /	Electronic	Computer
	Electronics and Telematics	Communications	Communications and
	Engg.		Networks
	Electronics and Computer	EM511OE: Scripting	EM621OE: Soft
	Engg.	Languages	Computing Techniques
	Electrical and Electronics	EE511OE: Non-	EE621OE: Design
	Engg.	Conventional Power	Estimation and Costing of
		Generation	Electrical Systems
		EE512OE: Electrical	EE622OE: Energy Storage
- 1		Engineering Materials	Systems Systems
		EE5130E:	EE623OE: Introduction to
_		Nanotechnology	Mechatronics
) .	Electronics and	EI511OE: Electronic	EI621OE: Industrial
	Instrumentation Engg.	Measurements and	Electronics
		Instrumentation	Directionic2
	Mechanical Engg.	ME511OE:	MEGNOE, W. LLOI
	36.	Optimization	ME621OE: World Class
		Techniques	Manufacturing ME622OE: Fundamentals
	No.	mindaea	IVICO//LIE' Elindomento c

		ME512OE: Computer Graphics ME513OE: Introduction to Mechatronics ME514OE: Fundamentals of	ME623OE: Fabrication Processes
12	Mala in IE and the interest	Mechanical Engineering	
12	Mechanical Engg. (Material	NT5110E: Fabrication	NT6210E: Introduction to
	Science and	Processes	Material Handling
	Nanotechnology)	NT512OE: Non	NT622OE: Non-
		destructive Testing	Conventional Energy
		Methods	Sources
		NT5130E:	NT623OE: Robotics
		Fundamentals of	
12	14 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Engineering Materials	
13	Mechanical Engg.	MT511OE: Analog and	MT621OE: Data
	(mechatronics)	Digital I.C. Applications	Structures
		MT512OE: Intellectual	MT622OE: Artificial
		Property Rights	Neural Networks
		MT513OE: Computer	MT623OE: Industrial
		Organization	Management
14	Metallurgical and Materials	MM5110E: Materials	MM621OE: Science and
	Engg.	Characterization	Technology of Nano
		Techniques	Materials
	d.		MM622OE: Metallurgy of
			Non Metallurgists
15	Mining Engg.	MN5110E: Introduction	MN621OE: Coal
		to Mining Technology	Gasification, Coal Bed
			Methane and Shale Gas
16	Petroleum Engg.	PE5110E: Materials	PE621OE: Energy
		Science and Engineering	Management and
	1	PE512OE: Renewable	Conservation
		Energy Sources	PE622OE: Optimization
		PE513OE:	Techniques
		Environmental	PE623OE:
		Engineering	Entrepreneurship and
			Small Business
	=		Enterprises
		L	Direct ht 1969

S. No.	Name of the Department Offering Open Electives	Open Elective –III (Semester – VIII)
1	Aeronautical Engg.	AE831OE: Air Transportation Systems
		AE832OE: Rockets and Missiles
2	Automobile Engg.	AM8310E: Introduction to Mechatronics
		AM832OE: Microprocessors and Microcontrollers
3	Biomedical Engg.	BM8310E: Telemetry and Telecontrol
		BM832OE: Electromagnetic Interference and
	1	Compatibility
4	Civil Engg.	CE831OE: Environmental Impact Assessment

		CE832OE: Optimization Techniques in Engineering
		CE833OE: Entrepreneurship and Small Business
-		Enterprises
5	Civil and Environmental	CN831OE: Remote Sensing and GIS
	Engg.	CE833OE: Entrepreneurship and Small Business
		Enterprises
6	Computer Science and	CS831OE: Linux Programming
	Engg. / Information	CS832OE: R Programming
	Technology	CS833OE: PHP Programming
7	Electronics and	EC831OE: Electronic Measuring Instruments
	Communication Engg. /	The state of the s
	Electronics and Telematics	
-	Engg.	
8	Electronics and Computer	EM8310E: Data Analytics
	Engg.	
9	Electrical and Electronics	EE831OE: Entrepreneur Resource Planning
	Engg.	EE832OE: Management Information Systems
		EE833OE: Organizational Behaviour
10	Electronics and	El831OE: Sensors and Transducers,
	Instrumentation Engg.	E1832OE: PC Based Instrumentation
11	Mechanical Engg.	ME831OE: Total Quality Management
		ME832OE: Industrial Safety, Health, and
	40	Environmental Engineering
	V	ME833OE: Basics of Thermodynamics
10		ME8340E: Reliability Engineering
12	Mechanical Engg. (Material	NT8310E: Concepts of Nano Science And
	Science and	Technology
	Nanotechnology)	NT832OE: Synthesis of Nanomaterials
	•	NT833OE: Characterization of Nanomaterials
13	Mechanical Engg.	MT831OE: Renewable Energy Sources
	(mechatronics)	MT832OE: Production Planning and Control
	0	CE833OE: Entrepreneurship and Small Business
		Enterprises
14	Metallurgical and Materials	MM831OE: Design and Selection of Engineering
6	Engg.	Materials
5	Mining Engg.	MN831OE: Solid Fuel Technology
	7.00	MN832OE: Health & Safety in Mines
6	Petroleum Engg.	PE831OE: Disaster Management
		PE832OE: Fundamentals of Liquefied Natural Gas
		PE833OE: Health, Safety and Environment in
ı		Petroleum Industry

^{*}Open Elective – Students should take Open Electives from List of Open Electives Offered by Other Departments/Branches Only.

Ex: - A Student of Mechanical Engineering can take Open Electives from all other departments/branches except Open Electives offered by Mechanical Engineering Dept.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD B.Tech. in ELECTRONICS AND COMMUNICATION ENGINEERING COURSE STRUCTURE & SYLLABUS (R18)

Applicable From 2018-19 Admitted Batch

I YEAR I SEMESTER

S. No.	Course Code	Course Title	L	Т	Р	Credits
1	MA101BS	Mathematics - I	3	1	0	4
2	AP102BS	Applied Physics	3	1	0	4
3	CS103ES	Programming for Problem Solving	3	1	0	4
4	ME104ES	Engineering Graphics	1	0	4	3
5	AP105BS	Applied Physics Lab	0	0	3	1.5
6	CS106ES	Programming for Problem Solving Lab	0	0	3	1.5
. 7	*MC109ES	Environmental Science	3	0	0	0
		Induction Programme			$\overline{}$	
		Total Credits	13	3	10	18

I YEAR II SEMESTER

S. No.	Course Code	Course Title	L	Т	Р	Credits-
1	MA201BS	Mathematics - II	3	1	0	4
2	CH202BS	Chemistry	3	1	0	4
3	EE203ES	Basic Electrical Engineering	3	0	0	3
4	ME205ES	Engineering Workshop	1	0	3	2.5
5	EN205HS	English	2	0	0	2
6	CH206BS	Engineering Chemistry Lab	0	0	3	1.5
_ 7	EN207HS	English Language and Communication Skills Lab	0	0	2	1
8	EE208ES	Basic Electrical Engineering Lab	0	0	2	1
		Total Credits	12	2	10	19

II YEAR I SEMESTER

S. No.	Course Code	. Course Title	L	Т	Р	Credits
1	EC301PC	Electronic Devices and Circuits	3	1	0	4
2	EC302PC	Network Analysis and Transmission Lines	3	0	0	3
3	EC303PC	Digital System Design	3	1	0	4
4	EC304PC	Signals and Systems	3	1	0	4
5	EC305ES	Probability Theory and Stochastic Processes	3	0	0	3
6	EC306PC	Electronic Devices and Circuits Lab	0	0	2	1
7	EC307PC	Digital System Design Lab	0	0	2	1
8	EC308ES	Basic Simulation Lab	0	0	2	1
9	*MC309	Constitution of India	3	0	0	0
		Total Credits	18	3	6	21

II YEAR II SEMESTER

S. No.	Course Code	Course Title	L	Т	Р	Credits
1	MA401BS	Laplace Transforms, Numerical Methods & Complex Variables	3	1	0	4
2	EC402PC	Electromagnetic Fields and Waves	3	0	0	3

			014	101	שטזו	KABAD
. 3	EC403PC	Analog and Digital Communications				
4	EC404PC	Linear IC Applications	3	1	0	4
5	EC405PC	Electronic Circuit Analysis	3	0	0	3
6	EC406PC	Analog and Digital Communications Lab	3	0	0	3
	EC407PC) 10 Applications I an	0	0	3	1.5
8	EC408PC	Electronic Circuit Analysis Lab	0	0	3	1.5
9	*MC409	Gender Sensitization Lab	0	0	2	1
		Total Credits	0	0	2	0
410.04			15	2	10	21
III YEA	RISEMESTER					

S. No.	Course Code	Course Title				,
1	EC501PC	Microprocessors & Microcontrollers		T	Р	Credits
2	EC502PC	Data Communications and Networks	3	1	0	4
3	EC503PC	Control Systems	3	1	0	4
4	SM504MS	Business Economics & Financial Analysis	3	1	0	4
5		Professional Elective - I	3	0	0	3
6	EC505PC	Microprocessors & Microcontrollers Lab	3	0	0	3
7	EC506PC	Data Communications and Networks Lab	0	0	3	1.5
8	EN508HS	Advanced Communication Skills Lab	0	0	3	1.5
9	*MC510	Intellectual Property Rights	0	0	2	1
T		Total Credits	3	0	0	0
	O II CEMEOTE		18	3	8	22

III YEAR II SEMESTER

S. No.	Course Code	Course Title	Τ.	T	1	T
1	EC601PC	Antennas and Propagation	-	T	P	Credits
2	EC602PC	Digital Signal Processing	3	1	0	4
3	EC603PC	VLSI Design	3	1	0	4
4		Professional Elective - II	3	1	0	4
5		Open Elective - I	3	0	0	3
6	EC604PC	Digital Signal Processing Lab	3	0	0	3
7	EC605PC	e ~ CAD Lab	0	0	3	1.5
8	EC606PC	Scripting Languages Lab	0	0	3	1.5
9	*MC609	Environmental Science	0	0	2	1
		Total Credits	3	0	0	0
		anico	18	3	8	22

IV YEAR I SEMESTER

S. No.	Course					
	Code	Course Title	1,	-		
1	EC701PC	Microwave and Optical Communications		1.	P	Credits
_2		Professional Elective – III	3	0	0	3
3		Professional Elective – IV	3	0	0	3
4		Open Elective - II	3	0	0	3
5	SM702MS	Professional Practice, Law & Ethics	3	0	0	3
6	EC703PC	Microwave and Optical S	2	0	0	2
7	EC704PC	Microwave and Optical Communications Lab	0	0	2	1
8	EC705PC	Industrial Oriented Mini Project/ Summer Internship Seminar	0	0	-0	2*
9	EC706PC	Project Stage - I	0	0	2	1
		Total Credits	0	0	6	3
1-5-79-10		tal Glodita	14	0	10	21

IV YEAR II SEMESTER

S. No.	Course Code	Course Title	l L	T	Р	Credits
1		Professional Elective - V	3	0	0	3
2		Professional Elective - VI	3	0	0	3
3		Open Elective - III	3	0	ō	3
4	EC801PC	Project Stage - II	0	0	14	7
		Total Credits	9	0	14	16

^{*}MC - Environmental Science - Should be Registered by Lateral Entry Students Only.

Note: Industrial Oriented Mini Project/ Summer Internship is to be carried out during the summer vacation between 6th and 7th semesters. Students should submit report of Industrial Oriented Mini Project/ Summer Internship for evaluation.

Professional Elective - I

EC511PE	Computer Organization & Operating Systems	
EC512PE	Error Correcting Codes	
EC513PE	Electronic Measurements and Instrumentation	

Professional Elective - II

EC611PE	Object Oriented Programming through Java
EC612PE	Mobile Communications and Networks
	Embedded System Design

Professional Elective - III

EC711PE	Artificial Neural Networks
EC712PE	Scripting Languages
EC713PE	Digital Image Processing

Professional Elective - IV

EC721PE	Biomedical Instrumentation	
EC722PE	Database Management Systems	
EC723PE	Network Security and Cryptography	

Professional Elective - V

EC811PE	Satellite Communications	
EC812PE	Radar Systems	
EC813PE	Wireless Sensor Networks	

Professional Elective - VI

EC821PE	System on Chip Architecture	
EC822PE	Test and Testability	
EC823PE	Low Power VLSI Design	

^{*}MC - Satisfactory/Unsatisfactory

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD R18 B.TECH. List of Open Electives Applicable From 2018-19 Admitted Batch

Branch	III Yr II Sem Open Elective (OE - I)	IV Yr I Sem Open Elective (OE – II)	IV Yr II Sem Open Elective (OE – III)
Civil Engineering	Disaster Preparedness & Planning	Remote Sensing & GIS	EUALOHIIGHUM IIIIbact Vaseasineur
	Management		
Computer Science &	1. Entrepreneurship	1. Data Structures	1. Machine Learning
Comparing / Information		2. Artificial Intelligence	2. Mobile Application Development
Tochrology		3. Python Programming	3. Scripting Languages
	3. Cyber Law & Ethics	4. Java Programming	4. Database Management Systems
Electronics and Instrumentation	25	Fundamentals of Biomedical	Basics of Virtual Instrumentation
Engineering		Applications	
Electronics and Communication	Fundamentals of Internet of Things	Electronic Sensors	Measoning
Engineering			1 Basics of Dower Plant Engineering
Electrical and Electronics	Reliability Engineering Renewable Energy Sources	Chilization of Electrical Energy Electric Drives and Control	2. Energy Sources and Applications
Mechanical Engineering	Quantitative Analysis for Business	Basic Mechanical Engineering	Non-Conventional Sources of energy
	Decisions		
Aeronautical Engineering	Quantitative Analysis for Business	Basics of Aeronautical Engineering	Elements of Rocket Flopulsion
	Decisions		
Mechatronics	1. Industrial Management	1. Intellectual Property Rights	1. Fundamentals of Robotics
	2. Non-Conventional Energy Sources	2. Principles of Entrepreneurship	Ontimization Techniques
		3. Basic Mechanical Engineering	3. Total Quality Management
Detroleum Engineering	General Geology	Natural Gas Engineering	Green Fuel Technologies
Metallurgical and Materials	1. Testing of Materials	1. Engineering Materials	
Engineering		2. Surface Engineering	2. Light Metals and Alloys
Mining Engineering	Introduction to Mining Technology Coal Gasification, CBM & Shale	 Health & Safety in Mines Material Handling in Mines 	 Solid Fuel Lechnology Remote Sensing and GIS in Mining

^{*}Note: Students should take Open Electives from the List of Open Electives Offered by Other Departments/Branches Only.



B.Tech COURSE STRUCTURE (2016-17)
(Common for EEE, ECE, CSE, EIE, BME, IT, ETE, ECM, ICE)

I YEAR I SEMESTER

S. No	Course Code	Course Title	L	T	P	Credits
1	MA101BS	Mathematics-I	3	1	0_	3
$\frac{1}{2}$	CH102BS	Engineering Chemistry	4	0	0	4
	PH103BS	Engineering Physics-I	3	0	0	3
3		Professional Communication in English	3	0	0	3
4	EN104HS	Engineering Mechanics	3	0	0	3
5	ME105ES	Basic Electrical and Electronics Engineering	4	0	0	4
6	EE106ES	English Language Communication Skills Lab	0	0	3	2
	EN107HS	English Language Communication Dame 245	0	0	3	2
8	ME108ES	Engineering Workshop	0	0	0	0
9	*EA109MC	NSS	20	1	6	24
		Total Credits	1 20	_ <u>,</u>	10	47

I YEAR II SEMESTER

S. No	Course	Course Title	L	T	P	Credits
	Code	Engineering Physics-II	3	0	0	3
<u> </u>	PH201BS	Mathematics-II	4	1	0	4
. 2	MA202BS		4	1	0	4
3	MA203BS	Mathematics-III	3	0	0	3
4	CS204ES	Computer Programming in C	2	0	4	4
5	ME205ES	Engineering Graphics	0	0	3	2
6	CH206BS	Engineering Chemistry Lab	$\frac{0}{0}$	0	3	2
7	PH207BS	Engineering Physics Lab			3	2
8	CS208ES	Computer Programming in C Lab	0	0	-	1 2
9	*EA209MC	NCC/NSO	0	0	0	1 0
		Total Credits	16	2	13	24

* Mandatory Course.

B.TECH. COMPUTER SCIENCE AND ENGINEERING

COURSE STRUCTURE & SYLLABUS (2016-17)

II YEAR I SEMESTER

S. No	Course Code	Course Title	L	т	P	Credits
- I	MA301BS	Mathematics – IV	4	1	0	4
2	CS302ES	Data Structures through C++	4	0	0	4
3	CS303ES	Mathematical Foundations of Computer Science	4	0	0	4
4	CS304ES	Digital Logic Design	3	0	0	3
5	CS305ES	Object Oriented Programming through Java	3	0_	0	3
6	CS306ES	Data Structures through C++ Lab	0	0	3	2
7	CS307ES	IT Workshop	0	0	3	2
8	CS308ES	Object Oriented Programming through Java Lab	0	0	3	2
9	* MC300ES	Environmental Science and Technology	3	0	0	0
		Total Credits	21	1	9	24

II YEAR II SEMESTER

S. No	Course Code	Course Title	L	Т	P	Credits
1	CS401BS	Computer Organization	4	0	0	4
2	CS402ES	Database Management Systems	4	0	0	4
3	CS403ES	Operating Systems	4	0	0	4 /
4	CS404ES	Formal Languages and Automata Theory	3	0	0	3
5	SM405MS	Business Economics and Financial Analysis	3	0	0	3
6	CS406ES	Computer Organization Lab	0	0	3	2
7	CS407ES	Database Management Systems Lab	0	0	3	2
8	CS408ES	Operating Systems Lab	0	0	3	2
- 9	* MC400HS	Gender Sensitization Lab	0	0	3	0
	,	Total Credits	18	0	12	24

^{*} Satisfactory/Unsatisfactory

B.TECH. COMPUTER SCIENCE AND ENGINEERING III YEAR COURSE STRUCTURE & SYLLABUS (R16)

Applicable From 2016-17 Admitted Batch

HI YEAR I SEMESTER

S. No	Course Code	Course Title	L	Т	P	Credits
-				<u> </u>		
1	CS501PC	Design and Analysis of Algorithms	4	0_	0	4
2	CS502PC	Data Communication and Computer Networks	4	0	0	4
3	CS503PC	Software Engineering	4	0_	0	4
4	SM504MS	Fundamentals of Management		0	0	3
5		Open Elective –I	.3	0	0	3
. 6	CS505PC	Design and Analysis of Algorithms Lab		0	3	2
7	CS506PC	Computer Networks Lab		0	3	_2
8	CS507PC	Software Engineering Lab		0	3	2
9	*MC500HS	Professional Ethics		0	0	0
		Total Credits	21	0	9	24

III YEAR II SEMESTER

S. No	Course Code	Course Title		Т	P	Credits
1	CS601PC	Compiler Design	4	0	0	4
2	CS602PC	Web Technologies	4	0	0	4
3	CS603PC	Cryptography and Network Security		0	0	4
4		Open Elective-II	3	0	0	3
5		Professional Elective-I		0	0	3
6	CS604PC	Cryptography and Network Security Lab		0	3	2
7	CS605PC	Web Technologies Lab		0	3	2
8	EN606HS	Advanced English Communication Skills Lab		0	3	2
		Total Credits	18	0	9	24

During Summer Vacation between III and IV Years: Industry Oriented Mini Project

B.TECH. COMPUTER SCIENCE AND ENGINEERING IV YEAR COURSE STRUCTURE & SYLLABUS (R16)

Applicable From 2016-17 Admitted Batch

IV YEAR I SEMESTER

S. No	Course Code	Course Title		T	P	Credits
1	CS701PC	Data Mining	4	0	0	4
2	CS702PC	Principles of Programming Languages	4	0	0	4
3	III	Professional Elective – II	3	0	: 0	3
4		Professional Elective – III	3	0	0	3
5		Professional Elective – IV	3	0	0	3
6	CS703PC	Data Mining Lab	0	0	3	_2
7		PE-II Lab #	I Lab # 0 0 3		2	
- 0	CS751PC	Python Programming Lab				
	CS752PC	Mobile Application Development Lab		 		
	CS753PC	Web Scripting Languages Lab				
	CS754PC	Internet of Things Lab				
8	CS705PC	Industry Oriented Mini Project 0 0 3			2	
9	CS706PC	Seminar 0 0 2		2	11	
		Total Credits	17	0_	11	24

[#] Courses in PE - II and PE - II Lab must be in 1-1 correspondence.

IV YEAR II SEMESTER

S. No	Course Code	Course Title	L	T_	P	Credits
1		Open Elective – III	3_	0	0	3
2		Professional Elective – V	3	0	0	3
3		Professional Elective – VI	3_	0	0	3
4	CS801PC	Major Project	0	0_	30	15
	8	Total Credits	9	0	30	24

Professional Elective - I

CS611PE	Mobile Computing
CS612PE	Design Patterns
CS613PE	Artificial Intelligence
CS614PE	Information Security Management (Security Analyst - I)
CS615PE	Introduction to Analytics (Associate Analytics - I)

Professional Elective - II

CS721PE	Python Programming			
CS722PE	Mobile Application Development			
CS723PE	Web Scripting Languages			
CS724PE	Internet of Things			

Professional Elective - III

CS731PE	Graph Theory
CS732PE	Distributed Systems
CS733PE	Machine Learning
CS734PE	Software Process and Project Management

Professional Elective - IV

CS741PE	Computational Complexity
CS742PE	Cloud Computing
CS743PE	Blockchain Technology
CS744PE	Social Network Analysis

Professional Elective - V

CS851PE	Information Theory & Coding
CS852PE	Real-Time Systems
CS853PE	Data Analytics
CS854PE	Modern Software Engineering

Professional Elective - VI

CS861PE	Advanced Algorithms
CS862PE	Web Services and Service Oriented Architecture
CS863PE	Computer Forensics
CS864PE	Neural Networks and Deep Learning

^{*}Open Elective subjects' syllabus is provided in a separate document.

*Open Elective – Students should take Open Electives from the List of Open Electives Offered by Other Departments/Branches Only.

Ex: - A Student of Mechanical Engineering can take Open Electives from all other departments/branches except Open Electives offered by Mechanical Engineering Dept.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD LIST OF OPEN ELECTIVES OFFERED BY VARIOUS DEPARTMENTS FOR B.TECH. III AND IV YEARS

S. No.	Name of the Departmen		Open Elective – II
1	Offering Open Electives	(Semester – V)	(Samestan VI)
-	Aeronautical Engg.	AE5110E: Introduct	ion AE621OE: Introduction
2	I And I II	to Space Technology	S. Introduction
4	Automobile Engg.	CE5110E: Disas	Aerospace Engineering
		Management	1 4Th con on
]	MT512OE: Intellect	MT622OE: Artificia
		Property Rights	ual Neural Networks
3	Biomedical Engg.	BM5110E: Reliabil	ity DMC210B
		Engineering	Tricule.
4	Civil Engg.	and the same of th	Electronics
- 1	- ,	Management. Disas	TCITIOL
1		wanagement.	Sensing and GIS
		1	CE622OE: Geo-
- 4		j	Informatics
		ļ	CE623OE: Intellectua
5	Civil and Environmenta		Property Rights
1	THAT THAT OF THE		er CN6210E: Environmental
	Engg.	Management	Impact Assessment
			CE623OE: Intellectual
5			Property Rights
	Computer Science and Engg.	CS511OE: Operatin	Contain
/	/ Information Technology	Systems	- Java
	<u> </u>	CS512OE: Databas	Programming
· }	•	Management Systems	John Sonware
	<u> </u>	Tranagement Systems	Testing Methodologies
I	Electronics and	ECSLICE: Daine: 1	CS623OE: Cyber Security
	Communication Engg. /	EC511OE: Principles o	
E	Electronics and Telematics		Computer Communications
E	ingg.	Communications	and Networks
	11	777	
	dectronics and Computer ingg.	EM5110E: Scripting	EM621OE: Soft
-\ \ \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	1	Languages	Computing Techniques
		EE5110E: Non-	EE6210E: Design
15	ngg.	Conventional Power	
	•	Generation	Electrical Systems
		EE512OE: Electrical	EE622OF, Email
		Engineering Materials	EE622OE: Energy Storage Systems
- 1		EE513OE:	
		Nanotechnology	EE623OE: Introduction to
	ectronics and		Mechatronics
Ins		110	EI621OE: Industrial
		Measurements and	Electronics
Me	echanical Engg.	Instrumentation	
		ME5110E: Optimization	ME6210E: World Class
		Techniques	Manufacturing
		ME512OE: Computer	ME622OE: Fundamentals
		Graphics	of Robotics
		ME513OE: Introduction) (D(O) O)
	50 (100)	- Introduction	ME623OE: Fabrication

		1.450.00	
	21	ME512OE: Computer	ME623OE: Fabrication
		Graphics	Processes
ĺ		ME5130E: Introduction	
.,	33	to Mechatronics	
970		ME514OE:	
		Fundamentals of	
1.		Mechanical Engineering	
12	Mechanical Engg. (Material	NT511OE: Fabrication	NT621OE: Introduction to
	Science and	Processes	Material Handling
	Nanotechnology)	NT512OE: Non	NT622OE: Non-
ľ	· · · · · · · · · · · · · · · · · · ·	destructive Testing	Conventional Energy
		Methods	Sources Sources
		NT513OE:	
			NT623OE: Robotics
	8	Fundamentals of	
13	Medada	Engineering Materials	
13	Mechanical Engg.	MT5110E: Analog and	MT621OE: Data
	(mechatronics)	Digital I.C. Applications	Structures
ŀ		MT512OE: Intellectual	MT622OE: Artificial
	1	Property Rights	Neural Networks
ĺ		MT513OE: Computer	MT623OE: Industrial
1925		Organization	Management
<u> </u>	<u> </u>		
14	Metallurgical and Materials	MM5110E: Materials	MM621OE: Science and
	Engg.	Characterization	Technology of Nano
	}	Techniques	Materials
			MM622OE: Metallurgy of
	88	19	Non Metallurgists
15	Mining Engg.	MN511OE: Introduction	MN6210E: Coal
]	to Mining Technology	Gasification, Coal Bed
		to wining reciniology	
16	Petroleum Engg.	DESTION Metalists	Methane and Shale Gas
10	r choleum Engg.	PE5110E: Materials	PE621OE: Energy
		Science and Engineering	Management and
		PE512OE: Renewable	Conservation
		Energy Sources	PE622OE: Optimization
		PE513OE:	Techniques
		Environmental	PE623OE:
12.		Engineering	Entrepreneurship and
			Small Business
	00		Enterprises
			2.1.31 7/1000

S. No.	Name of the Department Offering Open Electives	Open Elective –III (Semester – VIII)
1	Aeronautical Engg.	AE8310E: Air Transportation Systems
		AE832OE: Rockets and Missiles
2	Automobile Engg.	AM831OE: Introduction to Mechatronics
		AM832OE: Microprocessors and Microcontrollers
3	Biomedical Engg.	BM831OE: Telemetry and Telecontrol
		BM832OE: Electromagnetic Interference and
		Compatibility
4	Civil Engg.	CE831OE: Environmental Impact Assessment

		
		CE832OE: Optimization Techniques in Engineering
		CE833OE: Entrepreneurship and Small Business
		Enterprises
5	Civil and Environmental	CN831OE: Remote Sensing and GIS
	Engg.	CE833OE: Entrepreneurship and Small Business
		Enterprises
6	Computer Science and	CS831OE: Linux Programming
	Engg. / Information	CS832OE: R Programming
	Technology	CS833OE: PHP Programming
7	Electronics and	EC831OE: Electronic Measuring Instruments
ĺ	Communication Engg. /	
0.	Electronics and Telematics	
	Engg.	
8	Electronics and Computer	EM831OE: Data Analytics
	Engg.	
9	Electrical and Electronics	EE8310E: Entrepreneur Resource Planning
	Engg.	EE832OE: Management Information Systems
		EE833OE: Organizational Behaviour
10	Electronics and	EI831OE: Sensors and Transducers,
	Instrumentation Engg.	EI832OE: PC Based Instrumentation
11	Mechanical Engg.	ME831OE: Total Quality Management
		ME832OE: Industrial Safety, Health, and
- 5	1	Environmental Engineering
		ME833OE: Basics of Thermodynamics
	<u> </u>	ME834OE: Reliability Engineering
12	Mechanical Engg. (Material	NT831OE: Concepts of Nano Science And
	Science and	Technology
	Nanotechnology)	NT832OE: Synthesis of Nanomaterials
300		NT833OE: Characterization of Nanomaterials
13	Mechanical Engg.	MT831OE: Renewable Energy Sources
	(mechatronics)	MT832OE: Production Planning and Control
	i i	CE833OE: Entrepreneurship and Small Business
	<u> </u>	Enterprises
14	Metallurgical and Materials	MM8310E: Design and Selection of Engineering
	Engg.	Materials
15	Mining Engg.	MN831OE: Solid Fuel Technology
		MN832OE: Health & Safety in Mines
16	Petroleum Engg.	PE8310E: Disaster Management
		PE832OE: Fundamentals of Liquefied Natural Gas
		PE833OE: Health, Safety and Environment in
		Petroleum Industry
_	<u> </u>	1 Ciroleum muusii y

^{*}Open Elective – Students should take Open Electives from List of Open Electives Offered by Other Departments/Branches Only.

Ex: - A Student of Mechanical Engineering can take Open Electives from all other departments/branches except Open Electives offered by Mechanical Engineering Dept.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD B.Tech. in COMPUTER SCIENCE AND ENGINEERING COURSE STRUCTURE & SYLLABUS (R18)

Applicable From 2018-19 Admitted Batch

I YEAR I SEMESTER

S. No.	Course	Course Title		-		
	Code		-	!	P	Credits
1	MA101BS	Mathematics - I	3	1	0	4
2	CH102BS	Chemistry	3	1	0	4
3	EE103ES	Basic Electrical Engineering	3	0	0	3
4	ME105ES	Engineering Workshop	1	0	3	2.5
5	EN105HS	English	2	0	0	2.0
6	CH106BS	Engineering Chemistry Lab	0	0	3	1.5
7	EN107HS	English Language and Communication Skills Lab	0	0	2	1
8	EE108ES	Basic Electrical Engineering Lab	0	0	2	1
		Induction Programme	+ -		_	-
		Total Credits	12	2	10	19

I YEAR II SEMESTER

S. No.	Course Code	Course Title	L	Т	Р	Credits
1	MA201BS	Mathematics - II	3	1	0	1
2	AP202BS	Applied Physics	3	+	0	4
3	CS203ES	Programming for Problem Solving	3	1	0	7
4	ME204ES	Engineering Graphics	1	0	4	3
5	AP205BS	Applied Physics Lab	- 0	0	3	1.5
6	CS206ES	Programming for Problem Solving Lab	0	0	3	1.5
.7.	*MC209ES	Environmental Science	3	0	-	0
		Total Credits	13	3	10	18

II YEAR I SEMESTER

S. No.	Course Code	Course Title	L	Т	Р	Credits
1	CS301ES	Analog and Digital Electronics	3	0	0	3
2	CS302PC	Data Structures	3	1	0	4
3	MA303BS	Computer Oriented Statistical Methods	3	1	0	4
4	CS304PC	Computer Organization and Architecture	3	0	0	3
5	CS305PC	Object Oriented Programming using C++	2	0	0	2
6	CS306ES	Analog and Digital Electronics Lab	0	0	2	1
7	CS307PC	Data Structures Lab		0	3	1.5
8	CS308PC	IT Workshop Lab	0	0	3	1.5
9	CS309PC	C++ Programming Lab	0	0	2	1.0
10	*MC309	Gender Sensitization Lab		0	2	0
		Total Credits	14	2	12	21

II YEAR II SEMESTER

S. No.	Course Code	Course Title	I_	Т	Р	Credits
1	CS401PC	Discrete Mathematics	3	0	0	2
2	SM402MS	Business Economics & Financial Analysis	3	-	0	3
3	CS403PC	Operating Systems	3	0		3
4	CS404PC	Database Management Systems	3	0	0	3
5	CS405PC	Java Programming	3	1	0	4
6	CS406PC	Operating Systems Lab	0	-	3	4
7	CS407PC	Database Management Systems Lab	0	0	_	1.5
8	CS408PC	Java Programming Lab	0	0	3	1.5
9	*MC409	Constitution of India		0	2	1
		Total Credits	18	2	8	21

III YEAR I SEMESTER

S. No.	Course Code	Course Title	L	Т	Р	Credits
1	CS501PC	Formal Languages & Automata Theory	3	0	0	3
2	CS502PC	Software Engineering	3	0	0	3
3	CS503PC	Computer Networks	3	0	0	3
4	CS504PC	Web Technologies	3	0	0	3
5	211	Professional Elective-I	3	<u> </u>	0	3
6		Professional Elective -II	3	0	0	3
7	CS505PC	Software Engineering Lab	0	0	3	1.5
88	CS506PC	Computer Networks & Web Technologies Lab	0	0	3	1.5
9	EN508HS	Advanced Communication Skills Lab	10	0	2	1.0
10	*MC510	Intellectual Property Rights	3	0	0	0
		Total Credits	21	0	8	22

III YEAR II SEMESTER

S. No.	Course Code	Course Title	L	Т	Р	Credits
1	CS601PC	Machine Learning	3	1	0	4
2	CS602PC	Compiler Design	3	1	0	4
3	CS603PC	Design and Analysis of Algorithms	3	+	0	4
4		Professional Elective – III	3	0	1	3
5		Open Elective-I	3	0	0	3
6	CS604PC	Machine Learning Lab	0	0	3	1.5
7	CS605PC	Compiler Design Lab	0	0	3	1.5
8		Professional Elective-III Lab	0	0	2	1.5
9	*MC609	Environmental Science	3	0	0	0
		Total Credits	18	3	8	22

IV YEAR I SEMESTER

S. No.	Course Code	Course Title	L	Т	Р	Credits
1	CS701PC	Cryptography & Network Security	2	_	0	
2	CS702PC	Data Mining	2	0	0	3
				0	U	2 1

2

3		Professional Elective -IV	3	0	0	3
4		Professional Elective -V	3	0	0	3
5		Open Elective - II	3	0	0	3
6	CS703PC	Cryptography & Network Security Lab	0	0	2	1
7	CS704PC	Industrial Oriented Mini Project/ Summer Internship	0	0	0	2*
8	CS705PC	Seminar	0	0	2	1
9	CS706PC	Project Stage - I	0	C	6	3
		Total Credits	14	0	10	21

IV YEAR II SEMESTER

S. No.	Course Code	Course Title	L	Т	Р	Credits
1	SM801MS	Organizational Behaviour	3	0	0	3
2	- 0	Professional Elective - VI	3	0	0	3
3		Open Elective - III	3	0	0	3
4	CS802PC	Project Stage - II	0	0	14	7
		Total Credits	9	0	14	16

^{*}MC - Environmental Science - Should be Registered by Lateral Entry Students Only.

Note: Industrial Oriented Mini Project/ Summer Internship is to be carried out during the summer vacation between 6th and 7th semesters. Students should submit report of Industrial Oriented Mini Project/ Summer Internship for evaluation.

Professional Elective - 1

CS511PE	Information Theory & Coding
CS512PE	Advanced Computer Architecture
CS513PE	Data Analytics
CS514PE	Image Processing
CS515PE	Principles of Programming Languages

Professional Elective - II

CS521PE	Computer Graphics
CS522PE	Advanced Operating Systems
CS523PE	Informational Retrieval Systems
CS524PE	Distributed Databases
CS525PE	Natural Language Processing

Professional Elective - III

CS611PE	Concurrent Programming
CS612PE	Network Programming
CS613PE	Scripting Languages
CS614PE	Mobile Application Development
CS615PE	Software Testing Methodologies

^{*} Courses in PE - III and PE - III Lab must be in 1-1 correspondence.

Professional Elective - IV

1		Graph Theory
I	CS712PE	Introduction to Embedded Systems

^{*}MC - Satisfactory/Unsatisfactory

CS713PE	Artificial Intelligence	
CS714PE	Cloud Computing	
CS715PE	Ad-hoc & Sensor Networks	

Professional Elective - V

CS721PE	Advanced Algorithms
CS722PE	Real Time Systems
CS723PE	Soft Computing
CS724PE	Internet of Things
CS725PE	Software Process & Project Management

Professional Elective - VI

CS811PE	Computational Complexity
CS812PE	Distributed Systems
CS813PE	Neural Networks & Deep Learning
CS814PE	Human Computer Interaction
CS815PE	Cyber Forensics

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD R18 B.TECH. List of Open Electives Applicable From 2018-19 Admitted Batch

Branch	III Yr II Sem Open Elective (OE - I)	IV Yr I Sem Open Elective (OF _ II)	WV. C. C.
Civil Engineering	Disaster Preparedness & Planning	Remote Sensing & GIS	Environmental Legality (OE – III)
	Management	C	Eliviroliillelila Illipact Assessment
Computer Science &	1. Entrepreneurship	1. Data Structuras	
Engineering / Information	2. Fundamentals of Management for	2. Artificial Intellinence	i. Wacnine Learning
lechnology	Engineers		2. Woolle Application Development
	3. Cyber Law & Ethics	•	
Electronics and Instrumentation	Basics of Sensors Technology	Fundamentals of Biomedical	4. Database Management Systems
Engineering	C.	Applications of plottledical	Basics of Virtual Instrumentation
Electronics and Communication	Fundamentals of Internet of Things	Elockonia Consultation in the Consultation in	
Engineering		riectionic sensors	Measuring Instruments
Electrical and Electronics	1. Reliability Engineering	1 Itilization of Clothing Town	
Engineering	2. Renewable Energy Sources	2. Electric Drives and Control	2 Energy Sources and Application
mechanical Engineering	Quantitative Analysis for Business	Basic Mechanical Engineering	의
Aeronautical Engineering			
	Decisions Decisions	Basics of Aeronautical Engineering	Elements of Rocket Propulsion
Mechatronics	1 Industrial Management		
	2. Non-Conventional Energy Sources	2 Principles of Entransports	1. Fundamentals of Robotics
		3. Basic Mechanical Engineering	Optimization Techniques
	General Geology	Natural Gas Engineering	Green Fiel Tochnologies
and Materials	1. Testing of Materials	Engineering Materials	Orecii Fuel recinologies
	2. Alloy Steels	2. Surface Engineering	1. High lemperature Materials
wining Engineering	1. Introduction to Mining Technology	1	
=		2. Material Handling in Mines	 Solid Fuel Technology Remote Sensing and GIS in Mining

^{*}Note: Students should take Open Electives from the List of Open Electives Offered by Other Departments/Branches Only.

M. Tech. COMPUTER SCIENCE AND ENGINEERING/COMPUTER SCIENCE

EFFECTIVE FROM ACADEMIC YEAR 2019 - 20 ADMITTED BATCH

R19 COURSE STRUCTURE AND SYLLABUS

I YEAR I - SEMESTER

Course Code	Course Title	L	Т	Р	Credits
Professional	Mathematical Foundations of Computer Science	3	0	0	*3
Core - I	Advanced Data Structures			_	
Professional Core - II	Advanced Data Structures	3	0	0	3
Professional Elective - I	Information Security Mobile Application Development Machine Learning	3	0	0	3
Professional Elective - II	Network Security Cloud Computing Data Mining	3	0	0	3
Lab - I	Advanced Data Structures Lab	0	0	4.	2
Lab - II	Machine Learning Lab	0_	0	4	2
	Research Methodology & IPR	2	0	0	2
Audit - I	Audit Course - I	2	0	0	0 -
	Total	16	0	8	18

I YEAR II - SEMESTER

Course Code	Course Title	L	Т	Р	Credits
Professional Core - III	Advanced Algorithms	3	0	0	3
Professional Core - IV	Advanced Computer Architecture	3	0	0	3
Professional Elective - III	 Web and Database Security Internet of Things Data Science 	3	0	0	3
Professional Elective - IV	Cyber Security Advanced Computer Networks Big Data Analytics	3	0	0	3
Lab - III	Advanced Algorithms Lab	0	0	4	2
Lab - IV	Data Science Lab	0	0	4	2
	Mini Project with Seminar	0	0	4	2
Audit - II	Audit Course - II	2	0	0	0
	Total	14	0	12	18

II YEAR III - SEMESTER

Course Code	Course Title	L	Т	P	Credits
Professional Elective - V	 Digital Forensics High Performance Computing Deep Learning 	3	0	0	3
Open Elective	Open Elective	3	0_	0	3
Dissertation	Dissertation Work Review - II	0	0	12	6
	Total	6	0	12	12

II YEAR II - SEMESTER

Course Code	Course Title	L	Т	P	Credits
Dissertation	Dissertation Work Review - III	0	0_	12	6
Dissertation	Dissertation Viva-Voce	0	0_	28	14
	Total	0	0	40	20

^{*}For Dissertation Work Review - I, Please refer 7.8 in R19 Academic Regulations.

Audit Course I & II:

- 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

LIST OF OPEN ELECTIVES OFFERED FOR R19 M.TECH PROGRAMMES

		ranches	EE/ECE and Allied Branches	DEPARTMENT OF CSE/EEE/ECE and	DEP/		
Refrigeration Systems 2. Introduction to Thermal Storage Systems 3. Cogeneration & Waste Heat Recovery Systems	of Production Engineering 2. Non-Destructive Testing & Evaluation 3. Particulate Materials Technology	2. Optimization 2. Optimization Techniques & Applications 3. Advanced Finite Element and Boundary Element Methods	1. Concurrent Engineering 2. Industrial Safety 3. Principles of Automation	 Mechanics of Composite Materials Industrial Safety Waste to Energy 	1. Principles of Manufacturing Engineering 2. Artificial Neural Networks 3. Fundamentals of Nano Technology	1. Concurrent Engineering 2. Industrial Safety 3. Principles of Automation	 Principles of Automation Artificial Neural Networks Fundamentals of Nano Technology
Thermal Engineering	Production Engineering	lechatronics	Machine Design	Engineering Machine C Design	Design for Manufacturing/De sign & Manufacturing	CAD/CAM	Advanced Manufacturing Systems
Making for Smart Cities/Ordan Areas	Making for Smart	nent	2. Disaster Management			agement thods ce: Techniques ch	 Construction Management Finite Element Methods Artificial Intelligence: Techniques Operation Research Industrial Safety
ning & Policy	Disaster Analytics GIS & IoT For Planning & Policy		GIS & IoT For Planning & Policy Making for Smart Cities/Urban Areas	islation & Audit	1. Environmental Legislation & Audit	ering	Engineering Numerical methods
n Engineering	Transportation Engineering	gineering	Highway Engineering	Engineering	Environmental Engineering	ring/ Geotechnical	Structural Engineering/ Geotechnical
			CIVIL ENGINEERING	DEPARTMENT OF CIVIL ENGIN			

ယ Operations Research Cost Management of Engineering Projects Composite Materials **Energy from Waste**

Industrial Safety **Business Analytics**

*Important: *Open Elective subject must be chosen from the list of open electives offered by OTHER departments.

Phincipal

Samskruthi College of Engg. & Technoloss Kondapur(V). Ghatkesar(M), Medchal (D)

Ex: A M.Tech ECE student cannot take Open Elective – Il offered by ECE Dept, but can select from open electives offered by OTHER departments.

M.TECH IN EMBEDDED SYSTEMS EFFECTIVE FROM ACADEMIC YEAR 2019-20 ADMITTED BATCH

R19 COURSE STRUCTURE AND SYLLABUS

I YEAR I - SEMESTER

Course Code	Course Title	L	Т	Р	Credits
Professional Core - I	Microcontrollers & Programmable Digital Signal Processors	3	0	0	3
Professional Core - II	System Design with Embedded Linux	3	0	0	3
Professional Elective - I	 Programming Languages for Embedded Software Al & Machine Leaning Computer Vision 	3	0	0	3
Professional Elective - II	 Communications Buses & Interfaces Parallel Processing Advanced Computer architecture 	3	0	0	3
Lab - I	Microcontroller & Programmable Digital Signal Processors Lab	0	0	3	2
Lab - II	System Design with Embedded Linux Lab	0	0	3	2
	Research Methodology & IPR	2_	0	0	2
Audit - I	Audit Course - I	2	0	0	0
	Total	16	0	6	18

I YEAR II - SEMESTER

Course Code	Course Title	L	T	Р	Credits
Professional Core - III	RTL Simulation and Synthesis with PLDs	3	0	0	3
Professional Core - IV	Advanced Digital Signal Processing	3	0	0	3
Professional Elective - III	 IOT and its Applications VLSI Signal Processing SOC Architecture 	3	0	0	3
Professional Elective - IV	 Hardware and Software Co-Design Network Security and Cryptography Physical Design Automation 	3	0	0	3
Lab - III	RTL Simulation and Synthesis with PLDs Lab	0	0	3	2
Lab - IV	Advanced Digital Signal Processing Lab	0	0	3	2
	Mini project with Seminar	0	0	4	2
Audit - II	Audit Course - II	2	0	0	0,
	Total	14	0	10	18

III - SEMESTER

Course Code	Course Title	L	T	Р	Credits
Professional Elective - V	Scripting Languages Memory Technologies Wireless Sensor Networks	3	0	0	3
Open Elective	Open Elective	3	0	0	3
Dissertation	Dissertation Work Review - II	0	0	12	6
Dissertation	Total	6	0	12	12

II YEAR II - SEMESTER

II YEAR II - SEIVII			Ŧ		Credits
Course Code	Course Title	-		<u>-</u>	Credita
	Dissertation Work Review - III	0	0	12	6
Dissertation		<u> </u>		28	14
Dissertation	Dissertation Viva-Voce		U	1	- ' '
	Total	\ 0	0	40	20
	Total				

^{*}For Dissertation Work Review - I, Please refer 7.8 in R19 Academic Regulations.

Audit Course I & II:

- 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

LIST OF OFEN ELECTIVES OFFERED FOR R:9 M.TECH PROGRAMMES

		ranches	EE/ECE and Allied Branches	DEPARTMENT OF CSE/EEE/ECE and	DEP.			
Refrigeration Systems 2. Introduction to Thermal Storage Systems 3. Cogeneration & Waste Heat Recovery Systems	of Production Engineering 2. Non-Destructive Testing & Evaluation 3. Particulate Materials Technology	2. Optimization Techniques & Applications 3. Advanced Finite Element and Boundary Element Methods	Engineering 2. Industrial Safety 3. Principles of Automation	 Mechanics of Composite Materials Industrial Safety Waste to Energy 	1. Principles of Manufacturing Engineering 2. Artificial Neural Networks 3. Fundamentals of Nano Technology	 Concurrent Engineering Industrial Safety Principles of Automation 	 Principles of Automation Artificial Neural Networks Fundamentals of Nano Technology 	
Engineering 1. Basics of	Engineering 1 Fundamentals		Machine Design	Engineering Design	Design for Manufacturing/De sign & Manufacturing	CAD/CAM	Advanced Manufacturing Systems	
Thormal		NG	HANICAL ENGINEERING	DEPARTMENT OF MECHANICAL EI	DEF		6. Industrial Safety	
						ce: Techniques ch	Artificial Intelligence: Techniques Operation Research	
ining & Policy Xilies/Urban Areas	2. GIS & IoT For Planning & Policy Making for Smart Cities/Urban Areas	g & rolley ss/Urban Areas	1. GIS & lot For Planning & Policy Making for Smart Cities/Urban Areas 2. Disaster Management		1. Environmental Legislation & Audit	ds agement athods	 Numerical methods Construction Management Finite Element Methods 	77.76
Engineering	Transportation Engineering Disaster Analytics	gineering	Highway Engineering		Environmental Engineering	ring/ Geotechnical	Structural Engineering/ Geotechnical	
			DEPARTMENT OF CIVIL ENGINEERING	DEPARTMENT OF				

Business Analytics

- Industrial Safety
- Operations Research
- Cost Management of Engineering Projects
- Composite Materials

*Important: *Open Elective subject must be chosen from the list of open electives offered by OTHER departments. Samskruthi College of Engly, Medchal (D)

Phincipal

Ex: A M.Tech ECE student cannot take Open Elective - II offered by ECE Dept, but can select from open electives offered by OTHER departments.

MASTER OF BUSINESS ADMINISTRATION MBA (Regular) R-19 Effective from Academic Year 2019 - 20 Admitted Batch

COURSE STRUCTURE AND SYLLABUS

l Year I Semester

Course Code	ster STRUCTURE AND SYLLAB	U S			
19MBA01	Course Title Management and Organizational Behaviour	1	.	ТР	Credit
19MBA02 19MBA03	Business Economics	з		0	4
19MBA04	Financial Accounting & Appl	3	1	0	4
19MBA05	Methodology and or "	3	1	0	4
Open Elective-I		3	1	0	4
19MBA06 19MBA07 19MBA08	6A Business Ethics and Corporate Governance 6B Project Management 6C Technology Management 6D Cross Cultural Management Business Communication Lab.	3	0	0	3
	Statistical Data Analysis Lab	0	0	2	2
	TOTAL	0	0	2	2
Year II Semester		18	5	4	27

Course Code	9				
	Course Title				is.
19MBA09		1	- '	F	Credit
19MBA10	Human Resource Management			-	1 .
19MBA11	Management	3	1	0	4
19MBA12	Financial Management	3	1	0	4
	Quantitative Analysis for Business Decisions	3	1	0	4
9MBA13 9MBA14	Entrepreneurship	3	1	0	4
pen Elective-II	Logistics & Supply Chain M.	3	1	0	1
9MBA15	15B Marketing D. Management	3	1	0	4
	15C International Business 15D Rural Marketing	3	0	0	2
	TOTAL				3
Year I Same	Internship during S.	21	6	0 4 0 4 0 4 0 4 0 4 0 4	

Internship during Summer vacation (after Semester -II)

Il Year I Semester

Course Code	ster summer vacation (after Sen	1este	r –II)		
19MBA16	Course Title Production & Operations Management	L	T	P	Credits
1 SIVIBAT/	Management Information Systems	3	1	0	4
	-yotems	3	1	0	4

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Il Year II Semo	4	18	6	3	26
	TOTAL	0	0	0	2
19MBA22	Summer Internship	3	1	0	4
19MBA21 M3/H3/3I/E3	(MRKG/HRM/FIN/ENTP)	3	1	0	4
19MBA20 M2/H2/F2/E2	(MRKG/HRM/FIN/ENTP)	3	1	0	4
19MBA19 M1/H1/FI/E1	(MRKG/HRM/FIN/ENTP)	3	1	0	4
19MBA18	Data Analytics				

ll Year II Semester

Course Code	Course Titl				
19MBA 23	Course Title Strategic Management	L	T	P	Credits
19MBA 24 M4/H4/F4/E4	(MRKG/HRM/FIN/ENTP)	3	1	0	4
19MBA25 M5/H5/F5/E5	(MRKG/HRM/FIN/ENTP)	3	1	0	4
19MBA26 M6/H6/F6/E6	(MRKG/HRM/FIN/ENTP)	3	1	0	4
19MBA27	Pre-submission project Seminar	3	1	0	4
9MBA28	Main Project Viva-Voce	0	0	2	2
	TOTAL	0	2	4	4
122 102 1		12	6	6	22

LIST OF ELECTIVE SUBJECTS

Students have to select any One Specialization (Marketing, Finance, Human Resources, and Entrepreneurship) and he/she needs to select the Core Elective subjects listed under the chosen

Course Code		
	Specialization	Cradita
19MBA19M1	MARKETING Digital Marketing	Credits
19MBA20 M2	Advertising and Sales Management	4
19MBA21 M3	Consumer Behaviour	4
19MBA24 M4	Customer Relationship Management	4
19MBA25 M5	International Marketing	4
19MBA26 M6	Services Marketing	4
19MBA19F1	FINANCE	4
9MBA20 F2	Security Analysis and Portfolio Management Financial Institutions, Markets & Services	4
9MBA21 F3	Strategic Management Accounting	4
9MBA24 F4	International Financial Management	4
	- Taring Relief II	4

Strategic Investment and Financing Decisions Risk Management and Financial Derivatives HUMAN RESOURCES	4
HUMAN RESOURCES	
	i
Performance Management Systems	4
	4
	4
	4
	4
	4
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	4
	Learning and Development Management of Industrial Relations International Human Resource Management Leadership and Change Management Talent and Knowledge Management ENTREPRENEURSHIP Startup Management MSME Management Family Business Management Entrepreneurial Finance Entrepreneurial Marketing Creativity Innovation and Entrepreneurship