

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	T	P	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	P	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	T	P	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	T	P	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 - II	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	T	P	Credits
4	CE501	Structural Analysis-II	3	0	0	3
2	CE502PC	Geotechnical 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	P	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	T	P	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	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
		Total Credits	14	1	12	21

IV YEAR II SEMESTER

S. No.	Course Code	Course Title	L	T	P	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

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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	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	T	P	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 Code	Course Title	L	T	P	Credits
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	1
9	*MC309	Gender Sensitization Lab	0	0	2	0
		Total Credits	15	3	8	21

II YEAR II SEMESTER

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

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

III YEAR I SEMESTER

S. No.	Course Code	Course Title	L	T	P	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	T	P	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	T	P	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	0	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	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	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
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	HVDC Transmission
EE722PE	Power System Reliability
EE723PE	Industrial Electrical Systems

Professional Elective - V

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

Professional Elective - VI

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

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I YEAR I SEMESTER

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

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

III YEAR I SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	ME501PC	Dynamics of Machinery	3	1	0	4
2	ME502PC	Design of Machine Members-I	3	0	0	3
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
6	ME506PC	Operations Research	3	0	0	3
7	ME507PC	Thermal Engineering Lab	0	0	2	1
8	ME508PC	Metrology & Machine Tools Lab	0	0	2	1
9	ME509PC	Kinematics & Dynamics Lab	0	0	2	1
10	*MC510	Intellectual Property Rights	3	0	0	0
		Total Credits	21	1	6	22

III YEAR II SEMESTER

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

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

IV YEAR I SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	ME701PC	Refrigeration & Air Conditioning	3	0	0	3
2		Professional Elective – II	3	0	0	3
3		Professional Elective – III	3	0	0	3
4		Professional Elective - IV	3	0	0	3
5		Open Elective - II	3	0	0	3

6	ME702PC	Industrial Oriented Mini Project/ Summer Internship	0	0	0	2*
7	ME703PC	Seminar	0	0	2	1
8	ME704PC	Project Stage - I	0	0	6	3
		Total Credits	15	0	12	21

IV YEAR II SEMESTER

S. No.	Course Code	Course Title	L	T	P	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	ME801PC	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

ME611PE	Unconventional Machining Processes
ME612PE	Machine Tool Design
ME613PE	Production Planning & Control

Professional Elective – II

ME711PE	Additive Manufacturing
ME712PE	Automation in Manufacturing
ME713PE	MEMS

Professional Elective – III

ME721PE	Power Plant Engineering
ME722PE	Automobile Engineering
ME723PE	Renewable Energy Sources

Professional Elective – IV

ME731PE	Computational Fluid Dynamics
ME732PE	Turbo Machinery
ME733PE	Fluid Power Systems

Professional Elective – V

ME811PE	Industrial Robotics
ME812PE	Mechanical Vibrations
MM813PE	Composite Materials

Professional Elective – VI

ME821PE	Industrial Management
ME822PE	Production and Operations Management
ME823PE	Tribology

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I YEAR I SEMESTER

S. No.	Course Code	Course Title	L	T	P	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				
		Total Credits	13	3	10	18

I YEAR II SEMESTER

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

3	EC403PC	Analog and Digital Communications	3	1	0	4
4	EC404PC	Linear IC Applications	3	0	0	3
5	EC405PC	Electronic Circuit Analysis	3	0	0	3
6	EC406PC	Analog and Digital Communications Lab	0	0	3	1.5
7	EC407PC	IC Applications Lab	0	0	3	1.5
8	EC408PC	Electronic Circuit Analysis Lab	0	0	2	1
9	*MC409	Gender Sensitization Lab	0	0	2	0
		Total Credits	15	2	10	21

III YEAR I SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	EC501PC	Microprocessors & Microcontrollers	3	1	0	4
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	0	0	3
5		Professional Elective - I	3	0	0	3
6	EC505PC	Microprocessors & Microcontrollers Lab	0	0	3	1.5
7	EC506PC	Data Communications and Networks Lab	0	0	3	1.5
8	EN508HS	Advanced Communication Skills Lab	0	0	2	1
9	*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	T	P	Credits
1	EC601PC	Antennas and Propagation	3	1	0	4
2	EC602PC	Digital Signal Processing	3	1	0	4
3	EC603PC	VLSI Design	3	1	0	4
4		Professional Elective - II	3	0	0	3
5		Open Elective - I	3	0	0	3
6	EC604PC	Digital Signal Processing Lab	0	0	3	1.5
7	EC605PC	e – CAD Lab	0	0	3	1.5
8	EC606PC	Scripting Languages Lab	0	0	2	1
9	*MC609	Environmental Science	3	0	0	0
		Total Credits	18	3	8	22

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IV YEAR I SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	EC701PC	Microwave and Optical Communications	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	SM702MS	Professional Practice, Law & Ethics	2	0	0	2
6	EC703PC	Microwave and Optical Communications Lab	0	0	2	1
7	EC704PC	Industrial Oriented Mini Project/ Summer Internship	0	0	0	2*
8	EC705PC	Seminar	0	0	2	1
9	EC706PC	Project Stage - I	0	0	6	3
		Total Credits	14	0	10	21

IV YEAR II SEMESTER

S. No.	Course Code	Course Title	L	T	P	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	EC801PC	Project Stage - II	0	0	14	7
		Total Credits	9	0	14	16

***MC – Satisfactory/Unsatisfactory**

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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
EC613PE	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

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 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	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	T	P	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 Code	Course Title	L	T	P	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	0	3	1.5
8	CS308PC	IT Workshop Lab	0	0	3	1.5
9	CS309PC	C++ Programming Lab	0	0	2	1
10	*MC309	Gender Sensitization Lab	0	0	2	0
		Total Credits	14	2	12	21

II YEAR II SEMESTER

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

III YEAR I SEMESTER

S. No.	Course Code	Course Title	L	T	P	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		Professional Elective-I	3	0	0	3
6		Professional Elective -II	3	0	0	3
7	CS505PC	Software Engineering Lab	0	0	3	1.5
8	CS506PC	Computer Networks & Web Technologies Lab	0	0	3	1.5
9	EN508HS	Advanced Communication Skills Lab	0	0	2	1
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	T	P	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	1	0	4
4		Professional Elective – III	3	0	0	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
9	*MC609	Environmental Science	3	0	0	0
		Total Credits	18	3	8	22

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

IV YEAR I SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	CS701PC	Cryptography & Network Security	3	0	0	3
2	CS702PC	Data Mining	2	0	0	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	0	6	3
		Total Credits	14	0	10	21

IV YEAR II SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	SM801MS	Organizational Behaviour	3	0	0	3
2		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 – 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

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

CS711PE	Graph Theory
CS712PE	Introduction to Embedded Systems
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
B.Tech. in INFORMATION TECHNOLOGY
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	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	T	P	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 Code	Course Title	L	T	P	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	IT304PC	Computer Organization and Microprocessor	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	0	3	1.5
8	IT308PC	IT Workshop and Microprocessor Lab	0	0	3	1.5
9	CS309PC	C++ Programming Lab	0	0	2	1
10	*MC309	Gender Sensitization Lab	0	0	2	0
		Total Credits	14	2	12	21

II YEAR II SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	CS401PC	Discrete Mathematics	3	0	0	3

2	SM402MS	Business Economics & Financial Analysis	3	0	0	3
3	CS403PC	Operating Systems	3	0	0	3
4	CS404PC	Database Management Systems	3	1	0	4
5	CS405PC	Java Programming	3	1	0	4
6	CS406PC	Operating Systems Lab	0	0	3	1.5
7	CS407PC	Database Management Systems Lab	0	0	3	1.5
8	CS408PC	Java Programming Lab	0	0	2	1
9	*MC409	Constitution of India	3	0	0	0
		Total Credits	18	2	8	21

III YEAR I SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	CS501PC	Formal Languages & Automata Theory	3	0	0	3
2	CS502PC	Software Engineering	3	0	0	3
3	IT503PC	Data Communication & Computer Networks	3	1	0	4
4	IT504PC	Web Programming	2	0	0	2
5		Professional Elective - I	3	0	0	3
6		Professional Elective - II	3	0	0	3
7	CS505PC	Software Engineering Lab	0	0	3	1.5
8	IT506PC	Computer Networks & <i>Web Programming Lab</i>	0	0	3	1.5
9	EN508HS	Advanced Communication Skills Lab	0	0	2	1
10	*MC510	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	P	Credits
1	IT601PC	Introduction to Embedded Systems	3	0	0	3
2	IT602PC	Principles of Compiler Construction	3	0	0	3
3	IT603PC	Algorithm Design and Analysis	3	0	0	3
4	IT604PC	Internet of Things	3	0	0	3
5		Professional Elective –III	3	0	0	3
6		Open Elective-I	3	0	0	3
7	IT605PC	Embedded Systems & Internet of Things Lab	0	0	3	1.5
8	IT606PC	Compiler Construction Lab	0	0	3	1.5
9		Professional Elective-III Lab	0	0	2	1
10	*MC609	Environmental Science	3	0	0	0
		Total Credits	21	0	8	22

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

IV YEAR I SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	IT701PC	Information Security	3	0	0	3
2	CS702PC	Data Mining	2	0	0	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	IT703PC	Information Security Lab	0	0	2	1

7	IT704PC	Industrial Oriented Mini Project/ Summer Internship	0	0	0	2*
8	IT705PC	Seminar	0	0	2	1
9	IT706PC	Project Stage - I	0	0	6	3
		Total Credits	14	0	10	21

IV YEAR II SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	SM801MS	Organizational Behaviour	3	0	0	3
2		Professional Elective -VI	3	0	0	3
3		Open Elective-III	3	0	0	3
4	IT802PC	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

IT511PE	Biometrics
CS512PE	Advanced Computer Architecture
CS513PE	Data Analytics
CS514PE	Image Processing
CS515PE	Principles of Programming Languages

Professional Elective - II

CS521PE	Computer Graphics
IT521PE	Database Security
CS522PE	Advanced Operating Systems
IT523PE	Machine Learning
IT524PE	Pattern Recognition

Professional Elective - III

IT611PE	Ethical Hacking
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

IT711PE	Web Security
IT712PE	High Performance Computing
CS713PE	Artificial Intelligence
CS714PE	Cloud Computing
CS715PE	Ad-hoc & Sensor Networks

Professional Elective -V

IT721PE	Intrusion Detection Systems
CS722PE	Real Time Systems
CS723PE	Soft Computing
IT724PE	Distributed Databases

CS725PE	Software Process & Project Management
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Professional Elective -VI

IT811PE	Natural Language Processing
CS812PE	Distributed Systems
CS813PE	Neural Networks & Deep Learning
CS814PE	Human Computer Interaction
CS815PE	Cyber Forensics

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech. in AERONAUTICAL 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	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	P	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	T	P	Credits
1	MA301BS	Probability and Statistics & Complex Variables	3	1	0	4
2	EE300ES	Basic Electrical and Electronics Engineering	3	0	0	3
3	AE303PC	Theory of Structures	3	0	0	3
4	AE304PC	Fluid Mechanics and Hydraulics	3	0	0	3
5	AE305PC	Aerodynamics - I	3	1	0	4
6	AE306PC	Mechanics of Solids Lab	0	0	2	1
7	AE307PC	Fluid Mechanics and Hydraulics Lab	0	0	4	2
8	EE309PC	Basic Electrical and Electronics Engineering Lab	0	0	2	1
9	*MC309	Constitution of India	3	0	0	0
		Total Credits	18	2	8	21

II YEAR II SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	AE401ES	Probability Distributions and Numerical Methods	3	1	0	4
2	AE402PC	Low Speed Aerodynamics	3	0	0	3
3	AE403PC	Aircraft Materials and Production	3	1	0	4
4	AE404PC	Analysis of Aircraft Structures	3	1	0	4
5	AE405PC	Aero-Thermodynamics	3	0	0	3

6	AE406ES	Aerodynamics Lab	0	0	2	1
7	AE407PC	Aerospace Structures Lab	0	0	2	1
8	AE408PC	Aircraft Materials and Production Lab	0	0	2	1
10	*MC409	Gender Sensitization Lab	0	0	2	0
		Total Credits	15	3	8	21

III YEAR I SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	AE501PC	Aircraft Propulsion	3	1	0	4
2	AE502PC	High Speed Aerodynamics	3	0	0	3
3	AE503PC	Finite Element Methods	3	0	0	3
4	SM504MS	Business Economics and Financial Analysis	3	0	0	3
5	AE505PC	Aircraft Systems and Controls	3	0	0	3
6	AE506PC	Aircraft Performance and Stability	3	0	0	3
7	AE507PC	Computer Aided Aircraft Engineering Drawing	0	0	2	1
8	AE508PC	Flight Control Lab	0	0	2	1
9	AE509PC	Aircraft Propulsion Lab	0	0	2	1
10	*MC510	Intellectual Property Rights	3	0	0	0
		Total Credits	21	1	6	22

III YEAR II SEMESTER

S. No	Course Code	Course Title	L	T	P	Credits
1	AE601PC	Space Propulsion	3	0	0	3
2	AE602PC	Computational Aerodynamics	3	1	0	4
3	AE603PC	Helicopter Aerodynamics	3	0	0	3
4		Professional Elective - I	3	0	0	3
5		Open Elective - I	3	0	0	3
6	AE604PC	Aircraft Design	3	0	0	3
7	AE605PC	Aerospace Propulsion Lab	0	0	2	1
8	AE606PC	CFD Lab	0	0	2	1
9	EN608HS	Advanced Communication Skills Lab	0	0	2	1
10	*MC609	Environmental Science	3	0	0	0
		Total Credits	21	1	6	22

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

IV YEAR I SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	AE701PC	Vibration and Aero-elasticity	3	0	0	3
2		Professional Elective – II	3	0	0	3
3		Professional Elective – III	3	0	0	3
4		Professional Elective - IV	3	0	0	3
5		Open Elective - II	3	0	0	3
6	AE702PC	Industrial Oriented Mini Project/ Summer Internship	0	0	0	2*
7	AE703PC	Seminar	0	0	2	1
8	AE704PC	Project Stage - I	0	0	6	3
		Total Credits	15	0	8	21

IV YEAR II SEMESTER

S. No.	Course Code	Course Title	L	T	P	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	AE801PC	Project Stage - II	0	0	14	7
		Total Credits	9	0	14	16

Professional Elective – I

AE611PE	Advanced Solid Mechanics
AE612PE	Design and Analysis of Composite Structures
AE613PE	Unmanned Air Vehicles

Professional Elective – II

AE711PE	Space Mechanics
AE712PE	Rockets and Missiles
AE713PE	Wind Tunnel Technique

Professional Elective – III

AE721PE	Experimental Aerodynamics
AE722PE	Hypersonic Aerodynamics
AE723PE	Advanced Computational Aerodynamics

Professional Elective – IV

AE731PE	Industrial Aerodynamics
ME732PE	Turbo Machinery
AE733PE	Theory of Combustion

Professional Elective – V

AE811PE	Heat Transfer
AE812PE	Cryogenics
AE813PE	Aero Engine Design

Professional Elective – VI

AE821PE	Precision Engineering
AE822PE	Practical Non-Destructive Testing
AE823PE	CAD/CIM

***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.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech. I Year COURSE STRUCTURE & SYLLABUS (R18 Regulations)

Common for ECE, EIE (Old Branches) and
 CSE (AI & ML), CSE (IoT), & ECM – These three Branches are from AY 2020-21.
 AI and ML, AI & DS – These Two Branches are from AY 2021-22.

I YEAR I SEMESTER

S. No.	Course Code	Course Title	L	T	P	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				
		Total Credits	13	3	10	18

I YEAR II SEMESTER

S. No.	Course Code	Course Title	L	T	P	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

*MC – Mandatory Course – Satisfied/Unsatisfied

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**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	1	0	3
2	MA102BS	Mathematics-II	4	1	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
2	CH202BS	Engineering Chemistry	4	0	0	4
3	MA203BS	Mathematics-III	4	1	0	4
4	EN204HS	Professional Communication in English	3	0	0	3
5	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**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**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	4
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

III YEAR I SEMESTER

S. No	Course Code	Course Title	L	T	P	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	T	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 Drafting - II Lab	0	0	3	2
8	EN606HS	Advanced English Communication Skills Lab	0	0	3	2
		Total Credits	18	1	9	24

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

IV YEAR I SEMESTER

S. No	Course Code	Course Title	L	T	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	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	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

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.

***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 to Space Technology	AE621OE: Introduction to Aerospace Engineering
2	Automobile Engg.	CE511OE: Disaster Management MT512OE: Intellectual Property Rights	MT621OE: Data Structures MT622OE: Artificial Neural Networks
3	Biomedical Engg.	BM511OE: Reliability Engineering	BM621OE: Medical Electronics
4	Civil Engg.	CE511OE: Disaster Management.	CE621OE: Remote Sensing and GIS CE622OE: Geo-Informatics CE623OE: Intellectual Property Rights
5	Civil and Environmental Engg.	CE511OE: Disaster Management	CN621OE: Environmental Impact Assessment CE623OE: Intellectual Property Rights
6	Computer Science and Engg. / Information Technology	CS511OE: Operating Systems CS512OE: Database Management Systems	CS621OE: Java Programming CS622OE: Software Testing Methodologies CS623OE: Cyber Security
7	Electronics and Communication Engg. / Electronics and Telematics Engg.	EC511OE: Principles of Electronic Communications	EC621OE: Principles of Computer Communications and Networks
8	Electronics and Computer Engg.	EM511OE: Scripting Languages	EM621OE: Soft Computing Techniques
9	Electrical and Electronics Engg.	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
10	Electronics and Instrumentation Engg.	EI511OE: Electronic Measurements and Instrumentation	EI621OE: Industrial Electronics
11	Mechanical Engg.	ME511OE: Optimization Techniques ME512OE: Computer Graphics ME513OE: Introduction	ME621OE: World Class Manufacturing ME622OE: Fundamentals of Robotics ME623OE: Fabrication

		to Mechatronics ME514OE: Fundamentals of Mechanical Engineering	Processes
12	Mechanical Engg. (Material Science and Nanotechnology)	NT511OE: Fabrication Processes NT512OE: Non destructive Testing Methods NT513OE: 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.	MM511OE: Materials Characterization Techniques	MM621OE: Science and Technology of Nano Materials MM622OE: Metallurgy of Non Metallurgists
15	Mining Engg.	MN511OE: Introduction to Mining Technology	MN621OE: Coal Gasification, Coal Bed Methane and Shale Gas
16	Petroleum Engg.	PE511OE: Materials Science and Engineering PE512OE: Renewable Energy Sources PE513OE: Environmental Engineering	PE621OE: Energy Management and Conservation PE622OE: Optimization Techniques PE623OE: 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.	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 Engg.	CN831OE: Remote Sensing and GIS CE833OE: Entrepreneurship and Small Business

		Enterprises
6	Computer Science and Engg. / Information Technology	CS831OE: Linux Programming CS832OE: R Programming CS833OE: PHP Programming
7	Electronics and Communication Engg. / Electronics and Telematics Engg.	EC831OE: Electronic Measuring Instruments
8	Electronics and Computer Engg.	EM831OE: Data Analytics
9	Electrical and Electronics Engg.	EE831OE: Entrepreneur Resource Planning EE832OE: Management Information Systems EE833OE: Organizational Behaviour
10	Electronics and Instrumentation Engg.	EI831OE: Sensors and Transducers, 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 Science and Nanotechnology)	NT831OE: Concepts of Nano Science And Technology NT832OE: Synthesis of Nanomaterials NT833OE: Characterization of Nanomaterials
13	Mechanical Engg. (mechatronics)	MT831OE: Renewable Energy Sources MT832OE: Production Planning and Control CE833OE: Entrepreneurship and Small Business Enterprises
14	Metallurgical and Materials Engg.	MM831OE: Design and Selection of Engineering 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 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	T	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
		Total Credits	16	2	13	24

***Mandatory Course – Satisfactory/Unsatisfactory.**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**B.TECH. ELECTRICAL AND ELECTRONICS ENGINEERING
II, III, IV YEARS COURSE STRUCTURE & SYLLABUS (R16)****Applicable From 2016-17 Admitted Batch****II YEAR I SEMESTER**

S. No.	Course Code	Course Title	L	T	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

II YEAR II SEMESTER

S. No.	Course Code	Course Title	L	T	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

III YEAR I SEMESTER

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

III YEAR II SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	EE601PC	Power Systems Analysis	4	1	0	4
2	EE602PC	Power Electronics	4	1	0	4
3	EE603PC	Switch Gear and Protection	4	1	0	4
4		Open Elective - II	3	0	0	3
5		Professional Elective - I	3	0	0	3
6	EE604PC	Power Systems Lab	0	0	3	2
7	EE605PC	Power Electronics Lab	0	0	3	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

IV YEAR I SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	EE701PC	Power Semiconductor Drives	4	1	0	4
2	EE702PC	Power System Operation and control	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	EE703PC	Electrical Systems Simulation Lab	0	0	3	2

7	EE704PC	Electrical Workshop	0	0	3	2
8	EE705PC	Industry Oriented Mini Project	0	0	3	2
9	EE706PC	Seminar	0	0	2	1
		Total Credits	17	2	11	24

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	EE801PC	Major Project	0	0	30	15
		Total Credits	9	0	30	24

Professional Elective - I (PE - I):

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

Professional Elective - II (PE - II):

EE721PE	Digital Signal Processing
EE722PE	HVDC Transmission
ET721PE	Switch Mode Power Supplies
EE724PE	Reliability Engineering

Professional Elective - III (PE - III):

EE731PE	Digital Control Systems
EE732PE	Power Quality
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 to Space Technology	AE621OE: Introduction to Aerospace Engineering
2	Automobile Engg.	CE511OE: Disaster Management MT512OE: Intellectual Property Rights	MT621OE: Data Structures MT622OE: Artificial Neural Networks
3	Biomedical Engg.	BM511OE: Reliability Engineering	BM621OE: Medical Electronics
4	Civil Engg.	CE511OE: Disaster Management.	CE621OE: Remote Sensing and GIS CE622OE: Geo-Informatics CE623OE: Intellectual Property Rights
5	Civil and Environmental Engg.	CE511OE: Disaster Management	CN621OE: Environmental Impact Assessment CE623OE: Intellectual Property Rights
6	Computer Science and Engg. / Information Technology	CS511OE: Operating Systems CS512OE: Database Management Systems	CS621OE: Java Programming CS622OE: Software Testing Methodologies CS623OE: Cyber Security
7	Electronics and Communication Engg. / Electronics and Telematics Engg.	EC511OE: Principles of Electronic Communications	EC621OE: Principles of Computer Communications and Networks
8	Electronics and Computer Engg.	EM511OE: Scripting Languages	EM621OE: Soft Computing Techniques
9	Electrical and Electronics Engg.	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
10	Electronics and Instrumentation Engg.	EI511OE: Electronic Measurements and Instrumentation	EI621OE: Industrial Electronics
11	Mechanical Engg.	ME511OE: Optimization Techniques ME512OE: Computer Graphics	ME621OE: World Class Manufacturing ME622OE: Fundamentals of Robotics

		ME513OE: Introduction to Mechatronics ME514OE: Fundamentals of Mechanical Engineering	ME623OE: Fabrication Processes
12	Mechanical Engg. (Material Science and Nanotechnology)	NT511OE: Fabrication Processes NT512OE: Non destructive Testing Methods NT513OE: 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.	MM511OE: Materials Characterization Techniques	MM621OE: Science and Technology of Nano Materials MM622OE: Metallurgy of Non Metallurgists
15	Mining Engg.	MN511OE: Introduction to Mining Technology	MN621OE: Coal Gasification, Coal Bed Methane and Shale Gas
16	Petroleum Engg.	PE511OE: Materials Science and Engineering PE512OE: Renewable Energy Sources PE513OE: Environmental Engineering	PE621OE: Energy Management and Conservation PE622OE: Optimization Techniques PE623OE: 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.	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 Engg.	CN831OE: Remote Sensing and GIS CE833OE: Entrepreneurship and Small Business Enterprises
6	Computer Science and Engg. / Information Technology	CS831OE: Linux Programming CS832OE: R Programming CS833OE: PHP Programming
7	Electronics and Communication Engg. / Electronics and Telematics Engg.	EC831OE: Electronic Measuring Instruments
8	Electronics and Computer Engg.	EM831OE: Data Analytics
9	Electrical and Electronics Engg.	EE831OE: Entrepreneur Resource Planning EE832OE: Management Information Systems EE833OE: Organizational Behaviour
10	Electronics and Instrumentation Engg.	EI831OE: Sensors and Transducers, 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 Science and Nanotechnology)	NT831OE: Concepts of Nano Science And Technology NT832OE: Synthesis of Nanomaterials NT833OE: Characterization of Nanomaterials
13	Mechanical Engg. (mechatronics)	MT831OE: Renewable Energy Sources MT832OE: Production Planning and Control CE833OE: Entrepreneurship and Small Business Enterprises
14	Metallurgical and Materials Engg.	MM831OE: Design and Selection of Engineering 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. 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	1	0	3
2	MA102BS	Mathematics-II	4	1	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
2	CH202BS	Engineering Chemistry	4	0	0	4
3	MA203BS	Mathematics-III	4	1	0	4
4	EN204HS	Professional Communication in English	3	0	0	3
5	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**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**B.TECH. MECHANICAL ENGINEERING
II, III, IV YEARS COURSE STRUCTURE & SYLLABUS (R16)****Applicable 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	ME304ES	Thermodynamics	4	1	0	4
3	ME302ES	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
		Total Credits	18	4	12	24

II YEAR II SEMESTER

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

III YEAR I SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	ME501PC	Design of Machine Members - I	4	1	0	4
2	ME502PC	Thermal Engineering-I	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 – I	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
		Total Credits	21	3	9	24

III YEAR II SEMESTER

S. No.	Course Code	Course Title	L	T	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
		Total Credits	18	3	9	24

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

IV YEAR I SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	ME701PC	CAD/CAM	4	0	0	4
2	ME702PC	Instrumentation and Control System	4	0	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	ME703PC	CAD/CAM Lab	0	0	3	2
7	ME704PC	Instrumentation and Control Systems Lab	0	0	3	2
8	ME705PC	Industry Oriented Mini Project	0	0	3	2

9	ME706PC	Seminar	0	0	2	1
		Total Credits	17	0	11	24

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	ME801PC	Major Project	0	0	30	15
		Total Credits	9	0	30	24

Professional Elective - I

ME611PE	Finite Element Methods
ME612PE	Refrigeration and Air Conditioning
ME613PE	Machine Tool Design
ME614PE	IC Engines and Gas Turbines

Professional Elective - II

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

Professional Elective – III

ME731PE	Engineering Tribology
ME732PE	Computational Fluid Dynamics
ME733PE	Robotics
ME734PE	CNC Technology

Professional Elective - IV

ME741PE	Mechanical Vibrations
ME742PE	Turbo Machines
ME743PE	MEMS
ME744PE	Additive Manufacturing Technology

Professional Elective - V

ME851PE	Automation in Manufacturing
ME852PE	Fluid Power System
ME853PE	Renewable Energy Sources
ME854PE	Production Planning and Control

Professional Elective - VI

ME861PE	Automobile Engineering
ME862PE	Advanced Mechanics of Solids
ME863PE	Unconventional Machining Processes
ME864PE	Advanced Materials Technology

***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 to Space Technology	AE621OE: Introduction to Aerospace Engineering
2	Automobile Engg.	CE511OE: Disaster Management MT512OE: Intellectual Property Rights	MT621OE: Data Structures MT622OE: Artificial Neural Networks
3	Biomedical Engg.	BM511OE: Reliability Engineering	BM621OE: Medical Electronics
4	Civil Engg.	CE511OE: Disaster Management.	CE621OE: Remote Sensing and GIS CE622OE: Geo-Informatics CE623OE: Intellectual Property Rights
5	Civil and Environmental Engg.	CE511OE: Disaster Management	CN621OE: Environmental Impact Assessment CE623OE: Intellectual Property Rights
6	Computer Science and Engg. / Information Technology	CS511OE: Operating Systems CS512OE: Database Management Systems	CS621OE: Java Programming CS622OE: Software Testing Methodologies CS623OE: Cyber Security
7	Electronics and Communication Engg. / Electronics and Telematics Engg.	EC511OE: Principles of Electronic Communications	EC621OE: Principles of Computer Communications and Networks
8	Electronics and Computer Engg.	EM511OE: Scripting Languages	EM621OE: Soft Computing Techniques
9	Electrical and Electronics Engg.	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
10	Electronics and Instrumentation Engg.	EI511OE: Electronic Measurements and Instrumentation	EI621OE: Industrial Electronics
11	Mechanical Engg.	ME511OE: Optimization Techniques ME512OE: Computer Graphics ME513OE: Introduction	ME621OE: World Class Manufacturing ME622OE: Fundamentals of Robotics ME623OE: Fabrication

		to Mechatronics ME514OE: Fundamentals of Mechanical Engineering	Processes
12	Mechanical Engg. (Material Science and Nanotechnology)	NT511OE: Fabrication Processes NT512OE: Non destructive Testing Methods NT513OE: 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.	MM511OE: Materials Characterization Techniques	MM621OE: Science and Technology of Nano Materials MM622OE: Metallurgy of Non Metallurgists
15	Mining Engg.	MN511OE: Introduction to Mining Technology	MN621OE: Coal Gasification, Coal Bed Methane and Shale Gas
16	Petroleum Engg.	PE511OE: Materials Science and Engineering PE512OE: Renewable Energy Sources PE513OE: Environmental Engineering	PE621OE: Energy Management and Conservation PE622OE: Optimization Techniques PE623OE: 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.	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 Engg.	CN831OE: Remote Sensing and GIS CE833OE: Entrepreneurship and Small Business

		Enterprises
6	Computer Science and Engg. / Information Technology	CS831OE: Linux Programming CS832OE: R Programming CS833OE: PHP Programming
7	Electronics and Communication Engg. / Electronics and Telematics Engg.	EC831OE: Electronic Measuring Instruments
8	Electronics and Computer Engg.	EM831OE: Data Analytics
9	Electrical and Electronics Engg.	EE831OE: Entrepreneur Resource Planning EE832OE: Management Information Systems EE833OE: Organizational Behaviour
10	Electronics and Instrumentation Engg.	EI831OE: Sensors and Transducers, 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 Science and Nanotechnology)	NT831OE: Concepts of Nano Science And Technology NT832OE: Synthesis of Nanomaterials NT833OE: Characterization of Nanomaterials
13	Mechanical Engg. (mechatronics)	MT831OE: Renewable Energy Sources MT832OE: Production Planning and Control CE833OE: Entrepreneurship and Small Business Enterprises
14	Metallurgical and Materials Engg.	MM831OE: Design and Selection of Engineering 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 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	T	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
		Total Credits	16	2	13	24

***Mandatory Course – Satisfactory/Unsatisfactory.**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**B.TECH. ELECTRONICS AND COMMUNICATION ENGINEERING
II, III, IV YEARS COURSE STRUCTURE & SYLLABUS (R16)****Applicable 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	EC302ES	Analog Electronics	4	1	0	4
3	EC303ES	Electrical Technology	4	1	0	4
4	EC304ES	Signals and Stochastic Process	3	1	0	3
5	EC305ES	Network Analysis	3	1	0	3
6	EC306ES	Electronic Devices and Circuits Lab	0	0	3	2
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	3	0	0	0
		Total Credits	21	5	9	24

II YEAR II SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	EC401ES	Switching Theory and Logic Design	3	1	0	3
2	EC402ES	Pulse and Digital Circuits	4	0	0	4
3	EE404ES	Control Systems	4	1	0	4
4	EC405ES	Analog Communications	4	0	0	4
5	SM405MS	Business Economics and Financial Analysis	3	0	0	3
6	EC406ES	Analog Communications Lab	0	0	3	2
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	0
		Total Credits	18	2	12	24

III YEAR I SEMESTER

S. No	Course Code	Course Title	L	T	P	Credits
1	EC501PC	Electromagnetic Theory and Transmission Lines	4	1	0	4
2	EC502PC	Linear and Digital IC Applications	4	0	0	4
3	EC503PC	Digital Communications	4	1	0	4
4	SM504MS	Fundamentals of Management	3	0	0	3
5		Open Elective – I	3	0	0	3
6	EC505PC	Linear IC Applications Lab	0	0	3	2
7	EC506PC	Digital IC Applications Lab	0	0	3	2
8	EC507PC	Digital Communications Lab	0	0	3	2
9	*MC500HS	Professional Ethics	3	0	0	0
		Total Credits	21	2	9	24

III YEAR II SEMESTER

S. No	Course Code	Course Title	L	T	P	Credits
1		Open Elective-II	3	0	0	3
2		Professional Elective-I	3	0	0	3
3	EC601PC	Antennas and Wave Propagation	4	0	0	4
4	EC602PC	Microprocessors and Microcontrollers	4	0	0	4
5	EC603PC	Digital Signal Processing	4	0	0	4
6	EC604PC	Digital Signal Processing Lab	0	0	3	2
7	EC605PC	Microprocessors and Microcontrollers Lab	0	0	3	2
8	EN606HS	Advanced English Communication Skills Lab	0	0	3	2
		Total Credits	18	0	9	24

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

IV YEAR I SEMESTER

S.No.	Course Code	Course Title	L	T	P	Credits
1	EC701PC	Microwave Engineering	4	0	0	4
2		Professional Elective - II	3	0	0	3
3		Professional Elective - III	3	0	0	3
4		Professional Elective - IV	3	0	0	3
5	EC702PC	VLSI Design	4	0	0	4

6	EC703PC	VLSI and E-CAD Lab	0	0	3	2
7	EC704PC	Microwave Engineering Lab	0	0	3	2
8	EC705PC	Industry Oriented Mini Project	0	0	3	2
9	EC706PC	Seminar	0	0	2	1
		Total Credits	17	0	11	24

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	EC801PC	Major Project	0	0	30	15
		Total Credits	9	0	30	24

Professional Elective – I

EC611PE	Computer Organization and Operating System
EC612PE	Digital Image Processing
EC613PE	Spread Spectrum Communications
EC614PE	Digital system Design

Professional Elective – II

EC721PE	Computer Networks
EC722PE	FPGA Programming
EC723PE	Coding Theory and Techniques
EC724PE	Soft Computing Techniques

Professional Elective – III

EC731PE	Wireless Communications and Networks
EC732PE	Internet of Things
EC733PE	Radar Systems
EC734PE	Embedded System Design

Professional Elective – IV

EC741PE	Optimization Techniques
EC742PE	Object Oriented Programming
EC743PE	Electronic Measurements and Instrumentation
EC744PE	Artificial Intelligence

Professional Elective – V

EC851PE	Network Security and Cryptography
EC852PE	System Design Using FPGAs
EC853PE	Optical Communications
EC854PE	Machine Learning

Professional Elective – VI

EC861PE	Actuators and Robot Systems
EC862PE	Analog CMOS IC Design
EC863PE	Global Positioning System
EC864PE	Computer Vision

***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 to Space Technology	AE621OE: Introduction to Aerospace Engineering
2	Automobile Engg.	CE511OE: Disaster Management MT512OE: Intellectual Property Rights	MT621OE: Data Structures MT622OE: Artificial Neural Networks
3	Biomedical Engg.	BM511OE: Reliability Engineering	BM621OE: Medical Electronics
4	Civil Engg.	CE511OE: Disaster Management.	CE621OE: Remote Sensing and GIS CE622OE: Geo-Informatics CE623OE: Intellectual Property Rights
5	Civil and Environmental Engg.	CE511OE: Disaster Management	CN621OE: Environmental Impact Assessment CE623OE: Intellectual Property Rights
6	Computer Science and Engg. / Information Technology	CS511OE: Operating Systems CS512OE: Database Management Systems	CS621OE: Java Programming CS622OE: Software Testing Methodologies CS623OE: Cyber Security
7	Electronics and Communication Engg. / Electronics and Telematics Engg.	EC511OE: Principles of Electronic Communications	EC621OE: Principles of Computer Communications and Networks
8	Electronics and Computer Engg.	EM511OE: Scripting Languages	EM621OE: Soft Computing Techniques
9	Electrical and Electronics Engg.	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
10	Electronics and Instrumentation Engg.	EI511OE: Electronic Measurements and Instrumentation	EI621OE: Industrial Electronics
11	Mechanical Engg.	ME511OE: Optimization Techniques ME512OE: Computer Graphics ME513OE: Introduction	ME621OE: World Class Manufacturing ME622OE: Fundamentals of Robotics ME623OE: Fabrication

		to Mechatronics ME514OE: Fundamentals of Mechanical Engineering	Processes
12	Mechanical Engg. (Material Science and Nanotechnology)	NT511OE: Fabrication Processes NT512OE: Non destructive Testing Methods NT513OE: 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.	MM511OE: Materials Characterization Techniques	MM621OE: Science and Technology of Nano Materials MM622OE: Metallurgy of Non Metallurgists
15	Mining Engg.	MN511OE: Introduction to Mining Technology	MN621OE: Coal Gasification, Coal Bed Methane and Shale Gas
16	Petroleum Engg.	PE511OE: Materials Science and Engineering PE512OE: Renewable Energy Sources PE513OE: Environmental Engineering	PE621OE: Energy Management and Conservation PE622OE: Optimization Techniques PE623OE: 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.	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 Engg.	CN831OE: Remote Sensing and GIS CE833OE: Entrepreneurship and Small Business

		Enterprises
6	Computer Science and Engg. / Information Technology	CS831OE: Linux Programming CS832OE: R Programming CS833OE: PHP Programming
7	Electronics and Communication Engg. / Electronics and Telematics Engg.	EC831OE: Electronic Measuring Instruments
8	Electronics and Computer Engg.	EM831OE: Data Analytics
9	Electrical and Electronics Engg.	EE831OE: Entrepreneur Resource Planning EE832OE: Management Information Systems EE833OE: Organizational Behaviour
10	Electronics and Instrumentation Engg.	EI831OE: Sensors and Transducers, 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 Science and Nanotechnology)	NT831OE: Concepts of Nano Science And Technology NT832OE: Synthesis of Nanomaterials NT833OE: Characterization of Nanomaterials
13	Mechanical Engg. (mechatronics)	MT831OE: Renewable Energy Sources MT832OE: Production Planning and Control CE833OE: Entrepreneurship and Small Business Enterprises
14	Metallurgical and Materials Engg.	MM831OE: Design and Selection of Engineering 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 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	T	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
		Total Credits	16	2	13	24

***Mandatory Course – Satisfactory/Unsatisfactory.**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

**B.TECH. COMPUTER SCIENCE AND ENGINEERING
II, III, IV YEARS COURSE STRUCTURE & SYLLABUS (R16)**

Applicable 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	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	T	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

III YEAR I SEMESTER

S. No	Course Code	Course Title	L	T	P	Credits
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	3	0	0	3
5		Open Elective –I	3	0	0	3
6	CS505PC	Design and Analysis of Algorithms Lab	0	0	3	2
7	CS506PC	Computer Networks Lab	0	0	3	2
8	CS507PC	Software Engineering Lab	0	0	3	2
9	*MC500HS	Professional Ethics	3	0	0	0
		Total Credits	21	0	9	24

III YEAR II SEMESTER

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

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

IV YEAR I SEMESTER

S. No	Course Code	Course Title	L	T	P	Credits
1	CS701PC	Data Mining	4	0	0	4
2	CS702PC	Principles of Programming Languages	4	0	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	CS703PC	Data Mining Lab	0	0	3	2
7		PE-II Lab #	0	0	3	2
	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	1
		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
		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 Department Offering Open Electives	Open Elective – I (Semester – V)	Open Elective – II (Semester – VI)
1	Aeronautical Engg.	AE511OE: Introduction to Space Technology	AE621OE: Introduction to Aerospace Engineering
2	Automobile Engg.	CE511OE: Disaster Management MT512OE: Intellectual Property Rights	MT621OE: Data Structures MT622OE: Artificial Neural Networks
3	Biomedical Engg.	BM511OE: Reliability Engineering	BM621OE: Medical Electronics
4	Civil Engg.	CE511OE: Disaster Management.	CE621OE: Remote Sensing and GIS CE622OE: Geo-Informatics CE623OE: Intellectual Property Rights
5	Civil and Environmental Engg.	CE511OE: Disaster Management	CN621OE: Environmental Impact Assessment CE623OE: Intellectual Property Rights
6	Computer Science and Engg. / Information Technology	CS511OE: Operating Systems CS512OE: Database Management Systems	CS621OE: Java Programming CS622OE: Software Testing Methodologies CS623OE: Cyber Security
7	Electronics and Communication Engg. / Electronics and Telematics Engg.	EC511OE: Principles of Electronic Communications	EC621OE: Principles of Computer Communications and Networks
8	Electronics and Computer Engg.	EM511OE: Scripting Languages	EM621OE: Soft Computing Techniques
9	Electrical and Electronics Engg.	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
10	Electronics and Instrumentation Engg.	EI511OE: Electronic Measurements and Instrumentation	EI621OE: Industrial Electronics
11	Mechanical Engg.	ME511OE: Optimization Techniques ME512OE: Computer Graphics ME513OE: Introduction	ME621OE: World Class Manufacturing ME622OE: Fundamentals of Robotics ME623OE: Fabrication

		to Mechatronics ME514OE: Fundamentals of Mechanical Engineering	Processes
12	Mechanical Engg. (Material Science and Nanotechnology)	NT511OE: Fabrication Processes NT512OE: Nondestructive Testing Methods NT513OE: 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.	MM511OE: Materials Characterization Techniques	MM621OE: Science and Technology of Nano Materials MM622OE: Metallurgy of Non Metallurgists
15	Mining Engg.	MN511OE: Introduction to Mining Technology	MN621OE: Coal Gasification, Coal Bed Methane and Shale Gas
16	Petroleum Engg.	PE511OE: Materials Science and Engineering PE512OE: Renewable Energy Sources PE513OE: Environmental Engineering	PE621OE: Energy Management and Conservation PE622OE: Optimization Techniques PE623OE: 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.	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 Engg.	CN831OE: Remote Sensing and GIS CE833OE: Entrepreneurship and Small Business

		Enterprises
6	Computer Science and Engg. / Information Technology	CS831OE: Linux Programming CS832OE: R Programming CS833OE: PHP Programming
7	Electronics and Communication Engg. / Electronics and Telematics Engg.	EC831OE: Electronic Measuring Instruments
8	Electronics and Computer Engg.	EM831OE: Data Analytics
9	Electrical and Electronics Engg.	EE831OE: Entrepreneur Resource Planning EE832OE: Management Information Systems EE833OE: Organizational Behaviour
10	Electronics and Instrumentation Engg.	EI831OE: Sensors and Transducers, 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 Science and Nanotechnology)	NT831OE: Concepts of Nano Science And Technology NT832OE: Synthesis of Nanomaterials NT833OE: Characterization of Nanomaterials
13	Mechanical Engg. (mechatronics)	MT831OE: Renewable Energy Sources MT832OE: Production Planning and Control CE833OE: Entrepreneurship and Small Business Enterprises
14	Metallurgical and Materials Engg.	MM831OE: Design and Selection of Engineering 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 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	T	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
		Total Credits	16	2	13	24

***Mandatory Course – Satisfactory/Unsatisfactory.**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**B.TECH. INFORMATION TECHNOLOGY
II, III, IV YEARS COURSE STRUCTURE & SYLLABUS (R16)**

Applicable 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	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	T	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

III YEAR I SEMESTER

S. No	Course Code	Course Title	L	T	P	Credits
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	3	0	0	3
5		Open Elective –I	3	0	0	3
6	CS505PC	Design and Analysis of Algorithms Lab	0	0	3	2
7	CS506PC	Computer Networks Lab	0	0	3	2
8	CS507PC	Software Engineering Lab	0	0	3	2
9	*MC500HS	Professional Ethics	3	0	0	0
		Total Credits	21	0	9	24

III YEAR II SEMESTER

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

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

IV YEAR I SEMESTER

S. No	Course Code	Course Title	L	T	P	Credits
1	CS701PC	Data Mining	4	0	0	4
2	IT702PC	Android Application Development	4	0	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	IT703PC	Android Application Development Lab	0	0	3	2
7		PE-II Lab #	0	0	3	2
	CS751PC	Python Programming Lab				
	CS753PC	Web Scripting Languages Lab				

	IT752PC CS754PC	Ethical Hacking Lab Internet of Things Lab				
8	IT705PC	Industry Oriented Mini Project	0	0	3	2
9	IT706PC	Seminar	0	0	2	1
		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	IT801PC	Major Project	0	0	30	15
		Total Credits	9	0	30	24

Professional Elective – I

CS611PE	Mobile Computing
IT612PE	Object Oriented Analysis and Design
IT613PE	Computer Forensics
CS614PE	Information Security Management (Security Analyst - I)
CS615PE	Introduction to Analytics (Associate Analytics - I)

Professional Elective - II

CS721PE	Python Programming
CS723PE	Web Scripting Languages
IT722PE	Ethical Hacking
CS724PE	Internet of Things

Professional Elective - III

IT731PE	Web and Database Security
IT732PE	Embedded Systems
IT733PE	Artificial Intelligence
CS734PE	Software Process and Project Management

Professional Elective - IV

CS743PE	Blockchain Technology
CS742PE	Cloud Computing
CS744PE	Social Network Analysis
IT741PE	Information Retrieval Systems

Professional Elective -V

IT851PE	Steganography and Watermarking
CS852PE	Real-Time Systems
CS853PE	Data Analytics
CS854PE	Modern Software Engineering

Professional Elective –VI

IT861PE	Intrusion Detection System
IT862PE	ADHOC and Sensor Networks
CS864PE	Neural Networks and Deep Learning
IT863PE	Human Computer Interaction

***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 to Space Technology	AE621OE: Introduction to Aerospace Engineering
2	Automobile Engg.	CE511OE: Disaster Management MT512OE: Intellectual Property Rights	MT621OE: Data Structures MT622OE: Artificial Neural Networks
3	Biomedical Engg.	BM511OE: Reliability Engineering	BM621OE: Medical Electronics
4	Civil Engg.	CE511OE: Disaster Management.	CE621OE: Remote Sensing and GIS CE622OE: Geo-Informatics CE623OE: Intellectual Property Rights
5	Civil and Environmental Engg.	CE511OE: Disaster Management	CN621OE: Environmental Impact Assessment CE623OE: Intellectual Property Rights
6	Computer Science and Engg. / Information Technology	CS511OE: Operating Systems CS512OE: Database Management Systems	CS621OE: Java Programming CS622OE: Software Testing Methodologies CS623OE: Cyber Security
7	Electronics and Communication Engg. / Electronics and Telematics Engg.	EC511OE: Principles of Electronic Communications	EC621OE: Principles of Computer Communications and Networks
8	Electronics and Computer Engg.	EM511OE: Scripting Languages	EM621OE: Soft Computing Techniques
9	Electrical and Electronics Engg.	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
10	Electronics and Instrumentation Engg.	EI511OE: Electronic Measurements and Instrumentation	EI621OE: Industrial Electronics
11	Mechanical Engg.	ME511OE: Optimization Techniques ME512OE: Computer Graphics ME513OE: Introduction	ME621OE: World Class Manufacturing ME622OE: Fundamentals of Robotics ME623OE: Fabrication

		to Mechatronics ME514OE: Fundamentals of Mechanical Engineering	Processes
12	Mechanical Engg. (Material Science and Nanotechnology)	NT511OE: Fabrication Processes NT512OE: Non destructive Testing Methods NT513OE: 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.	MM511OE: Materials Characterization Techniques	MM621OE: Science and Technology of Nano Materials MM622OE: Metallurgy of Non Metallurgists
15	Mining Engg.	MN511OE: Introduction to Mining Technology	MN621OE: Coal Gasification, Coal Bed Methane and Shale Gas
16	Petroleum Engg.	PE511OE: Materials Science and Engineering PE512OE: Renewable Energy Sources PE513OE: Environmental Engineering	PE621OE: Energy Management and Conservation PE622OE: Optimization Techniques PE623OE: 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.	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 Engg.	CN831OE: Remote Sensing and GIS CE833OE: Entrepreneurship and Small Business

		Enterprises
6	Computer Science and Engg. / Information Technology	CS831OE: Linux Programming CS832OE: R Programming CS833OE: PHP Programming
7	Electronics and Communication Engg. / Electronics and Telematics Engg.	EC831OE: Electronic Measuring Instruments
8	Electronics and Computer Engg.	EM831OE: Data Analytics
9	Electrical and Electronics Engg.	EE831OE: Entrepreneur Resource Planning EE832OE: Management Information Systems EE833OE: Organizational Behaviour
10	Electronics and Instrumentation Engg.	EI831OE: Sensors and Transducers, 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 Science and Nanotechnology)	NT831OE: Concepts of Nano Science And Technology NT832OE: Synthesis of Nanomaterials NT833OE: Characterization of Nanomaterials
13	Mechanical Engg. (mechatronics)	MT831OE: Renewable Energy Sources MT832OE: Production Planning and Control CE833OE: Entrepreneurship and Small Business Enterprises
14	Metallurgical and Materials Engg.	MM831OE: Design and Selection of Engineering 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. 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	1	0	3
2	MA102BS	Mathematics-II	4	1	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
2	CH202BS	Engineering Chemistry	4	0	0	4
3	MA203BS	Mathematics-III	4	1	0	4
4	EN204HS	Professional Communication in English	3	0	0	3
5	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**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

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

Applicable 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	ME301ES	Fluid Mechanics and Hydraulic Machines	4	1	0	4
3	AE302ES	Aircraft Production Technology	3	0	0	3
4	ME303ES	Mechanics of Solids	3	0	0	3
5	ME304ES	Thermodynamics	4	1	0	4
6	AE305ES	Aircraft Production Technology Lab	0	0	3	2
7	ME307ES	Mechanics of Solids Lab	0	0	3	2
8	ME310ES	Fluid Mechanics and Hydraulic Machines Lab	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	AE401ES	Low Speed Aerodynamics	4	1	0	4
2	AE402ES	Fundamentals of Structural Analysis	4	1	0	4
3	AE403ES	Aircraft Performance	4	1	0	4
4	AE404ES	Control Theory	3	1	0	3
5	SM405MS	Business Economics and Financial Analysis	3	0	0	3
6	AE406ES	Electrical and Electronics Engineering Lab	0	0	3	2
7	AE407ES	Numerical Simulation with MATLAB	0	0	3	2
8	AE408ES	Aircraft Engineering Drawing with CAD	0	0	3	2
9	*MC400ES	Environmental Science and Technology	3	0	0	0
		Total Credits	21	4	9	24

III YEAR I SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	AE501PC	High Speed Aerodynamics	4	1	0	4
2	AE502PC	Air Breathing Propulsion	4	0	0	4
3	AE503PC	Aircraft Structural Analysis	4	1	0	4
4	SM504MS	Fundamentals of Management	3	0	0	3
5		Open Elective – I	3	0	0	3
6	AE505PC	Aerodynamics and Propulsion Lab	0	0	3	2
7	AE506PC	Aerospace Structures Lab	0	0	3	2
8	AE507PC	Aero Modeling Lab	0	0	3	2
9	*MC500HS	Professional Ethics	3	0	0	0
		Total Credits	21	2	9	24

III YEAR II SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	AE601PC	Aircraft Systems	4	1	0	4
2	AE602PC	Aircraft Stability and Control	4	1	0	4
3	AE603PC	Rocket and Spacecraft Propulsion	4	0	0	4
4		Professional Elective-I	3	0	0	3
5		Open Elective-II	3	0	0	3
6	AE604PC	Computational Structures Lab	0	0	3	2
7	AE605PC	Flight Dynamics and Control Lab	0	0	3	2
8	EN606HS	Advanced English Communication Skills Lab	0	0	3	2
		Total Credits	18	2	9	24

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

IV YEAR I SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	AE701PC	Flight Vehicle Design	4	1	0	4
2	AE702PC	Mechanical Vibration and Structural Dynamics	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	AE703PC	Flight Vehicle Design and Instrumentation Lab	0	0	3	2
7	AE704PC	Computational Fluid Dynamics Lab	0	0	3	2
8	AE705PC	Industry Oriented Mini Project	0	0	3	2
9	AE706PC	Seminar	0	0	2	1
		Total Credits	17	2	11	24

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	AE801PC	Major Project	0	0	30	15
		Total Credits	9	0	30	24

Professional Elective - I

ME611PE	Finite Element Methods
AE612PE	Experimental Aerodynamics
AE613PE	Mechanisms and Mechanical Design
AE614PE	Unmanned Air Vehicle (UAV) Systems

Professional Elective - II

AE721PE	CAD/CAM
AE722PE	Aircraft Maintenance Engineering
AE723PE	Material Science and Composites
ME724PE	Operations Research

Professional Elective - III

AE731PE	Aircraft Structural Design
ME732PE	Computational Fluid Dynamics
AE733PE	Airport Planning and Management
AE734PE	System Modeling and Simulation

Professional Elective - IV

AE741PE	Advanced Manufacturing Techniques
AE742PE	Air Traffic Control

AE743PE	Space Mechanics
AE744PE	Mechanics of Composite Structures

Professional Elective - V

AE851PE	Helicopter Engineering
AE852PE	Fabrication and Machining of Composite Structures
AE853PE	Airlines Planning, Scheduling and Operations
AE854PE	Hypersonic Aerodynamics

Professional Elective - VI

AE861PE	Aeroelasticity
AE862PE	Wind Engineering and Industrial Aerodynamics
AE863PE	Heat Transfer
AE864PE	Ground Vehicle Aerodynamics

***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 to Space Technology	AE621OE: Introduction to Aerospace Engineering
2	Automobile Engg.	CE511OE: Disaster Management MT512OE: Intellectual Property Rights	MT621OE: Data Structures MT622OE: Artificial Neural Networks
3	Biomedical Engg.	BM511OE: Reliability Engineering	BM621OE: Medical Electronics
4	Civil Engg.	CE511OE: Disaster Management.	CE621OE: Remote Sensing and GIS CE622OE: Geo-Informatics CE623OE: Intellectual Property Rights
5	Civil and Environmental Engg.	CE511OE: Disaster Management	CN621OE: Environmental Impact Assessment CE623OE: Intellectual Property Rights
6	Computer Science and Engg. / Information Technology	CS511OE: Operating Systems CS512OE: Database Management Systems	CS621OE: Java Programming CS622OE: Software Testing Methodologies CS623OE: Cyber Security
7	Electronics and Communication Engg. / Electronics and Telematics Engg.	EC511OE: Principles of Electronic Communications	EC621OE: Principles of Computer Communications and Networks
8	Electronics and Computer Engg.	EM511OE: Scripting Languages	EM621OE: Soft Computing Techniques
9	Electrical and Electronics Engg.	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
10	Electronics and Instrumentation Engg.	EI511OE: Electronic Measurements and Instrumentation	EI621OE: Industrial Electronics
11	Mechanical Engg.	ME511OE: Optimization Techniques ME512OE: Computer Graphics ME513OE: Introduction to Mechatronics ME514OE: Fundamentals of Mechanical Engineering	ME621OE: World Class Manufacturing ME622OE: Fundamentals of Robotics ME623OE: Fabrication Processes
12	Mechanical Engg. (Material Science and Nanotechnology)	NT511OE: Fabrication Processes NT512OE: Non destructive	NT621OE: Introduction to Material Handling NT622OE: Non-Conventional

R16 B.TECH AERONAUTICAL ENGG.

		Testing Methods NT513OE: Fundamentals of Engineering Materials	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.	MM511OE: Materials Characterization Techniques	MM621OE: Science and Technology of Nano Materials MM622OE: Metallurgy of Non Metallurgists
15	Mining Engg.	MN511OE: Introduction to Mining Technology	MN621OE: Coal Gasification, Coal Bed Methane and Shale Gas
16	Petroleum Engg.	PE511OE: Materials Science and Engineering PE512OE: Renewable Energy Sources PE513OE: Environmental Engineering	PE621OE: Energy Management and Conservation PE622OE: Optimization Techniques PE623OE: 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.	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 Engg.	CN831OE: Remote Sensing and GIS CE833OE: Entrepreneurship and Small Business Enterprises
6	Computer Science and Engg. / Information Technology	CS831OE: Linux Programming CS832OE: R Programming CS833OE: PHP Programming
7	Electronics and Communication Engg. / Electronics and Telematics Engg.	EC831OE: Electronic Measuring Instruments
8	Electronics and Computer Engg.	EM831OE: Data Analytics
9	Electrical and Electronics Engg.	EE831OE: Entrepreneur Resource Planning EE832OE: Management Information Systems EE833OE: Organizational Behaviour
10	Electronics and Instrumentation Engg.	EI831OE: Sensors and Transducers, EI832OE: PC Based Instrumentation

R16 B.TECH AERONAUTICAL ENGG.

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 Science and Nanotechnology)	NT831OE: Concepts of Nano Science And Technology NT832OE: Synthesis of Nanomaterials NT833OE: Characterization of Nanomaterials
13	Mechanical Engg. (mechatronics)	MT831OE: Renewable Energy Sources MT832OE: Production Planning and Control CE833OE: Entrepreneurship and Small Business Enterprises
14	Metallurgical and Materials Engg.	MM831OE: Design and Selection of Engineering 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. CIVIL ENGINEERING****I YEAR**

Code	Subject	L	T/P/D	C
A10001	English	2	-	4
A10002	Mathematics – I	3	1	6
A10302	Engineering Mechanics	3	-	6
A10004	Engineering Physics	3	-	6
A10005	Engineering Chemistry	3	-	6
A10501	Computer Programming	3	-	6
A10301	Engineering Drawing	2	3	6
A10581	Computer Programming Lab.	-	3	4
A10081	Engineering Physics & Engineering Chemistry Lab.	-	3	4
A10083	English Language Communication Skills Lab.	-	3	4
A10082	IT Workshop / Engineering Workshop	-	3	4
	Total	19	16	56

II YEAR I SEMESTER

Code	Subject	L	T/P/D	C
A30006	Mathematics – II	4	-	4
A30203	Electrical & Electronics Engineering	4	-	4
A30107	Strength of Materials –I	4	-	4
A30108	Surveying	4	-	4
A30101	Fluid Mechanics	4	-	4
A30010	Managerial Economics and Financial Analysis	4	-	4
A30185	Surveying Lab- I	-	3	2
A30183	Strength of Materials Lab	-	3	2
	Total	24	6	28

II YEAR II SEMESTER

Code	Subject	L	T/P/D	C
A40008	Probability & Statistics	4	-	4
A40114	Strength of Materials - II	4	-	4
A40111	Hydraulics & Hydraulic Machinery	4	-	4
A40009	Environmental Studies	4	-	4
A40115	Structural Analysis -I	4	-	4
A40109	Building Materials, Construction & Planning	4	-	4
A40186	Computer Aided Drafting of Buildings	-	3	2
A40190	Surveying Lab- II	-	3	2
	Total	24	6	28

III YEAR I SEMESTER

Code	Subject	L	T/P/D	C
A50116	Concrete Technology	4	-	4
A50121	Reinforced Concrete Structures Design and Drawing	4	-	4
A50118	Engineering Geology	4	-	4
A50120	Geotechnical Engineering	4	-	4
A50122	Water Resources Engineering-I	4	-	4
	Open Elective	4	-	4
A50117	Disaster Management			
A50017	Intellectual Property Rights			
A50018	Human Values and Professional Ethics			
A50181	Fluid Mechanics & Hydraulic Machinery Lab	-	3	2
A50191	Engineering Geology Lab	-	3	2
	Total	24	6	28

III YEAR II SEMESTER

Code	Subject	L	T/P/D	C
A60130	Steel Structures Design and Drawing	3	2	4
A60119	Environmental Engineering	4		4
A60132	Transportation Engineering -I	4		4
A60126	Foundation Engineering	4		4
A60131	Structural Analysis -II	4		4
	Elective -I	4	-	4
A60123	Elements of Earthquake Engineering			
A60127	Ground Improvement Techniques			
A60128	Ground Water Hydrology			
A60124	Environmental Impact Assessment			
A60129	Principles of Entrepreneurship			
A60194	Geotechnical Engineering Lab	-	3	2
A60086	Advanced Communication Skills Lab	-	3	2
	Total	23	8	28

IV YEAR I SEMESTER

Code	Subject	L	T/P/D	C
A70140	Remote Sensing & GIS	4	-	4
A70143	Transportation Engineering -II	4	-	4
A70138	Estimating & Costing	4	-	4
A70133	Water Resources Engineering-II	4	-	4
	Elective-II	4	-	4
A70330	Finite Element Methods			
A70134	Advanced Foundation Engineering			
A70145	Watershed Management			
A70136	Air Pollution and Control			
	Elective-III	4	-	4
A70135	Advanced Structural Design			
A70137	Earth and Rock fill Dams and Slope Stability			
A70144	Water Resources Systems Analysis			
A70139	Industrial Waste Water Treatment			
A70195	Concrete & Highway Materials Lab	-	3	2
A70192	Environmental Engineering Lab	-	3	2
	Total	24	6	28

IV YEAR II SEMESTER

Code	Subject	L	T/P/D	C
	Elective-IV	4	-	4
A80151	Rehabilitation and Retrofitting of Structures			
A80148	Geo-Environmental Engineering			
A80147	Design and Drawing of Irrigation Structures			
A80141	Solid Waste Management			
A80150	Prestressed Concrete Structures	4	-	4
A80146	Construction Management	4	-	4
A80087	Industry Oriented Mini project	-	-	2
A80089	Seminar	-	6	2
A80088	Project Work	-	15	10
A80090	Comprehensive viva	-	-	2
	Total	12	21	28

Note: All End Examinations (Theory and Practical) are of three hours duration.

T-Tutorial L - Theory P - Practical D-Drawing C - Credits

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD.**B. TECH. ELECTRICAL AND ELECTRONICS ENGINEERING****I YEAR**

Code	Subject	L	T/P/D	C
A10001	English	2	-	4
A10002	Mathematics – I	3	1	6
A10003	Mathematical Methods	3	-	6
A10004	Engineering Physics	3	-	6
A10005	Engineering Chemistry	3	-	6
A10501	Computer Programming	3	-	6
A10301	Engineering Drawing	2	3	6
A10581	Computer Programming Lab.	-	3	4
A10081	Engineering Physics / Engineering Chemistry Lab.	-	3	4
A10083	English Language Communication Skills Lab.	-	3	4
A10082	IT Workshop / Engineering Workshop	-	3	4
	Total	19	16	56

II YEAR I SEMESTER

Code	Subject	L	T/P/D	C
A30007	Mathematics – III	4	-	4
A30102	Fluid Mechanics and Hydraulic Machinery	4	-	4
A30404	Electronic Devices & Circuits	4	-	4
A30204	Electrical Circuits	4	-	4
A30403	Electromagnetic fields	4	-	4
A30206	Electrical Machines-I	4	-	4
A30181	Fluid Mechanics and Hydraulic Machinery Lab	-	3	2
A30482	Electronic devices & Circuit labs	-	3	2
	Total	24	6	28

II YEAR II SEMESTER

Code	Subject	L	T/P/D	C
A40010	Managerial Economics & Financial Analysis	4	-	4
A40214	Power Systems-I	4	-	4
A40413	Electronic Circuits	4	-	4
A40407	Switching Theory and Logic Design	4	-	4
A40213	Network Theory	4	-	4
A40212	Electrical Machines-II	4	-	4
A40287	Electrical Machines lab -I	-	3	2
A40286	Electrical Circuits and Simulation Lab	-	3	2
	Total	24	6	28

III YEAR I SEMESTER

Code	Subject	L	T/P/D	C
A50423	IC Applications	4	-	4
A50014	Management Science	4	-	4
A50221	Power Systems-II	4	-	4
A50211	Control Systems	4	-	4
A50220	Power Electronics	4	-	4
A50218	Electrical Machines-III	4	-	4
A50289	Electrical Machines lab –II	-	3	2
A50086	Advanced Communication Skills Lab	-	3	2
	Total	24	6	28

III YEAR II SEMESTER

Code	Subject	L	T/P/D	C
A60223	Electrical and Electronics Instrumentation	4	-	4
A60225	Static Drives	4	-	4
A60222	Computer Methods in Power Systems	4	-	4
A60430	Microprocessors and Interfacing Devices	4	-	4
A60009	Environmental Studies	4	-	4
	Open Elective	4	-	4
A60117	Disaster Management			
A60017	Intellectual Property Rights			
A60018	Human Values and Professional Ethics			
A60290	Control Systems and Simulation Lab	-	3	2
A60291	Power Electronics and Simulation Lab	-	3	2
	Total	24	6	28

IV YEAR I SEMESTER

Code	Subject	L	T/P/D	C
A70231	Switch Gear and Protection	4	-	4
A70232	Utilization of Electrical Energy	4	-	4
A70421	Digital Signal Processing	4	-	4
A70230	Power System Operation and Control	4	-	4
	Elective-I	4	-	4
A70228	High Voltage Engineering			
A70432	VLSI Design			
A70435	Digital Control Systems			
	Elective-II	4	-	4
A70229	Optimization Techniques			
A70226	Electrical Distribution Systems			
A70227	Electrical Estimation and Costing			
A70498	Microprocessors and Interfacing Devices Lab	-	3	2
A70293	Electrical Measurements Lab	-	3	2
	Total	24	6	28

IV YEAR II SEMESTER

Code	Subject	L	T/P/D	C
A80237	Fundamentals of HVDC and FACTS Devices	4	-	4
	Elective-III	4	-	4
A80238	Neural Networks and Fuzzy Logic			
A80324	Renewable Energy Sources			
A80244	Principles of Reliability Engineering			
	Elective-IV	4	-	4
A80234	Advanced Control Systems			
A80235	EHV AC Transmission			
A82909	Nanotechnology			
A80087	Industry Oriented Mini Project	-	-	2
A80089	Seminar	-	6	2
A80088	Project Work	-	15	10
A80090	Comprehensive Viva-Voce	-	-	2
	Total	12	21	28

Note: All End Examinations (Theory and Practical) are of three hours duration.

T-Tutorial L – Theory P – Practical D-Drawing C – Credits

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD.**B. TECH. MECHANICAL ENGINEERING****I YEAR**

Code	Subject	L	T/P/D	C
A10001	English	2	-	4
A10002	Mathematics – I	3	1	6
A10302	Engineering Mechanics	3	-	6
A10004	Engineering Physics	3	-	6
A10005	Engineering Chemistry	3	-	6
A10501	Computer Programming	3	-	6
A10301	Engineering Drawing	2	3	6
A10581	Computer Programming Lab.	-	3	4
A10081	Engineering Physics & Engineering Chemistry Lab.	-	3	4
A10083	English Language Communication Skills Lab.	-	3	4
A10082	IT Workshop / Engineering Workshop	-	3	4
	Total	19	16	56

II YEAR I SEMESTER

Code	Subject	L	T/P/D	C
A30009	Environmental Studies	4	-	4
A30008	Probability and Statistics	4	-	4
A30203	Electrical and Electronics Engineering	4	-	4
A30104	Mechanics of Solids	4	-	4
A30306	Thermodynamics	4	-	4
A31803	Metallurgy and Materials Science	4	-	4
A30281	Electrical and Electronics Engineering Lab	-	3	2
A30085	Metallurgy & Mechanics of Solids Lab	-	3	2
	Total	24	6	28

II YEAR II SEMESTER

Code	Subject	L	T/P/D	C
A40312	Production Technology	4	-	4
A40309	Kinematics of Machinery	4	-	4
A40313	Thermal Engineering -I	4	-	4
A40112	Mechanics of Fluids and Hydraulic Machines	4	-	4
A40310	Machine Drawing	-	6	4
A40006	Mathematics-II	4	-	4
A40382	Production Technology Lab	-	3	2
A40188	Mechanics of Fluids & Hydraulic Machines Lab	-	3	2
	Total	20	12	28

III YEAR I SEMESTER

Code	Subject	L	T/P/D	C
A50010	Managerial Economics and Financial Analysis	4	-	4
A50318	Engineering Metrology	4	-	4
A50317	Dynamics of Machinery	4	-	4
A50321	Machine Tools	4	-	4
A50316	Design of Machine Members – I	4	-	4
A50326	Thermal Engineering -II	4	-	4
A50384	Machine Tools & Metrology Lab	-	3	2
A50383	Thermal Engineering Lab	-	3	2
	Total	24	6	28

III YEAR II SEMESTER

Code	Subject	L	T/P/D	C
A62405	Automobile Engineering	4	-	4
A60330	Finite Element Methods	4	-	4
A60334	Refrigeration and Air Conditioning	4	-	4
A60329	Design of Machine Members – II	4	-	4
A60331	Heat Transfer	4	-	4
	Open Elective	4	-	4
A60117	Disaster Management			
A60017	Intellectual Property Rights			
A60018	Human Values and Professional Ethics			
A60387	Heat Transfer Lab	-	3	2
A60086	Advanced Communication Skills Lab	-	3	2
	Total	24	6	28

IV YEAR I SEMESTER

Code	Subject	L	T/P/D	C
A70352	Operations Research	4	-	4
A70353	Power Plant Engineering	4	-	4
A70328	CAD/CAM	4	-	4
A70343	Instrumentation and Control Systems	4	-	4
	ELECTIVE – I	4	-	4
A70355	Robotics			
A70346	Mechanical Vibrations			
A70348	Mechatronics			
A70347	Mechanics of Composite Materials			
A70332	Industrial Management			
	ELECTIVE – II	4	-	4
A70359	Unconventional Machining Processes			
A70337	CNC Technology			
A70336	Automation in Manufacturing			
A70339	Design for Manufacturing			
A72909	Nanotechnology			
A70390	Computer Aided Design & Manufacturing Lab	-	3	2
A70391	Production Drawing Practice and Instrumentation Lab	-	3	2
	Total	24	6	28

IV YEAR II SEMESTER

Code	Subject	L	T/P/D	C
A80366	Production Planning and Control	4	-	4
	ELECTIVE – III	4	-	4
A80527	Artificial Neural Networks			
A80367	Total Quality Management			
A80363	Maintenance and Safety Engineering			
A80365	Plant Layout & Material Handling			
	ELECTIVE – IV	4	-	4
A80324	Renewable Energy Sources			
A80362	Jet Propulsion & Rocket Engineering			
A80338	Computational Fluid Dynamics			
A80361	Gas Dynamics			
A80087	Industry Oriented Mini Project	-	-	2
A80089	Seminar	-	6	2
A80088	Project Work	-	15	10
A80090	Comprehensive Viva	-	-	2
	Total	12	21	28

Note: All End Examinations (Theory and Practical) are of three hours duration.

T-Tutorial L – Theory P – Practical D-Drawing C – Credits

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD.**B. TECH. ELECTRONICS AND COMMUNICATION ENGINEERING****I YEAR**

Code	Subject	L	T/P/D	C
A10001	English	2	-	4
A10002	Mathematics – I	3	1	6
A10003	Mathematical Methods	3	-	6
A10004	Engineering Physics	3	-	6
A10005	Engineering Chemistry	3	-	6
A10501	Computer Programming	3	-	6
A10301	Engineering Drawing	2	3	6
A10581	Computer Programming Lab.	-	3	4
A10081	Engineering Physics / Engineering Chemistry Lab.	-	3	4
A10083	English Language Communication Skills Lab.	-	3	4
A10082	IT Workshop / Engineering Workshop	-	3	4
	Total	19	16	56

II YEAR I SEMESTER

Code	Subject	L	T/P/D	C
A30007	Mathematics - III	4	-	4
A30405	Probability Theory and Stochastic Processes	4	-	4
A30407	Switching Theory and Logic Design	4	-	4
A30204	Electrical Circuits	4	-	4
A30404	Electronic Devices and Circuits	4	-	4
A30406	Signals and Systems	4	-	4
A30482	Electronic Devices and Circuits Lab.	-	3	2
A30481	Basic Simulation Lab.	-	3	2
	Total	24	6	28

II YEAR II SEMESTER

Code	Subject	L	T/P/D	C
A40215	Principles of Electrical Engineering	4	-	4
A40412	Electronic Circuit Analysis	4	-	4
A40415	Pulse and Digital Circuits	4	-	4
A40009	Environmental Studies	4	—	4
A40411	Electromagnetic Theory and Transmission Lines	4	-	4
A40410	Digital Design using Verilog HDL	4	-	4
A40288	Electrical Technology Lab.	-	3	2
A40484	Electronic Circuits and Pulse Circuits Lab.	-	3	2
	Total	24	6	28

III YEAR I SEMESTER

Code	Subject	L	T/P/D	C
A50217	Control Systems Engineering	4	-	4
A50516	Computer Organization and Operating Systems	4	-	4
A50418	Antennas and Wave Propagation	4	-	4
A50422	Electronic Measurements and Instrumentation	4	-	4
A50408	Analog Communications	4	-	4
A50425	Linear and Digital IC Applications	4	-	4
A50482	Analog Communications Lab.	-	3	2
A50488	IC Applications and HDL Simulation Lab.	-	3	2
	Total	24	6	28

III YEAR II SEMESTER

Code	Subject	L	T/P/D	C
A60010	Managerial Economics and Financial Analysis	4	-	4
	Open Elective:	4	-	4
A60018	Human Values and Professional Ethics			
A60117	Disaster Management			
A60017	Intellectual Property Rights			
A60420	Digital Communications	4	-	4
A60432	VLSI Design	4	-	4
A60430	Microprocessors and Microcontrollers	4	-	4
A60421	Digital Signal Processing	4	-	4
A60494	Microprocessors and Microcontrollers Lab.	-	3	2
A60493	Digital Signal Processing Lab.	-	3	2
	Total	24	6	28

IV YEAR I SEMESTER

Code	Subject	L	T/P/D	C
A70014	Management Science	4	-	4
A70442	Microwave Engineering	4	-	4
A70515	Computer Networks	4	-	4
A70434	Cellular and Mobile Communications	4	-	4
A70436 A70443 A70505	Elective -I: Digital Image Processing Multimedia and Signal Coding Object Oriented Programming through Java	4	-	4
A70447 A70444 A70440	Elective -II: Television Engineering Optical Communications Embedded Systems Design	4	-	4
A70086	Advanced Communication Skills Lab,	-	3	2
A70499	Microwave Engineering and Digital Communications Lab	-	3	2
	Total	24	6	28

IV YEAR II SEMESTER

Code	Subject	L	T/P/D	C
A80452 A81102 A80527	Elective -III: Satellite Communications Biomedical Instrumentation Artificial Neural Networks	4	-	4
A80431 A80450 A80449	Elective -IV: Telecommunication Switching Systems and Networks Radar Systems Network Security	4	-	4
A80454 A80437 A80451	Elective -V: Wireless Communications and Networks Digital Signal Processors and Architectures RF Circuit Design	4	-	4
A80087	Industry Oriented Mini Project	-	-	2
A80089	Seminar	-	6	2
A80088	Major Project Work	-	15	10
A80090	Comprehensive Viva	-	-	2
	Total	12	21	28

Note: All End Examinations (Theory and Practical) are of three hours duration.
T-Tutorial L – Theory P – Practical D-Drawing C – Credits

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD.**B. TECH. COMPUTER SCIENCE AND ENGINEERING****I YEAR**

Code	Subject	L	T/P/D	C
A10001	English	2	-	4
A10002	Mathematics – I	3	1	6
A10003	Mathematical Methods	3	-	6
A10004	Engineering Physics	3	-	6
A10005	Engineering Chemistry	3	-	6
A10501	Computer Programming	3	-	6
A10301	Engineering Drawing	2	3	6
A10581	Computer Programming Lab.	-	3	4
A10081	Engineering Physics / Engineering Chemistry Lab.	-	3	4
A10083	English Language Communication Skills Lab.	-	3	4
A10082	IT Workshop / Engineering Workshop	-	3	4
	Total	19	16	56

II YEAR I SEMESTER

Code	Subject	L	T/P/D	C
A30008	Probability and Statistics	4	-	4
A30504	Mathematical Foundations of Computer Science	4	-	4
A30502	Data Structures	4	-	4
A30401	Digital Logic Design	4	-	4
A30404	Electronic Devices and Circuits	4	-	4
A30202	Basic Electrical Engineering	4	-	4
A30282	Electrical and Electronics Lab	-	3	2
A30582	Data Structures Lab	-	3	2
	Total	24	6	28

II YEAR II SEMESTER

Code	Subject	L	T/P/D	C
A40506	Computer Organization	4	-	4
A40507	Database Management Systems	4	-	4
A40503	Java Programming	4	-	4
A40009	Environmental studies	4	-	4
A40509	Formal Languages and Automata Theory	4	-	4
A40508	Design and Analysis of Algorithms	4	-	4
A40585	Java Programming Lab	-	3	2
A40584	Database Management Systems Lab	-	3	2
	Total	24	6	28

III YEAR I SEMESTER

Code	Subject	L	T/P/D	C
A50511	Principles of Programming Languages	4	-	4
	OPEN ELECTIVE	4	-	4
A50018	Human Values and Professional Ethics			
A50017	Intellectual Property Rights			
A50117	Disaster Management			
A50518	Software Engineering	4	-	4
A50514	Compiler Design	4	-	4
A50510	Operating Systems	4	-	4
A50515	Computer Networks	4	-	4
A50589	Operating Systems Lab	-	3	2
A50587	Compiler Design Lab	-	3	2
	Total	24	6	28

III YEAR II SEMESTER

Code	Subject	L	T/P/D	C
A60521	Distributed Systems	4	-	4
A60522	Information Security	4	-	4
A60524	Object Oriented Analysis and Design	4	-	4
A60525	Software Testing Methodologies	4	-	4
A60010	Managerial Economics and Financial Analysis	4	-	4
A60512	Web Technologies	4	-	4
A60591	Case Tools and Web Technologies Lab	-	3	2
A60086	Advanced Communication Skills Lab	-	3	2
	Total	24	6	28

IV YEAR I SEMESTER

Code	Subject	L	T/P/D	C
A70511	Linux Programming	4	-	4
A70530	Design Patterns	4	-	4
A70520	Data Warehousing and Data Mining	4	-	4
A70519	Cloud Computing	4	-	4
	ELECTIVE – I	4	-	4
A70540	Software Project Management			
A70532	Image processing and Pattern Recognition			
A70536	Mobile Computing			
A70529	Computer Graphics			
A70352	Operations Research			
	ELECTIVE – II	4	-	4
A70534	Machine Learning			
A70539	Soft Computing			
A70533	Information Retrieval Systems			
A70526	Artificial Intelligence			
A70628	Computer Forensics			
A70596	Linux Programming Lab	-	3	2
A70595	Data Warehousing and Mining Lab	-	3	2
	Total	24	6	28

IV YEAR II SEMESTER

Code	Subject	L	T/P/D	C
A80014	Management Science	4	-	4
	ELECTIVE III	4	-	4
A80551	Web Services			
A80538	Semantic Web and Social Networks			
A80537	Scripting Languages			
A80547	Multimedia & Rich Internet Applications			
	ELECTIVE – IV	4	-	4
A80542	Ad hoc and Sensor Networks			
A80550	Storage Area Networks			
A80543	Database Security			
A80439	Embedded Systems			
A80087	Industry Oriented Mini Project	-	-	2
A80089	Seminar	-	6	2
A80088	Project Work	-	15	10
A80090	Comprehensive Viva	-	-	2
	Total	12	21	28

Note: All End Examinations (Theory and Practical) are of three hours duration.

T-Tutorial L – Theory P – Practical D-Drawing C – Credits

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY
HYDERABAD.**

B. TECH. INFORMATION TECHNOLOGY / COMPUTER SCIENCE TECHNOLOGY

I YEAR

Code	Subject	L	T/P/D	C
	English	2	-	4
	Mathematics – I	3	1	6
	Mathematical Methods	3	-	6
	Engineering Physics	3	-	6
	Engineering Chemistry	3	-	6
	Computer Programming	3	-	6
	Engineering Drawing	2	3	6
	Computer Programming Lab.	-	3	4
	Engineering Physics / Engineering Chemistry Lab.	-	3	4
	English Language Communication Skills Lab.	-	3	4
	IT Workshop / Engineering Workshop	-	3	4
	Total	19	16	56

II YEAR I SEMESTER

Code	Subject	L	T/P/D	C
	Probability and Statistics	4	-	4
	Mathematical Foundations of Computer Science	4	-	4
	Data Structures	4	-	4
	Digital Logic Design and Computer Organization	4	-	4
	Electronic Devices and Circuits	4	-	4
	Basic Electrical Engineering	4	-	4
	Electrical and Electronics Lab	-	3	2
	Data Structures Lab	-	3	2
	Total	24	6	28

II YEAR II SEMESTER

Code	Subject	L	T/P/D	C
	Principles of Programming Languages	4	-	4
	Database Management Systems	4	-	4
	Java Programming	4	-	4
	Environmental studies	4	-	4
	Data Communication	4	-	4
	Design and Analysis of Algorithms	4	-	4
	Java Programming Lab	-	3	2
	Database Management Systems Lab	-	3	2
	Total	24	6	28

III YEAR I SEMESTER

Code	Subject	L	T/P/D	C
	Automata and Compiler Design	4	-	4
	Linux Programming	4	-	4
	Software Engineering	4	-	4
	Operating Systems	4	-	4
	Computer Networks	4	-	4
	Managerial Economics and Financial Analysis	4	-	4
	Operating Systems Lab	-	3	2
	Computer Networks Lab (Through Linux)	-	3	2
	Total	24	6	28

III YEAR II SEMESTER

Code	Subject	L	T/P/D	C
	Web Technologies	4	-	4
	OPEN ELECTIVE Human Values and Professional Ethics Intellectual Property Rights Disaster Management	4	-	4
	Object Oriented Analysis and Design	4	-	4
	Data Warehousing and Data Mining	4	-	4
	Software Testing Methodologies	4	-	4
	Cloud Computing	4	-	4
	Data Mining and Web Technologies Lab	-	3	2
	Advanced Communication Skills Lab	-	3	2
	Total	24	6	28

IV YEAR I SEMESTER

Code	Subject	L	T/P/D	C
	Information Security	4	-	4
	Design Patterns	4	-	4
	Mobile Application Development	4	-	4
	Information Retrieval Systems	4	-	4
	ELECTIVE – I Wireless Networks and Mobile Computing Image Processing and Pattern Recognition Soft Computing Semantic Web and Social Networks Operations Research	4	-	4
	ELECTIVE – II Software Project Management Computer Graphics Human Computer Interaction Scripting Languages Computer Forensics	4	-	4
	Case Tools and Software Testing Lab	-	3	2
	Mobile Applications Development Lab	-	3	2
	Total	24	6	28

IV YEAR II SEMESTER

Code	Subject	L	T/P/D	C
	Management Science	4	-	4
	ELECTIVE III Web Services E – Commerce Middleware Technologies Ad hoc and Sensor Networks	4	-	4
	ELECTIVE IV Multimedia & Rich Internet Applications Artificial Intelligence Storage Area Networks Machine Learning	4	-	4
	Industry Oriented Mini Project	-	-	2
	Seminar	-	6	2
	Project Work	-	15	10
	Comprehensive Viva	-	-	2
	Total	12	21	28

Note: All End Examinations (Theory and Practical) are of three hours duration.

T-Tutorial L – Theory P – Practical D-Drawing C – Credits

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD.**B. TECH. AERONAUTICAL ENGINEERING****I YEAR**

Code	Subject	L	T/P/D	C
A10001	English	2	-	4
A10002	Mathematics – I	3	1	6
A10302	Engineering Mechanics	3	-	6
A10004	Engineering Physics	3	-	6
A10005	Engineering Chemistry	3	-	6
A10501	Computer Programming	3	-	6
A10301	Engineering Drawing	2	3	6
A10581	Computer Programming Lab.	-	3	4
A10081	Engineering Physics & Engineering Chemistry Lab.	-	3	4
A10083	English Language Communication Skills Lab.	-	3	4
A10082	IT Workshop / Engineering Workshop	-	3	4
	Total	19	16	56

II YEAR I SEMESTER

Code	Subject	L	T/P/D	C
A30006	Mathematics – II	4	-	4
A30306	Thermodynamics	4	-	4
A30104	Mechanics of Solids	4	-	4
A30103	Mechanics of Fluids	4	-	4
A32101	Introduction of Aerospace Engg	4	-	4
A30009	Environmental Studies	4	-	4
A32181	Aircraft Engineering Drawing Lab with CAD	-	3	2
A30182	Mechanics of Solids and Mechanics of Fluids Lab	-	3	2
	Total	24	6	28

II YEAR II SEMESTER

Code	Subject	L	T/P/D	C
A42102	Aerodynamics-I	4	-	4
A42104	Aircraft Production Technology	4	-	4
A40203	Electrical and Electronics Engineering	4	-	4
A42103	Aerospace Vehicle Structures -I	4	-	4
A42106	Introduction to Space Technology	4	-	4
A42105	Flight Mechanics -I	4	-	4
A42182	Aircraft Production Technology Lab	-	3	2
A40281	Electrical and Electronics Engineering Lab	-	3	2
	Total	24	6	28

III YEAR I SEMESTER

Code	Subject	L	T/P/D	C
A50014	Management Science	4	-	4
A52111	Flight Mechanics- II	4	-	4
A52107	Aerodynamics- II	4	-	4
A52109	Aerospace Vehicle Structures- II	4	-	4
A52108	Aerospace Propulsion- I	4	-	4
A52110	Air Transportation Systems	4	-	4
A52184	Aerospace Structures Lab	-	3	2
A52183	Aerodynamics and Propulsion Lab	-	3	2
	Total	24	6	28

III YEAR II SEMESTER

Code	Subject	L	T/P/D	C
A62114	Computational Aerodynamics	4	-	4
A62115	Conceptual Design of Flight Vehicles	4	-	4
A62112	Aerospace Propulsion- II	4	-	4
A62113	Aircraft Systems	4	-	4
A60330	Finite Element Methods	4	-	4
	Open Elective			
A60117	Disaster Management			
A60017	Intellectual Property Rights			
A60018	Human Values and Professional Ethics	4	-	4
A60086	Advanced Communication Skills Lab	-	3	2
A62185	Flight Vehicle Design & Instrumentation Lab	-	3	2
	Total	24	6	28

IV YEAR I SEMESTER

Code	Subject	L	T/P/D	C
A72118	Airframe Structural Design	4	-	4
A72122	Mechanical Vibrations and Structural Dynamics	4	-	4
A70328	CAD/CAM	4	-	4
A72119	Control Theory – Application to Flight Control Systems	4	-	4
	Elective - I	4	-	4
A72116	Advanced Computational Aerodynamics			
A72121	Flight Scheduling and Operations			
A72123	Mechanisms and Mechanical Design			
A72125	Theory of Elasticity			
A70008	Probability and Statistics			
	Elective - II	4	-	4
A72124	Space Mechanics			
A72120	Experimental Aerodynamics			
A70352	Operations Research			
A72117	Aircraft Maintenance Engineering			
A72187	Computational Structures Lab	-	3	2
A72186	Computational Aerodynamics Lab	-	3	2
	Total	24	6	28

IV YEAR II SEMESTER

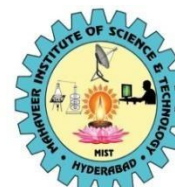
Code	Subject	L	T/P/D	C
A82129	Avionics & Instrument Systems	4	-	4
	Elective -III	4	-	4
A82127	Airport Planning and Operations			
A82128	Analysis of Composite Structures			
A82130	Helicopter Engineering			
A82131	Hypersonic Aerodynamics			
	Elective - IV	4	-	4
A80331	Heat Transfer			
A82132	Launch Vehicle and Missile Technology			
A82133	Wind Engineering and Industrial Aerodynamics			
A82126	Aero elasticity			
A80087	Industry Oriented Mini Project	-	-	2
A80089	Seminar	-	6	2
A80088	Project Work	-	15	10
A80090	Comprehensive Viva	-	-	2
	Total	12	21	28

Note: All End Examinations (Theory and Practical) are of three hours duration.

T-Tutorial L - Theory P - Practical D-Drawing C - Credits

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MAHAVEER
 INSTITUTE OF SCIENCE & TECHNOLOGY



Approved by AICTE, Affiliated to JNTUH,Hyd.

Counseling Code: **MHVR**, University Code: **E3**

Number of Add on /Certificate programs offered during the last five years


1.2.3 Average percentage of students enrolled in Add-on/Certificate programs as against the total number of students during the last five years

Year -1						
Name of Add on /Certificate programs offered	Course Code (if any)	Year of offering	No. of times offered during the same year	Duration of course	Number of students enrolled in the year	Number of Students completing the course in the year
E-TABS	CIVIL-ET	2020-2021	1	30Hrs	48	48
AUTO CAD	CIVIL-AC	2020-2021	1	36Hrs	36	36
REVIT	CIVIL-R	2020-2021	1	38Hrs	36	36
GEO5	CIVIL-G5	2020-2021	1	40Hrs	39	39
STAAD-PRO	CIVIL-SP	2020-2021	1	30Hrs	39	39
AUTO CAD	EEE-AC	2020-2021	1	30Hrs	31	31
MAT CAD PROGRAMMING	EEE-MATCADP	2020-2021	1	36Hrs	35	35
AUTO CAD	MECH-AUTOCAD	2020-2021	1	30Hrs	21	21
CATIA	MECH-CATIA	2020-2021	1	30Hrs	60	60
ANSYS	MECH-ANSYS	2020-2021	1	30Hrs	75	75
3D-PRINTING	MECH-3D PRINTING	2020-2022	1	30Hrs	75	75
CNC	MECH-CNC	2020-2021	1	30Hrs	18	18
ROLE ON ADVANCED ELECTRONIC MATERIALS & DEVICES IN SPACE & DEFENCE APPLICATIONS	ECE-AEMSDA	2020-2021	1	30Hrs	47	47
PYTHON PROGRAMMING	ECE-PP	2020-2021	1	30Hrs	47	47
3DGRAPHICS	CSE-3DG	2020-2021	1	36Hrs	53	53
PYTHON PROGRAMMING	IT-PP	2020-2021	1	30Hrs	53	53
ADVANCE JAVA AND J2EE USING ECLIPSE	IT-AJ-J2EE	2020-2021	1	30Hrs	67	67
MULTI ROTOR DRONE PILOT	AERO-MRDP	2020-2021	1	30Hrs	33	33
ULTRASONICS	HNS-US	2020-2021	1	36Hrs	25	25
Year 2						

Name of Add on /Certificate programs offered	Course Code (if any)	Year of offering	No. of times offered during the same year	Duration of course	Number of students enrolled in the year	Number of Students completing the course in the year
E-TABS	CIVIL-ET	2019-2020	1	30Hrs	40	40
AUTO CAD	CIVIL-AC	2019-2020	1	36Hrs	56	56
REVIT	CIVIL-R	2019-2020	1	38Hrs	45	45
MATLAB PROGRAMMING	EEE-MATLP	2019-2020	1	30Hrs	46	46
PSPICE PROGRAMMING	EEE-PSP	2019-2020	1	30Hrs	35	35
AUTO CAD	MECH-AUTOCAD	2019-2020	1	30Hrs	60	60
CATIA	MECH-CATIA	2019-2020	1	30Hrs	75	75
ANSYS	MECH-ANSYS	2019-2020	1	30Hrs	78	78
MATERIALS & DEVICES IN SPACE & ADVANCED VLSI TECHNOLOGY	ECE-AEMSDA	2019-2020	1	30Hrs	50	50
ADVANCED VLSI TECHNOLOGY	ECE-AVT	2019-2020	1	40Hrs	50	50
BASIC WEB DESIGNING	CSE-BWD	2019-2020	1	30Hrs	67	67
ANDROID APPLICATION DEVELOPMENT	IT-AAD	2019-2020	1	40Hrs	50	50
ORACLE JAVA CERTIFICATION	IT-OJC	2019-2020	1	30Hrs	49	49
COMPUTER AIDED ANALYSIS FLUENT	AERO-FLUENT	2019-2020	1	30Hrs	24	24
SOFTSKILLS	HNS-SS	2019-2020	1	36Hrs	25	25
Year 3						
Name of Add on /Certificate programs offered	Course Code (if any)	Year of offering	No. of times offered during the same year	Duration of course	Number of students enrolled in the year	Number of Students completing the course in the year
AUTO CAD	CIVIL-AC	2018-2019	1	36Hrs	38	38
REVIT	CIVIL-R	2018-2019	1	38Hrs	38	38
GEO5	CIVIL-G5	2018-2019	1	40Hrs	35	35
STAAD-PRO	CIVIL-SP	2018-2019	1	30Hrs	35	35
PLC PROGRAMMING	EEE-PLCP	2018-2019	1	30Hrs	37	37
ELECTRICAL ENERGY MANAGEMENT	EEE-EEM	2018-2019	1	30Hrs	46	46
AUTO CAD	MECH-AUTOCAD	2018-2019	1	30Hrs	75	75
CATIA	MECH-CATIA	2018-2019	1	30Hrs	78	78
ANSYS	MECH-ANSYS	2018-2019	1	30Hrs	70	70
MATERIALS & DEVICES IN SPACE & ADVANCED VLSI TECHNOLOGY	ECE-AEMSDA	2018-2019	1	40Hrs	53	53
ADVANCED VLSI TECHNOLOGY	ECE-AVT	2018-2019	1	30Hrs	51	51

PC HARDWARE NETWORKING	CSE-PCHN	2018-2019	1	40Hrs	54	54
ANGULAR JS	CSE-AJS	2018-2019	1	30Hrs	50	50
WEB APPLICATION DEVELOPMENT USING PHP & XML	IT-PHP-XML	2018-2019	1	30Hrs	54	54
TECHNICAL TRAINING HTML	IT-HTML	2018-2019	1	30Hrs	58	58
COMPUTER AIDED DESIGN CREO	AERO-CREO	2018-2019	1	30Hrs	18	18
COMMUNICATION SKILLS	HNS-CS	2018-2019	1	36Hrs	25	25
Year 4						
Name of Add on /Certificate programs offered	Course Code (if any)	Year of offering	No. of times offered during the same year	Duration of course	Number of students enrolled in the year	Number of Students completing the course in the year
E-TABS	CE-ET	2017-2018	1	30Hrs	35	35
GEO5	CE-G5	2017-2018	1	30Hrs	65	65
STAAD-PRO	CE-SP	2017-2018	1	30Hrs	65	65
INDUSTRIAL MANAGEMENT	EEE-IM	2017-2018	1	30Hrs	30	30
ELECTRICAL INSTALLATION STANDARDS	EEE-EIS	2017-2018	1	40Hrs	39	39
AUTO CAD	MECH-AUTOCAD	2017-2018	1	30Hrs	78	78
CATIA	MECH-CATIA	2017-2018	1	30Hrs	70	70
ANSYS	MECH-ANSYS	2017-2018	1	30Hrs	71	71
C PROGRAMMING	ECE-CP	2017-2018	1	30Hrs	50	50
JAVA CERTIFICATION PROGRAMME	ECE-JCP	2017-2018	1	40Hrs	50	50
ANDROID MOBILE APPLICATION	CSE-AMA	2017-2018	1	30Hrs	49	49
TRAINING - C PROGRAMMING	IT-CP	2017-2018	1	30Hrs	51	51
JAVA CERTIFICATION PROGRAMME	IT-JCP	2017-2018	1	30Hrs	43	43
COMPUTER AIDED DESIGN (CATIA)	AERO-CATIA	2017-2018	1	30Hrs	16	16
ULTRASONICS	HNS-US	2017-2018	1	36Hrs	25	25
Year 5						
Name of Add on /Certificate programs offered	Course Code (if any)	Year of offering	No. of times offered during the same year	Duration of course	Number of students enrolled in the year	Number of Students completing the course in the year
E-TABS	CE-ET	2016-2017	1	30Hrs	67	67
GEO5	CE-G5	2016-2017	1	30Hrs	54	54
STAAD-PRO	CE-SP	2016-2017	1	30Hrs	54	54

AUTO CAD	CE-AC	2016-2017	1	30Hrs	37	37
REVIT	CE-R	2016-2017	1	30Hrs	36	36
IMPORTANCY OF EARTHING	EEE-IOE	2016-2017	1	30Hrs	32	32
MULTISIM PROGRAM	EEE-MSP	2016-2017	1	30Hrs	39	39
AUTO CAD	MECH-AUTOCAD	2016-2017	1	30Hrs	70	70
CATIA	MECH-CATIA	2016-2017	1	30Hrs	71	71
ANSYS	MECH-ANSYS	2016-2017	1	30Hrs	88	88
MS OFFICE	ECE-MSO	2016-2017	1	30Hrs	51	51
CLOUD COMPUTING	ECE-CC	2016-2017	1	30Hrs	51	51
PC HARDWARE NETWORKING	CSE-PCHN	2016-2017	1	30Hrs	54	54
TECHNICAL TRAINING MS-OFFICE	IT-MSO	2016-2017	1	30Hrs	25	25
CLOUD COMPUTING WITH HADOOP FRAMEWORK	IT-CC-HFW	2016-2017	1	30Hrs	36	36
MULTI ROTOR DRONE PILOT	AERO-MRDP	2016-2017	1	40Hrs	27	27
ATOMIC STRUCTURE	HNS-AS	2016-2017	1	40Hrs	25	25


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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

MASTER OF BUSINESS ADMINISTRATION (MBA) R15

COURSE STRUCTURE AND SYLLABUS

I Year – I Semester

Category	Course Title	Int. marks	Ext. marks	L	P	C
Core Course II	MANAGEMENT AND ORGANISATIONAL BEHAVIOUR	25	75	3	-	3
Core Course II	BUSINESS LAWS & BUSINESS ENVIRONMENT	25	75	3	-	3
Core Course III	MANAGERIAL ECONOMICS	25	75	3	-	3
Core Course IV	FINANCIAL ACCOUNTING & ANALYSIS	25	75	3	-	3
Core Course V	STATISTICS FOR MANAGEMENT	25	75	3	-	3
Open Elective I	<ul style="list-style-type: none"> • CROSS CULTURE MANAGEMENT • WTO & IPR • TOTAL QUALITY MANAGEMENT • PROJECT MANAGEMENT 	25	75	3	-	3
Laboratory	STATISTICAL DATA ANALYSIS - LAB	50	-	-	4	2
Seminar	BUSINESS COMMUNICATION- SEMINAR	50	-	-	4	2
Total Credits				18	8	22

I Year - II Semester

Category	Course Title	Int. marks	Ext. marks	L	P	C
Core Course I	HUMAN RESOURCE MANAGEMENT	25	75	3	-	3
Core Course II	MARKETING MANAGEMENT	25	75	3	-	3
Core Course III	FINANCIAL MANAGEMENT	25	75	3	-	3
Core Course IV	QUANTITATIVE ANALYSIS FOR BUSINESS DECISIONS	25	75	3	-	3
Core Course V	MIS & ERP	25	75	3	-	3
Open Elective I	<ul style="list-style-type: none"> • FOREIGN TRADE • BANKING,INSURANCE & RISK MANAGEMENT • LOGISTICS & SUPPLY CHAIN MANAGEMENT • MSME MANAGEMENT 	25	75	3	-	3
Laboratory	ANNUAL REPORT ANALYSIS - LAB	50	-	-	4	2
Seminar	SUMMER INTERNSHIP - SEMINAR	50	-	-	4	2
Total Credits				18	8	22

II Year – I Semester

Category	Course Title	Int. marks	Ext. marks	L	P	C
Core Course I	PRODUCTION & OPERATIONS MANAGEMENT	25	75	3	-	3
Core Course II	STRATEGIC MANAGEMENT	25	75	3	-	3
Core Course III	RESEARCH METHDOLOGY	25	75	3	-	3
Core Elective I	(MRKG/HRM/FIN/SYS)	25	75	3	-	3
Core Elective II	(MRKG/HRM/FIN/SYS)	25	75	3	-	3
Core Elective III	(MRKG/HRM/FIN/SYS)	25	75	3	-	3
Seminar	PERSONAL EFFECTIVENESS - SEMINAR	50	-	-	4	2
Seminar	BUSINESS BEST PRACTICES AND SUCCESS STORIES OF EMERGING LEADERS - SEMINAR	50	-	-	4	2
Total Credits				18	8	22

II Year - II Semester

Category	Course Title	Int. marks	Ext. marks	L	P	C
Core Course I	ENTREPRENUERSHIP	25	75	3	-	3
Core Course II	MANAGEMENT OF TECHNOLOGY	25	75	3	-	3
Core Elective IV	(MRKG/HRM/FIN/SYS)	25	75	3	-	3
Core Elective V	(MRKG/HRM/FIN/SYS)	25	75	3	-	3
Core Elective VI	(MRKG/HRM/FIN/SYS)	25	75	3	-	3
Seminar	PRE SUBMISSION OF PROJECT –SEMINAR	50	-	-	4	2
	COMPREHENSIVE VIVA	-	100	-	4	2
	PROJECT	25	75	-		3
Total Credits				15	8	22

CORE ELECTIVE STREAMS (choose any one stream subjects as Core Electives)

MARKETING ELECTIVES
CONSUMER BEHAVIOUR
SALES AND DISTRIBUTION
INTEGRATED MARKETING COMMUNICATIONS
RETAILING MANAGEMENT
SERVICES MARKETING
INTERNATIONAL MARKETING
FINANCE ELECTIVES
STRATEGIC MANAGEMENT ACCOUNTING
SECURITY ANALYSIS AND PORTFOLIO MANAGEMENT
FINANCIAL INSTITUTIONS, MARKETS & SERVICES
STRATEGIC INVESTMENT AND FINANCING DECISIONS
INTERNATIONAL FINANCIAL MANAGEMENT
FINANCIAL DERIVATIVES
HR ELECTIVES
PERFORMANCE MANAGEMENT
TRAINING AND DEVELOPMENT
MANAGEMENT OF INDUSTRIAL RELATIONS
COMPENSATION & REWARD MANAGEMENT
INTERNATIONAL HUMAN RESOURCE MANAGEMENT
LEADERSHIP & CHANGE MANAGEMENT
SYSTEMS ELECTIVES
BUSINESS INTELLIGENCE
DATABASE MANAGEMENT SYSTEMS
DECISION SUPPORT SYSTEMS
E-BUSINESS
KNOWLEDGE MANAGEMENT
INFORMATION SYSTEMS, CONTROL AND AUDIT

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
MASTER OF BUSINESS ADMINISTRATION (MBA) R17
Effective from Academic Year 2017 - 18 admitted batch

COURSE STRUCTURE AND SYLLABUS

I Semester

Course Code	Course Title	Int. marks	Ext. marks	L	T	P	C
17MBA01	Management and Organisational Behaviour	25	75	3	1	0	4
17MBA02	Business Economics	25	75	3	1	0	4
17MBA03	Financial Accounting & Analysis	25	75	3	1	0	4
17MBA04	Business Statistics	25	75	3	1	0	4
17MBA05	Business Law and Ethics	25	75	3	1	0	4
OPEN ELECTIVE-I 17MBA06	6A Business Research Methodology 6B Project Management 6C Technology Management 6D Rural Marketing	25	75	3	0	0	3
17MBA07	Business Communication - Lab	100	-	0	0	3	2
TOTAL		250	450	18	5	3	25

II Semester

Course Code	Course Title	Intl marks	Ext marks	L	T	P	C
17MBA08	Human Resource Management	25	75	3	1	0	4
17MBA09	Marketing Management	25	75	3	1	0	4
17MBA10	Financial Management	25	75	3	1	0	4
17MBA11	Quantitative Analysis for Business Decisions	25	75	3	1	0	4
17MBA12	Entrepreneurship	25	75	3	1	0	4
OPEN ELECTIVE-II 17MBA13	13A Total Quality Management 13B Corporate Governance 13C International Business 13D Supply Chain Management	25	75	3	0	0	3
17MBA14	Summer Internship	100	-	0	0	3	2
TOTAL		250	450	18	5	3	25

III Semester

Course Code	Course Title	Intl marks	Ext marks	L	T	P	C
17MBA15	Production & Operations Management	25	75	3	1	0	4
17MBA16	Management Information Systems	25	75	3	1	0	4
17MBA17	Data Analytics	25	75	3	1	0	4

17MBA18 M1/H1/FI/E1	(MRKG/HRM/FIN/ Entrepreneurship)	25	75	3	0	0	3
17MBA19 M2/H2/F2/E2	(MRKG/HRM/FIN/ Entrepreneurship)	25	75	3	0	0	3
17MBA20 M3/H3/F3/E3	(MRKG/HRM/FIN/ Entrepreneurship)	25	75	3	0	0	3
TOTAL		150	450	18	3	0	21

IV Semester

Course Code	Course Title	Intl marks	Ext marks	L	T	P	C
17MBA21	Strategic Management	25	75	3	1	0	4
17MBA22 M4/H4/F4/E4	(MRKG/HRM/FIN/ Entrepreneurship)	25	75	3	0	0	3
17MBA23 M5/H5/F5/E5	(MRKG/HRM/FIN/ Entrepreneurship)	25	75	3	0	0	3
17MBA24 M6/H6/F6/E6	(MRKG/HRM/FIN/ Entrepreneurship)	25	75	3	0	0	3
17MBA25	Pre Submission of Project Work	100	-	0	1	1	1
17MBA26	Comprehensive Viva-Voce	-	100	0	1	1	1
17MBA27	Main Project Viva-Voce	-	100	0	0	5	2
TOTAL		200	500	12	3	7	17

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 specialization only.

Course Code	MARKETING	Credits
17MBA18 M1	Digital Marketing	3
17MBA19 M2	Advertising and Sales Management	3
17MBA20 M3	Consumer Behaviour	3
17MBA22M4	Customer Relationship Management	3
17MBA23M5	International Marketing	3
17MBA24M6	Marketing of Services	3
FINANCE		
17MBA18F1	Security Analysis and Portfolio Management	3
17MBA19F2	Financial Institutions, Markets & Services	3
17MBA20F3	Strategic Management Accounting	3
17MBA22F4	International Financial Management	3
17MBA23F5	Strategic Investment and Financing Decisions	3
17MBA24F6	Risk Management	3
HUMAN RESOURCES		
17MBA18H1	Performance Management Systems	3
17MBA19H2	Learning and Development	3

17MBA20H3	Management of Industrial Relations	3
17MBA22H4	International Human Resource Management	3
17MBA23H5	Leadership and Change Management	3
17MBA24H6	Talent and Knowledge Management	3
	ENTREPRENEURSHIP	
17MBA18E1	Start up Management	3
17MBA19E2	MSME Management	3
17MBA20E3	Family Business Management	3
17MBA22E4	Entrepreneurial Finance	3
17MBA23E5	Entrepreneurial Marketing	3
17MBA24E6	Creativity Innovation and Entrepreneurship	3

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
MASTER OF BUSINESS ADMINISTRATION MBA (Regular) R-19
Effective from Academic Year 2019 - 20 Admitted Batch

COURSE STRUCTURE AND SYLLABUS

I Year I Semester

Course Code	Course Title	L	T	P	Credits
19MBA01	Management and Organizational Behaviour	3	1	0	4
19MBA02	Business Economics	3	1	0	4
19MBA03	Financial Accounting & Analysis	3	1	0	4
19MBA04	Research Methodology and Statistical Analysis	3	1	0	4
19MBA05	Legal and Business Environment	3	1	0	4
Open Elective-I 19MBA06	6A Business Ethics and Corporate Governance 6B Project Management 6C Technology Management 6D Cross Cultural Management	3	0	0	3
19MBA07	Business Communication Lab.	0	0	2	2
19MBA08	Statistical Data Analysis Lab	0	0	2	2
	TOTAL	18	5	4	27

I Year II Semester

Course Code	Course Title	L	T	P	Credits
19MBA09	Human Resource Management	3	1	0	4
19MBA10	Marketing Management	3	1	0	4
19MBA11	Financial Management	3	1	0	4
19MBA12	Quantitative Analysis for Business Decisions	3	1	0	4
19MBA13	Entrepreneurship	3	1	0	4
19MBA14	Logistics & Supply Chain Management	3	1	0	4
Open Elective-II 19MBA15	15A Total Quality Management 15B Marketing Research 15C International Business 15D Rural Marketing	3	0	0	3
	TOTAL	21	6	0	27

Internship during Summer vacation (after Semester –II)

II Year I Semester

Course Code	Course Title	L	T	P	Credits
19MBA16	Production & Operations Management	3	1	0	4
19MBA17	Management Information Systems	3	1	0	4
19MBA18	Data Analytics	3	1	0	4
19MBA19 M1/H1/FI/E1	(MRKG/HRM/FIN/ENTP)	3	1	0	4
19MBA20 M2/H2/F2/E2	(MRKG/HRM/FIN/ENTP)	3	1	0	4
19MBA21 M3/H3/3I/E3	(MRKG/HRM/FIN/ENTP)	3	1	0	4

19MBA22	Summer Internship	0	0	0	2
	TOTAL	18	6	3	26

II Year II Semester

Course Code	Course Title	L	T	P	Credits
19MBA 23	Strategic Management	3	1	0	4
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	0	0	2	2
19MBA28	Main Project Viva-Voce	0	2	4	4
	TOTAL	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 specialization only.

Course Code	Specialization	Credits
	MARKETING	
19MBA19M1	Digital Marketing	4
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
	FINANCE	
19MBA19F1	Security Analysis and Portfolio Management	4
19MBA20 F2	Financial Institutions, Markets & Services	4
19MBA21 F3	Strategic Management Accounting	4
19MBA24 F4	International Financial Management	4
19MBA25 F5	Strategic Investment and Financing Decisions	4
19MBA26F6	Risk Management and Financial Derivatives	4
	HUMAN RESOURCES	
19MBA19H1	Performance Management Systems	4
19MBA20 H2	Learning and Development	4
19MBA21 H3	Management of Industrial Relations	4
19MBA24 H4	International Human Resource Management	4
19MBA25H5	Leadership and Change Management	4
19MBA26 H6	Talent and Knowledge Management	4
	ENTREPRENEURSHIP	
19MBA19E1	Startup Management	4
19MBA20 E2	MSME Management	4
19MBA21 E3	Family Business Management	4
19MBA24E4	Entrepreneurial Finance	4
19MBA25 E5	Entrepreneurial Marketing	4
19MBA26 E6	Creativity Innovation and Entrepreneurship	4

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

**M. TECH. (POWER ENGINEERING & ENERGY SYSTEMS)
EFFECTIVE FROM ACADEMIC YEAR 2017- 18 ADMITTED BATCH**

COURSE STRUCTURE AND SYLLABUS

I Semester

Category	Course Title	Int. marks	Ext. marks	L	T	P	C
PC-1	Advanced Power System Analysis	25	75	4	0	0	4
PC-2	Advanced Power System Protection	25	75	4	0	0	4
PC-3	Renewable Energy Technologies	25	75	4	0	0	4
PE-1	1. EHV AC Transmission 2. High Voltage Engineering 3. Advanced Digital Signal Processing	25	75	3	0	0	3
PE-2	1. Power Quality 2. Microcontrollers and applications 3. Distribution Automation	25	75	3	0	0	3
OE-1	*Open Elective – I	25	75	3	0	0	3
Laboratory I	Power and Energy Systems Lab-I	25	75	0	0	3	2
Seminar I	Seminar –I	100	0	0	0	3	2
Total		275	525	21	0	6	25

II Semester

Category	Course Title	Int. marks	Ext. marks	L	T	P	C
PC-4	Modern Control Theory	25	75	4	0	1	4
PC-5	Flexible AC Transmission Systems (FACTS)	25	75	4	0	1	4
PC-6	Smart Grid Technologies	25	75	4	0	1	4
PE-3	1. Energy Auditing Conservation and Management 2. Programmable Logic Controllers and their applications 3. High Frequency Magnetic Components	25	75	3	0	0	3
PE4	1. Reactive Power Compensation and Management 2. Power System Reliability 3. Voltage Stability	25	75	3	0	0	3
OE-2	*Open Elective – II	25	75	3	0	0	3
Laboratory II	Power and Energy Systems Lab-II	25	75	0	0	3	2
Seminar II	Seminar –II	100	0	0	0	3	2
Total		275	525	21	0	6	25

III Semester

Course Title	Int. marks	Ext. marks	L	T	P	C
Technical Paper Writing	100	0	0	3	0	2
Comprehensive Viva-Voce	0	100	0	0	0	4
Project work Review I	100	0	0	0	22	8
Total	200	100	0	3	22	14

IV Semester

Course Title	Int. marks	Ext. marks	L	T	P	C
Project work Review II	100	0	0	0	24	8
Project Evaluation (Viva-Voce)	0	200	0	0	0	16
Total	100	200	0	0	24	24

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

For Project review I, please refer 7.10 in R17 Academic Regulations.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M. TECH. POWER ENGINEERING AND ENERGY SYSTEMS
EFFECTIVE FROM ACADEMIC YEAR 2019- 20 ADMITTED BATCH

R19 COURSE STRUCTURE AND SYLLABUS

I YEAR I SEMESTER

Course Code	Course Title	L	T	P	Credits
Professional Core - I	Economic Operation of Power Systems	3	0	0	3
Professional Core - II	Renewable Energy Technologies	3	0	0	3
Professional Elective - I	1. Engineering Heat Transfer 2. Thermal Power Plant 3. Smart Grid Technologies 4. Modern Control Theory	3	0	0	3
Professional Elective - II	1. Electrical Power Distribution System 2. Reactive Power Compensation and Management 3. Mathematical Methods for Power Engineering 4. Hybrid Electric Vehicles	3	0	0	3
	Research Methodology and IPR	2	0	0	2
Lab - I	Power and Energy Systems Lab - I	0	0	4	2
Lab - II	Energy Computational Lab	0	0	4	2
Audit - I	Audit Course - I	2	0	0	0
	Total	16	0	8	18

I YEAR II SEMESTER

Course Code	Course Title	L	T	P	Credits
Professional Core - III	Digital Protection of Power System	3	0	0	3
Professional Core - IV	Energy Efficiency in Thermal Systems	3	0	0	3
Professional Elective - III	1. Restructured Power Systems 2. Nuclear Power Plants 3. Swarm Intelligence Techniques in Power Systems 4. Industrial Load Modelling and Control	3	0	0	3
Professional Elective - IV	1. AI Techniques in Power Systems 2. Wind Energy Conversion Systems 3. Optimization of Energy Systems 4. Power System Reliability and Planning	3	0	0	3
	Mini Project with Seminar	0	0	4	2
Lab - III	Power and Energy Systems Lab - II	0	0	4	2
Lab - IV	Power System Protection Lab	0	0	4	2
Audit - II	Audit Course - II	2	0	0	0
	Total	14	0	12	18

II YEAR I SEMESTER

Course Code	Course Title	L	T	P	Credits
Professional Elective - V	1. Hydrogen Fuel Cells 2. Flexible AC Transmission Systems 3. Gas Insulated Systems 4. SCADA System and Applications	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	T	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

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.TECH. (ADVANCED MANUFACTURING SYSTEMS)**

EFFECTIVE FROM ACADEMIC YEAR 2019- 20 ADMITTED BATCH

R19 COURSE STRUCTURE AND SYLLABUS

I Year I Semester

Course Code	Course Title	L	T	P	Credits
Professional Core-I	Automation in Manufacturing	3	0	0	3
Professional Core-II	Theory of Metal Cutting	3	0	0	3
Professional Elective - I	1. Design for Manufacturing & Assembly 2. Advanced Manufacturing Processes 3. Product Data Management	3	0	0	3
Professional Elective - II	1. Optimization Techniques & Applications 2. Precision Engineering 3. Additive Manufacturing Technologies	3	0	0	3
	Research Methodology & IPR	2	0	0	2
Lab - I	Automation Lab	0	0	4	2
Lab - II	Advanced Manufacturing Processes & Metal Cutting Lab	0	0	4	2
Audit - I	Audit Course - I	2	0	0	0
	Total	16	0	8	18

I Year II Semester

Course Code	Course Title	L	T	P	Credits
Professional Core - III	Computer Aided Manufacturing	3	0	0	3
Professional Core - IV	Manufacturing Systems: Simulation Modelling & Analysis	3	0	0	3
Professional Elective - III	1. Materials Technology 2. Quality Engineering in Manufacturing 3. Advanced Tool Design	3	0	0	3
Professional Elective - IV	1. Total Quality Management 2. Concurrent Engineering 3. Industrial Robotics	3	0	0	3
	Mini Project with Seminar	0	0	4	2
Lab - III	Advanced CAD/ CAM Lab	0	0	4	2
Lab - IV	Simulation of Manufacturing Systems Lab	0	0	4	2
Audit - II	Audit Course - I	2	0	0	0
	Total	14	0	12	18

II Year I Semester

Course Code	Course Title	L	T	P	Credits
Professional Elective - V	1. Production and Operations Management 2. MEMS 3. Flexible Manufacturing Systems	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	T	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

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

**M. Tech in ADVANCED MANUFACTURING SYSTEMS
Effective from Academic Year 2017- 18 admitted batch**

COURSE STRUCTURE AND SYLLABUS

I Semester

Category	Course Title	Int. marks	Ext. marks	L	T	P	C
PC-1	Automation in Manufacturing	25	75	4	0	0	4
PC-2	Computer Aided Manufacturing	25	75	4	0	0	4
PC-3	Theory of Metal Cutting	25	75	4	0	0	4
PE-1	1. Design For Manufacturing and Assembly 2. Special Manufacturing Process 3. Product Data Management	25	75	3	0	0	3
PE-2	1. Advanced Mechatronics 2. Precision Engineering 3. Rapid Prototyping Technologies	25	75	3	0	0	3
OE-1	*Open Elective –I	25	75	3	0	0	3
Laboratory I	Advanced CAD/CAM Lab	25	75	0	0	3	2
Seminar I	Seminar-I	100	0	0	0	3	2
Total		275	525	21	0	6	25

II Semester

Category	Course Title	Int. marks	Ext. marks	L	T	P	C
PC-4	Performance Modeling & Analysis of Manufacturing Systems	25	75	4	0	0	4
PC-5	Materials Technology	25	75	4	0	0	4
PC-6	Manufacturing Systems: Simulation Modeling & Analysis	25	75	4	0	0	4
PE-3	1. Quality Engineering in manufacturing 2. Industrial Robotics 3. Advanced Tool Design	25	75	3	0	0	3
PE4	1. Total Quality Management 2. Vibrational Analysis & Conditioning Monitoring 3. Concurrent Engineering & Product life cycle Management	25	75	3	0	0	3
OE-2	*Open Elective - II	25	75	3	0	0	3
Laboratory II	Manufacturing Simulation & Precision Engineering Lab	25	75	0	0	3	2
Seminar II	Seminar-II	100	0	0	0	3	2
Total		275	525	21	0	6	25

III Semester

Course Title	Int. marks	Ext. marks	L	T	P	C
Technical Paper Writing	100	0	0	3	0	2
Comprehensive Viva-Voce	0	100	0	0	0	4
Project work Review II	100	0	0	0	22	8
Total	200	100	0	3	22	14

IV Semester

Course Title	Int. marks	Ext. marks	L	T	P	C
Project work Review III	100	0	0	0	24	8
Project Evaluation (Viva-Voce)	0	100	0	0	0	16
Total	100	100	0	0	24	24

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

For Project review I, please refer 7.10 in R17 Academic Regulations.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

**M. Tech in COMPUTER SCIENCE AND ENGINEERING
Common to (CS, CSE)**

EFFECTIVE FROM ACADEMIC YEAR 2017- 18 ADMITTED BATCH

COURSE STRUCTURE AND SYLLABUS

I Semester

Category	Course Title	Int. marks	Ext. marks	L	T	P	C
PC-1	Advanced Algorithms	25	75	4	0	0	4
PC-2	Computer Networking	25	75	4	0	0	4
PC-3	Software Engineering	25	75	4	0	0	4
PE-1	1. Network Security and Cryptography 2. Mobile Application Development 3. Graph Theory 4. Internet of Things	25	75	3	0	0	3
PE-2	1. Game Theory 2. Parallel and Distributed Algorithms 3. Software Architecture and Design Patterns 4. Embedded Systems	25	75	3	0	0	3
OE-1	*Open Elective – 1	25	75	3	0	0	3
Laboratory I	Advanced Algorithms Lab	25	75	0	0	3	2
Seminar I	Seminar-I	100	0	0	0	3	2
Total		275	525	21	0	6	25

II Semester

Category	Course Title	Int. marks	Ext. marks	L	T	P	C
PC-4	Network Programming	25	75	4	0	0	4
PC-5	Distributed Systems and Cloud Computing	25	75	4	0	0	4
PC-6	Theory of Computation	25	75	4	0	0	4
PE-3	1. Data Warehousing and Data Mining 2. Storage Area Networks 3. Semantic Web and Social Networks 4. Cyber Security	25	75	3	0	0	3
PE4	1. Big Data Analytics 2. Soft Computing 3. Software Process and Project Management 4. Machine Learning	25	75	3	0	0	3
OE-2	*Open Elective – 2	25	75	3	0	0	3
Laboratory II	Internet Technologies and Services Lab	25	75	0	0	3	2
Seminar II	Seminar -II	100	0	0	0	3	2
Total		275	525	21	0	6	25

III Semester

Course Title	Int. marks	Ext. marks	L	T	P	C
Technical Paper Writing	100	0	0	3	0	2
Comprehensive Viva-Voce	0	100	0	0	0	4
Project work Review II	100	0	0	0	22	8
Total	200	100	0	3	22	14

IV Semester

Course Title	Int. marks	Ext. marks	L	T	P	C
Project work Review III	100	0	0	0	24	8
Project Evaluation (Viva-Voce)	0	100	0	0	0	16
Total	100	100	0	0	24	24

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

For Project review I, please refer 7.10 in R17 Academic Regulations.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

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	T	P	Credits
Professional Core - I	Mathematical Foundations of Computer Science	3	0	0	3
Professional Core - II	Advanced Data Structures	3	0	0	3
Professional Elective - I	1. Information Security 2. Mobile Application Development 3. Machine Learning	3	0	0	3
Professional Elective - II	1. Network Security 2. Cloud Computing 3. 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	T	P	Credits
Professional Core - III	Advanced Algorithms	3	0	0	3
Professional Core - IV	Advanced Computer Architecture	3	0	0	3
Professional Elective - III	1. Web and Database Security 2. Internet of Things 3. Data Science	3	0	0	3
Professional Elective - IV	1. Cyber Security 2. Advanced Computer Networks 3. 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	T	P	Credits
Professional Elective - V	1. Digital Forensics 2. High Performance Computing 3. 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	T	P	Credits
Dissertation	Dissertation Work Review - III	0	0	12	6
Dissertation	Dissertation Viva-Voce	0	0	28	14
	Total	0	0	40	20

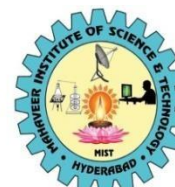
***For Dissertation Work Review - I, Please refer 7.8 in R19 Academic Regulations.**

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

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MAHAVEER
 INSTITUTE OF SCIENCE & TECHNOLOGY
 Approved by AICTE, Affiliated to JNTUH,Hyd.



Counseling Code: **MHVR**, University Code: **E3**

Number of Add on /Certificate programs offered during the last five years


1.2.3 Average percentage of students enrolled in Add-on/Certificate programs as against the total number of students during the last five years

Year -1						
Name of Add on /Certificate programs offered	Course Code (if any)	Year of offering	No. of times offered during the same year	Duration of course	Number of students enrolled in the year	Number of Students completing the course in the year
E-TABS	CIVIL-ET	2020-2021	1	30Hrs	48	48
AUTO CAD	CIVIL-AC	2020-2021	1	36Hrs	36	36
REVIT	CIVIL-R	2020-2021	1	38Hrs	36	36
GEO5	CIVIL-G5	2020-2021	1	40Hrs	39	39
STAAD-PRO	CIVIL-SP	2020-2021	1	30Hrs	39	39
AUTO CAD	EEE-AC	2020-2021	1	30Hrs	31	31
MAT CAD PROGRAMMING	EEE-MATCADP	2020-2021	1	36Hrs	35	35
AUTO CAD	MECH-AUTOCAD	2020-2021	1	30Hrs	21	21
CATIA	MECH-CATIA	2020-2021	1	30Hrs	60	60
ANSYS	MECH-ANSYS	2020-2021	1	30Hrs	75	75
3D-PRINTING	MECH-3D PRINTING	2020-2022	1	30Hrs	75	75
CNC	MECH-CNC	2020-2021	1	30Hrs	18	18
ROLE ON ADVANCED ELECTRONIC MATERIALS & DEVICES IN SPACE & DEFENCE APPLICATIONS	ECE-AEMSDA	2020-2021	1	30Hrs	47	47
PYTHON PROGRAMMING	ECE-PP	2020-2021	1	30Hrs	47	47
3DGRAPHICS	CSE-3DG	2020-2021	1	36Hrs	53	53
PYTHON PROGRAMMING	IT-PP	2020-2021	1	30Hrs	53	53
ADVANCE JAVA AND J2EE USING ECLIPSE	IT-AJ-J2EE	2020-2021	1	30Hrs	67	67
MULTI ROTOR DRONE PILOT	AERO-MRDP	2020-2021	1	30Hrs	33	33
ULTRASONICS	HNS-US	2020-2021	1	36Hrs	25	25
Year 2						

Name of Add on /Certificate programs offered	Course Code (if any)	Year of offering	No. of times offered during the same year	Duration of course	Number of students enrolled in the year	Number of Students completing the course in the year
E-TABS	CIVIL-ET	2019-2020	1	30Hrs	40	40
AUTO CAD	CIVIL-AC	2019-2020	1	36Hrs	56	56
REVIT	CIVIL-R	2019-2020	1	38Hrs	45	45
MATLAB PROGRAMMING	EEE-MATLP	2019-2020	1	30Hrs	46	46
PSPICE PROGRAMMING	EEE-PSP	2019-2020	1	30Hrs	35	35
AUTO CAD	MECH-AUTOCAD	2019-2020	1	30Hrs	60	60
CATIA	MECH-CATIA	2019-2020	1	30Hrs	75	75
ANSYS	MECH-ANSYS	2019-2020	1	30Hrs	78	78
MATERIALS & DEVICES IN SPACE & ADVANCED VLSI TECHNOLOGY	ECE-AEMSDA	2019-2020	1	30Hrs	50	50
ADVANCED VLSI TECHNOLOGY	ECE-AVT	2019-2020	1	40Hrs	50	50
BASIC WEB DESIGNING	CSE-BWD	2019-2020	1	30Hrs	67	67
ANDROID APPLICATION DEVELOPMENT	IT-AAD	2019-2020	1	40Hrs	50	50
ORACLE JAVA CERTIFICATION	IT-OJC	2019-2020	1	30Hrs	49	49
COMPUTER AIDED ANALYSIS FLUENT	AERO-FLUENT	2019-2020	1	30Hrs	24	24
SOFTSKILLS	HNS-SS	2019-2020	1	36Hrs	25	25
Year 3						
Name of Add on /Certificate programs offered	Course Code (if any)	Year of offering	No. of times offered during the same year	Duration of course	Number of students enrolled in the year	Number of Students completing the course in the year
AUTO CAD	CIVIL-AC	2018-2019	1	36Hrs	38	38
REVIT	CIVIL-R	2018-2019	1	38Hrs	38	38
GEO5	CIVIL-G5	2018-2019	1	40Hrs	35	35
STAAD-PRO	CIVIL-SP	2018-2019	1	30Hrs	35	35
PLC PROGRAMMING	EEE-PLCP	2018-2019	1	30Hrs	37	37
ELECTRICAL ENERGY MANAGEMENT	EEE-EEM	2018-2019	1	30Hrs	46	46
AUTO CAD	MECH-AUTOCAD	2018-2019	1	30Hrs	75	75
CATIA	MECH-CATIA	2018-2019	1	30Hrs	78	78
ANSYS	MECH-ANSYS	2018-2019	1	30Hrs	70	70
MATERIALS & DEVICES IN SPACE & ADVANCED VLSI TECHNOLOGY	ECE-AEMSDA	2018-2019	1	40Hrs	53	53
ADVANCED VLSI TECHNOLOGY	ECE-AVT	2018-2019	1	30Hrs	51	51

PC HARDWARE NETWORKING	CSE-PCHN	2018-2019	1	40Hrs	54	54
ANGULAR JS	CSE-AJS	2018-2019	1	30Hrs	50	50
WEB APPLICATION DEVELOPMENT USING PHP & XML	IT-PHP-XML	2018-2019	1	30Hrs	54	54
TECHNICAL TRAINING HTML	IT-HTML	2018-2019	1	30Hrs	58	58
COMPUTER AIDED DESIGN CREO	AERO-CREO	2018-2019	1	30Hrs	18	18
COMMUNICATION SKILLS	HNS-CS	2018-2019	1	36Hrs	25	25
Year 4						
Name of Add on /Certificate programs offered	Course Code (if any)	Year of offering	No. of times offered during the same year	Duration of course	Number of students enrolled in the year	Number of Students completing the course in the year
E-TABS	CE-ET	2017-2018	1	30Hrs	35	35
GEO5	CE-G5	2017-2018	1	30Hrs	65	65
STAAD-PRO	CE-SP	2017-2018	1	30Hrs	65	65
INDUSTRIAL MANAGEMENT	EEE-IM	2017-2018	1	30Hrs	30	30
ELECTRICAL INSTALLATION STANDARDS	EEE-EIS	2017-2018	1	40Hrs	39	39
AUTO CAD	MECH-AUTOCAD	2017-2018	1	30Hrs	78	78
CATIA	MECH-CATIA	2017-2018	1	30Hrs	70	70
ANSYS	MECH-ANSYS	2017-2018	1	30Hrs	71	71
C PROGRAMMING	ECE-CP	2017-2018	1	30Hrs	50	50
JAVA CERTIFICATION PROGRAMME	ECE-JCP	2017-2018	1	40Hrs	50	50
ANDROID MOBILE APPLICATION	CSE-AMA	2017-2018	1	30Hrs	49	49
TRAINING - C PROGRAMMING	IT-CP	2017-2018	1	30Hrs	51	51
JAVA CERTIFICATION PROGRAMME	IT-JCP	2017-2018	1	30Hrs	43	43
COMPUTER AIDED DESIGN (CATIA)	AERO-CATIA	2017-2018	1	30Hrs	16	16
ULTRASONICS	HNS-US	2017-2018	1	36Hrs	25	25
Year 5						
Name of Add on /Certificate programs offered	Course Code (if any)	Year of offering	No. of times offered during the same year	Duration of course	Number of students enrolled in the year	Number of Students completing the course in the year
E-TABS	CE-ET	2016-2017	1	30Hrs	67	67
GEO5	CE-G5	2016-2017	1	30Hrs	54	54
STAAD-PRO	CE-SP	2016-2017	1	30Hrs	54	54

AUTO CAD	CE-AC	2016-2017	1	30Hrs	37	37
REVIT	CE-R	2016-2017	1	30Hrs	36	36
IMPORTANCY OF EARTHING	EEE-IOE	2016-2017	1	30Hrs	32	32
MULTISIM PROGRAM	EEE-MSP	2016-2017	1	30Hrs	39	39
AUTO CAD	MECH-AUTOCAD	2016-2017	1	30Hrs	70	70
CATIA	MECH-CATIA	2016-2017	1	30Hrs	71	71
ANSYS	MECH-ANSYS	2016-2017	1	30Hrs	88	88
MS OFFICE	ECE-MSO	2016-2017	1	30Hrs	51	51
CLOUD COMPUTING	ECE-CC	2016-2017	1	30Hrs	51	51
PC HARDWARE NETWORKING	CSE-PCHN	2016-2017	1	30Hrs	54	54
TECHNICAL TRAINING MS-OFFICE	IT-MSO	2016-2017	1	30Hrs	25	25
CLOUD COMPUTING WITH HADOOP FRAMEWORK	IT-CC-HFW	2016-2017	1	30Hrs	36	36
MULTI ROTOR DRONE PILOT	AERO-MRDP	2016-2017	1	40Hrs	27	27
ATOMIC STRUCTURE	HNS-AS	2016-2017	1	40Hrs	25	25


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