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SAMSKRUTI COLLEGE OF ENGINEERING AND TECHNOLOGY

(Sponsored by St. VINCENT EDUCATIONAL SOCIETY)

Regd. No. 5782/2000



(Approved by AICTE, New Delhi and Affiliated to JNTU, Hyderabad)

Kondapur Village, Ghatkesar Mandal, Medchal District (Old R.R. Dist) - 501 301. T.S


List of Courses in Experiential learning 2020-2021

| S.NO | Program name | Program code | Name of the Course that include experiential learning through project work/field work/Internship |
|------|--------------|--------------|--|
| 1 | B.Tech-CE | 01 | Engineering Graphics |
| 2 | | | Engineering Mechanics |
| 3 | | | Surveying and Geomatics |
| 4 | | | Engineering Geology |
| 5 | | | Strength of Materials - I |
| 6 | | | Fluid Mechanics |
| 7 | | | Surveying Lab |
| 8 | | | Strength of Materials Lab |
| 9 | | | Engineering Geology Lab |
| 10 | | | Building Materials, Construction and Planning |
| 11 | | | Strength of Materials - II |
| 12 | | | Hydraulics and Hydraulic Machinery |
| 13 | | | Structural Analysis - I |
| 14 | | | Computer aided Civil Engineering Drawing |
| 15 | | | Hydraulics and Hydraulic Machinery Lab |
| 16 | | | Basic Electrical and Electronics Engineering Lab |
| 17 | | | Structural Analysis-II |
| 18 | | | Geotechnical Engineering |
| 19 | | | Structural Engineering –I (RCC) |
| 20 | | | Transportation Engineering |
| 21 | | | Concrete Technology |
| 22 | | | Theory of Elasticity |
| 23 | | | Rock Mechanics |
| 24 | | | Highway Engineering and Concrete Technology Lab |
| 25 | | | Geotechnical Engineering Lab |
| 26 | | | Hydrology & Water Resources Engineering |
| 27 | | | Environmental Engineering |
| 28 | | | Foundation Engineering |
| 29 | | | Structural Engineering –II (Steel) |
| 30 | | | Prestressed Concrete |
| 31 | | | Elements of Earth Quake Engineering |
| 32 | | | Advanced Structural Analysis |
| 33 | | | Environmental Engineering Lab |
| 34 | | | Computer Aided Design Lab |
| 35 | | | Transportation Engineering |

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

| | | |
|----|------------|---|
| 35 | | Estimation Quantity Surveying and Valuation |
| 37 | | Stochastic Hydrology. |
| 38 | | Construction Technology and Management. |
| 39 | | Foundation Engineering. |
| 40 | | Rehabilitation and Retrofitting of Structures |
| 41 | | Watershed Management. |
| 42 | | Prestressed Concrete. |
| 43 | | Ground Improvement Techniques. |
| 44 | | Railway and Airport Engineering. |
| 45 | | Traffic Engineering. |
| 46 | | Bridge Engineering. |
| 47 | | Soil Dynamics and Machine Foundation. |
| 48 | | Irrigation and Hydraulic Structures. |
| 49 | | Transportation Engineering Lab |
| 50 | | Environmental Engineering Lab |
| 51 | | Industry Oriented Mini Project |
| 52 | | Seminar |
| 53 | | Waste Management. |
| 54 | | Pavement Design. |
| 55 | | Elements of Earthquake Engineering. |
| 56 | | Water Resources Systems Analysis. |
| 57 | | Finite Element Methods for Civil Engineering. |
| 58 | | Geoenvironmental Engineering. |
| 59 | | Design and Drawing of Irrigation Structures. |
| 60 | | Industrial Waste Water Treatment. |
| 61 | | Major Project |
| 62 | | BASIC ELECTRICAL ENGINEERING |
| 63 | | ELECTRICAL CIRCUIT ANALYSIS |
| 64 | | ELECTRICAL MACHINES - I |
| 65 | | ELECTRICAL MACHINES LAB - I |
| 66 | | Electrical Circuits Lab |
| 67 | | Electrical Machines – II |
| 68 | | Control Systems |
| 69 | | Power System - I |
| 70 | | Electrical Machines Lab - II |
| 71 | | Control Systems Lab |
| 72 | | Power Electronics |
| 73 | | Power System-II |
| 74 | | Measurements and Instrumentation |
| 75 | | High Voltage Engineering |
| 76 | | Power System Simulation Lab |
| 77 | | Power Electronics Lab |
| 78 | | Measurements and Instrumentation Lab |
| 79 | | Power Semiconductor Drives |
| 80 | B.Tech-EEE | Power System Protection |
| 81 | | Power System Operation and Control |
| 82 | | Power System Lab |
| 83 | | Electrical Measurements & Instrumentation |
| 84 | | Power Systems - II |

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| | | |
|-----|-----------|---|
| 85 | | Electrical Measurements & Instrumentation Lab |
| 86 | | Basic Electrical simulation Lab |
| 87 | | Power Systems Analysis |
| 88 | | Power Electronics |
| 89 | | Switch Gear and Protection |
| 90 | | Electrical and Electronics Instrumentation |
| 91 | | Power Systems Lab |
| 92 | | Power Electronics Lab |
| 93 | | Electrical & Electronics Design Lab |
| 94 | | Electrical Distribution Systems |
| 95 | | Industry Oriented Mini Project |
| 96 | | Utilization of Electric Power |
| 97 | | Major Project |
| 98 | | Engineering Graphics |
| 99 | | Engineering Mechanics |
| 100 | | Engineering Workshop |
| 101 | | Mechanics of Solids |
| 102 | | Material Science and Metallurgy |
| 103 | | Production Technology |
| 104 | | Thermodynamics |
| 105 | | Production Technology Lab |
| 106 | | Machine Drawing Practice |
| 107 | | Material Science and Mechanics of Solids Lab |
| 108 | | Kinematics of Machinery |
| 109 | | Thermal Engineering - I |
| 110 | | Fluid Mechanics and Hydraulic Machines |
| 111 | | Instrumentation and Control Systems |
| 112 | | Fluid Mechanics and Hydraulic Machines Lab |
| 113 | | Instrumentation and Control Systems Lab |
| 114 | | Dynamics of Machinery |
| 115 | | Design of Machine Members-I |
| 116 | | Metrology & Machine Tools |
| 117 | | Thermal Engineering-II |
| 118 | | Thermal Engineering Lab |
| 119 | | Metrology & Machine Tools Lab |
| 120 | | Kinematics & Dynamics Lab |
| 121 | | Design of Machine Members-II |
| 122 | B.Tech-ME | Heat Transfer |
| 123 | | CAD & CAM |
| 124 | | Unconventional Machining Processes |
| 125 | | Machine Tool Design |
| 126 | | Production Planning & Control |
| 127 | | Finite Element Methods |
| 128 | | Heat Transfer Lab |
| 129 | | CAD & CAM Lab |
| 130 | | Industrial Robotics |
| 131 | | CAD/CAM |

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| | | | |
|-----|------------|----|---|
| 132 | | | Instrumentation and Control System |
| 133 | | | Composite materials |
| 134 | | | Industrial Management |
| 135 | | | Power Plant Engineering |
| 136 | | | Operations Research |
| 137 | | | CAD/CAM Lab |
| 138 | | | Instrumentation and Control Systems Lab |
| 139 | | | Automation in Manufacturing |
| 140 | | | Fluid Power System |
| 141 | | | Renewable Energy Sources |
| 142 | | | Production Planning and Control |
| 143 | | | Automobile Engineering |
| 144 | | | Advanced Mechanics of Solids |
| 145 | | | Unconventional Machining Processes |
| 146 | | | Advanced Materials Technology |
| 147 | | | Major Project |
| 148 | | | Electronic Devices and Circuits |
| 149 | | | Network Analysis and Transmission Lines |
| 150 | | | Digital System Design |
| 151 | | | Signals and Systems |
| 152 | | | Probability Theory and Stochastic Processes |
| 153 | | | Electronic Devices and Circuits Lab |
| 154 | | | Digital System Design Lab |
| 155 | | | Basic Simulation Lab |
| 156 | | | Electromagnetic Fields and Waves |
| 157 | | | Analog and Digital Communications |
| 158 | | | Linear IC Applications |
| 159 | | | Electronic Circuit Analysis |
| 160 | | | Analog and Digital Communications Lab |
| 161 | | | IC Applications Lab |
| 162 | | | Electronic Circuit Analysis Lab |
| 163 | B.Tech-ECE | 04 | Microprocessors & Microcontrollers |
| 164 | | | Data Communications and Networks |
| 165 | | | Control Systems |
| 166 | | | Microprocessors & Microcontrollers Lab |
| 167 | | | Data Communications and Networks Lab |
| 168 | | | Antennas and Propagation |
| 169 | | | Digital Signal Processing |
| 170 | | | VLSI Design |
| 171 | | | Digital Signal Processing Lab |
| 172 | | | e – CAD Lab |
| 173 | | | Microwave Engineering |
| 174 | | | VLSI Design |
| 175 | | | VLSI and E-CAD Lab |
| 176 | | | Microwave Engineering Lab |
| 177 | | | Industry Oriented Mini Project |
| 178 | | | Seminar |
| 179 | | | Major Project |
| 180 | B.Tech- | | Programming for Problem Solving |
| 181 | CSE(AI&ML) | | Programming for Problem Solving Lab |


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| 182 | B.Tech(DS) |
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| Programming for Problem Solving |
| Programming for Problem Solving Lab |
| Programming for Problem Solving |
| Programming for Problem Solving Lab |
| Data Structures |
| Computer Organization and Architecture |
| Object Oriented Programming using C++ |
| Data Structures Lab |
| IT Workshop Lab |
| C++ Programming Lab |
| Operating Systems |
| Database Management Systems |
| Java Programming |
| Operating Systems Lab |
| Database Management Systems Lab |
| Java Programming Lab |
| Formal Languages & Automata Theory |
| Software Engineering |
| Computer Networks |
| Web Technologies |
| Information Theory & Coding |
| Advanced Computer Architecture |
| Data Analytics |
| Image Processing |
| Principles of Programming Languages |
| Computer Graphics |
| Advanced Operating Systems |
| Informational Retrieval Systems |
| Distributed Databases |
| Natural Language Processing |
| Software Engineering Lab |
| Computer Networks & Web Technologies Lab |
| Machine Learning |
| Compiler Design |
| Design and Analysis of Algorithms |
| Concurrent Programming |
| Network Programming |
| Scripting Languages |
| Mobile Application Development |
| Software Testing Methodologies |
| Machine Learning Lab |
| Compiler Design Lab |
| Data Mining |
| Principles of Programming Languages |
| Python Programming |
| Android Application Development |
| Linux Programming |
| R Programming |
| Internet of Things |
| Distributed Systems |


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| | | |
|-----|-----|--|
| 232 | | Machine Learning |
| 233 | | Cloud Computing |
| 234 | | Big Data Analytics |
| 235 | | Computer Graphics |
| 236 | | Object Oriented Analysis and Design |
| 237 | | Computer Forensics |
| 238 | | Web Services and Service Oriented Architecture |
| 239 | | Natural Language Processing |
| 240 | | Middleware Technologies |
| 241 | | Big Data Analytic Techniques |
| 242 | | Software Testing Methodologies |
| 243 | | Semantic Web and Social Networks |
| 244 | | Cyber security |
| 245 | | Data Mining Lab |
| 246 | | Python Programming Lab |
| 247 | | Android Application Development Lab |
| 248 | | Linux programming Lab |
| 249 | | R Programming Lab |
| 250 | | Internet of Things Lab |
| 251 | | Industry Oriented Mini Project |
| 252 | | Seminar |
| 253 | | Major Project |
| 254 | | Management and Organizational Behaviour |
| 255 | | Business Economics |
| 256 | | Financial Accounting & Analysis |
| 257 | | Research Methodology and Statistical Analysis |
| 258 | | Legal and Business Environment |
| 259 | | Business Ethics and Corporate Governance |
| 260 | | Project Management |
| 261 | | Technology Management |
| 262 | | Cross Cultural Management |
| 263 | | Human Resource Management |
| 264 | | Marketing Management |
| 265 | | Financial Management |
| 266 | | Quantitative Analysis for Business Decisions |
| 267 | | Entrepreneurship |
| 268 | | Logistics & Supply Chain Management |
| 269 | | Total Quality Management |
| 270 | | Marketing Research |
| 271 | | International Business |
| 272 | | Rural Marketing |
| 273 | | Production & Operations Management |
| 274 | | Management Information Systems |
| 275 | | Data Analytics |
| 276 | | Summer Internship |
| 277 | | Strategic Management |
| 278 | | Pre-submission project Seminar |
| 279 | | Main Project Viva-Voce |
| 280 | MBA | Digital Marketing |

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| | |
|-----|--|
| 281 | Advertising and Sales Management |
| 282 | Consumer Behaviour |
| 283 | Customer Relationship Management |
| 284 | International Marketing |
| 285 | Services Marketing |
| 286 | Security Analysis and Portfolio Management |
| 287 | Financial Institutions, Markets & Services |
| 288 | Strategic Management Accounting |
| 289 | International Financial Management |
| 290 | Strategic Investment and Financing Decisions |
| 291 | Risk Management and Financial Derivatives |
| 292 | Performance Management Systems |
| 293 | Learning and Development |
| 294 | Management of Industrial Relations |
| 295 | International Human Resource Management |
| 296 | Leadership and Change Management |
| 297 | Talent and Knowledge Management |
| 298 | Startup Management |
| 299 | MSME Management |
| 300 | Family Business Management |
| 301 | Entrepreneurial Finance |
| 302 | Entrepreneurial Marketing |
| 303 | Creativity Innovation and Entrepreneurship |


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20-21

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 |

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 |

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|----|---------|--|-----------|----------|-----------|-----------|
| 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 |

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 |

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|----|---------|--|-----------|----------|-----------|-----------|
| 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 |

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 |

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

*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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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.

2020-21

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

Applicable From 2018-19 Admitted Batch

I YEAR I SEMESTER

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

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech. in ELECTRICAL AND ELECTRONICS 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 | EE502RE | 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 |

| | | | | | | |
|---|---------|------------------------------|-----------|----------|----------|-----------|
| 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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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 |

| | | | | | | |
|---|---------|------------------------------|-----------|----------|----------|-----------|
| 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 |

| | | | | | | |
|---|---------|--------------------------------|-----------|----------|-----------|-----------|
| 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.

2020-21

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech. in MECHANICAL 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 | 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 |

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech. in MECHANICAL 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 | 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 |

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 |

| | | | | | | |
|----|---------|--|-----------|----------|----------|-----------|
| 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 |

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

*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 |
| ME813PE | Composite Materials |

Professional Elective – VI

| | |
|---------|--------------------------------------|
| ME821PE | Industrial Management |
| ME822PE | Production and Operations Management |
| ME823PE | Tribology |

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

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

Applicable From 2016-17 Admitted Batch

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 |


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Professional Elective – III

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

Professional Elective - IV

| | |
|----------|-----------------------------------|
| ME741 PE | 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.


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

Applicable From 2018-19 Admitted Batch

I YEAR I SEMESTER

| S. No. | Course Code | Course Title | L | 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 |

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

Applicable From 2018-19 Admitted Batch

I YEAR I SEMESTER

| S. No. | Course Code | Course Title | L | 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 |

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 |

| | | | | | | |
|---|---------|---------------------------------------|-----------|----------|-----------|-----------|
| 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 |

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 |

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

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

Applicable From 2016-17 Admitted Batch

IV YEAR I SEMESTER

| S.No. | Course 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 | Telecommunication Switching Systems and Networks |
| EC723PE | RF Circuit Design |
| EC724PE | Artificial Neural Networks |


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Professional Elective – III

| | |
|---------|--|
| EC731PE | Cellular and Mobile Communications |
| EC732PE | Electronics Measurements and Instrumentation |
| EC733PE | EMI and EMC |
| EC734PE | Object Oriented Programming through JAVA |

Professional Elective – IV

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

Professional Elective – V

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

Professional Elective –VI

| | |
|---------|------------------------------|
| EC861PE | Radar Systems |
| EC862PE | Coding Theory and Techniques |
| EC863PE | Database Management Systems |
| EC864PE | Global Positioning System |

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

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

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


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

Applicable From 2020-21 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 |

*MC – Mandatory Course

Academic Regulations for this Program is same as R18 B.Tech. Academic Regulations.


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

Applicable From 2020-21 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 |

*MC – Mandatory Course

Academic Regulations for this Program is same as R18 B.Tech. Academic Regulations.

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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 |

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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 |

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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 |

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 |

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 |

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

*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 |

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

Applicable From 2016-17 Admitted Batch

IV YEAR I SEMESTER

| S. No | Course Code | Course Title | 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 | Android Application Development Lab | | | | |
| | CS753PC | Linux programming Lab | | | | |
| | CS754PC | R Programming Lab | | | | |
| | CS755PC | 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) |


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Professional Elective – II

| | |
|---------|---------------------------------|
| CS721PE | Python Programming |
| CS722PE | Android Application Development |
| CS723PE | Linux Programming |
| CS724PE | R Programming |
| CS725PE | Internet of Things |

Professional Elective - III

| | |
|---------|---|
| CS731PE | Distributed Systems |
| CS732PE | Machine Learning |
| CS733PE | Cloud Computing |
| CS734PE | Information Security Assessment and Audit (Security Analyst - II) |
| CS735PE | Big Data Analytics (Associate Analytics - II) |

Professional Elective - IV

| | |
|---------|--|
| CS741PE | Computer Graphics |
| CS742PE | Object Oriented Analysis and Design |
| CS743PE | E-Commerce |
| CS744PE | Computer Forensics |
| CS745PE | Web Services and Service Oriented Architecture |

Professional Elective - V

| | |
|---------|--|
| CS851PE | Natural Language Processing |
| CS852PE | Middleware Technologies |
| CS853PE | Big Data Analytic Techniques |
| CS854PE | Information Security Incident Response and Management (Security Analyst - III) |
| CS855PE | Predictive Analytics (Associate Analytics - III) |

Professional Elective - VI

| | |
|---------|----------------------------------|
| CS861PE | Software Testing Methodologies |
| CS862PE | Semantic Web and Social Networks |
| CS863PE | Parallel Programming |
| CS864PE | Cyber security |
| CS865PE | 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.

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 |


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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/F1/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/F3/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 |



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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 |


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