

DUAL DEGREE PROGRAMME

B. Tech & M.Tech

(2014-15)

Course Structure



KIIT UNIVERSITY

(Declared U/S 3 of UGC Act, 1956)

Bhubaneswar, Odisha, India

DUAL DEGREE PROGRAMME

B.Tech & M.Tech

(2014-15)

Course Structure

**Applicable to students admitted in 2013-14 & 2014-15
Academic Session**



KIIT UNIVERSITY

(Declared U/S 3 of UGC Act, 1956)
Bhubaneswar, Odisha, India

Total Credits for B.Tech & M.Tech Course Structure 2014-15

| Branch | M.Tech Specialization | B.Tech Credits | M.Tech Credits | Total Credits |
|--|--|-----------------------|-----------------------|----------------------|
| Civil Engg. | i) Construction Engineering & Management | 187 | 73 | 260 |
| | ii) Structural Engineering | 187 | 73 | 260 |
| Computer Science & Engg. | i) Computer Science & Engineering | 188 | 73 | 261 |
| | ii) Information Security | 188 | 73 | 261 |
| | iii) Data Analytics | 188 | 73 | 261 |
| | iv) Software Engineering | 188 | 73 | 261 |
| Electrical Engg. | i) Power & Energy System | 185 | 77 | 262 |
| | ii) Power Electronics & Drives | 185 | 75 | 260 |
| Electronics & Electrical Engg. | i) Power Electronics & Drives | 186 | 76 | 262 |
| | ii) VLSI Design & Embedded System | 187 | 75 | 262 |
| Electronics & Telecommunication Engg. | i) Communication System Engg. | 186 | 74 | 260 |
| | ii) VLSI Engineering & Embedded System | 185 | 75 | 260 |
| | iii) RF & Microwave Engineering | 185 | 75 | 260 |
| Mechanical Engg. | i) Manufacturing Process & Systems | 186 | 77 | 263 |
| | ii) Thermal Engineering | 187 | 76 | 263 |
| | iii) Machine Design | 186 | 76 | 262 |



COURSE STRUCTURE FOR FIRST YEAR DUAL DEGREE PROGRAMME

B.TECH & M.TECH

AT KIIT UNIVERSITY, BHUBANESWAR

(FOR STUDENTS ADMITTED IN THE SESSION 2013 - 2014 & 2014-2015)

(Syllabus common to All Branches of Dual Degree B. Tech & M.Tech Programme)

FIRST SEMESTER

(SCHEME-I)

| Theory | | | | | | | |
|--|--------------------|------------------------|----------|----------|----------|--------------|---------------|
| Sl. No | Course Code | Subject | L | T | P | Total | Credit |
| 1. | MA1001 | Mathematics – I | 3 | 1 | 0 | 4 | 4 |
| 2. | PH1001 | Physics – I | 3 | 0 | 0 | 3 | 3 |
| 3. | CH1001 | Chemistry | 3 | 1 | 0 | 4 | 4 |
| 4. | ME1001 | Engg. Mechanics | 3 | 1 | 0 | 4 | 4 |
| 5. | EE1001 | Electrical Science | 3 | 0 | 0 | 3 | 3 |
| Total Theory | | | | | | 18 | 18 |
| Practical | | | | | | | |
| 1. | PH1091 | Physics Lab – I | 0 | 0 | 3 | 3 | 2 |
| 2. | CH1091 | Chemistry Lab | 0 | 0 | 3 | 3 | 2 |
| 3. | EE1091 | Electrical Science Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 1. | CE1081 | Engg. Graphics | 0 | 0 | 3 | 3 | 2 |
| Total Practical & Sessional | | | | | | 12 | 8 |
| Semester Total | | | | | | 30 | 26 |

SECOND SEMESTER

(SCHEME-I)

| Theory | | | | | | | |
|--|--------------------|--------------------------------|----------|----------|----------|--------------|---------------|
| Sl. No | Course Code | Subject | L | T | P | Total | Credit |
| 1. | MA1002 | Mathematics – II | 3 | 1 | 0 | 4 | 4 |
| 2. | PH1002 | Physics – II | 3 | 0 | 0 | 3 | 3 |
| 3. | CS1001 | Programming in C | 3 | 0 | 0 | 3 | 3 |
| 4. | EC1001 | Basic Electronics | 3 | 0 | 0 | 3 | 3 |
| 5. | HS1001 | Professional Communication | 3 | 0 | 0 | 3 | 3 |
| Total Theory | | | | | | 16 | 16 |
| Practical | | | | | | | |
| 1. | PH1092 | Physics Lab – II | 0 | 0 | 3 | 3 | 2 |
| 2. | EC1091 | Basic Electronics Lab | 0 | 0 | 3 | 3 | 2 |
| 3. | CS1091 | Computer Programming Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 1. | ME1081 | Basic Manufacturing Systems | 0 | 0 | 3 | 3 | 2 |
| 2. | HS1081 | Professional Communication Lab | 0 | 0 | 2 | 2 | 1 |
| Total Practical & Sessional | | | | | | 14 | 9 |
| Semester Total | | | | | | 30 | 25 |
| 3. | EAA1 | Extra Academic Activity | | | | | P/NP |



**FIRST SEMESTER
(SCHEME-II)**

| Theory | | | | | | | |
|--|-------------|--------------------------------|---|---|---|-----------|-----------|
| Sl. No. | Course Code | Subject | L | T | P | Total | Credit |
| 1. | MA1001 | Mathematics – I | 3 | 1 | 0 | 4 | 4 |
| 2. | PH1001 | Physics – I | 3 | 0 | 0 | 3 | 3 |
| 3. | CS1001 | Programming in C | 3 | 0 | 0 | 3 | 3 |
| 4. | EC1001 | Basic Electronics | 3 | 0 | 0 | 3 | 3 |
| 5. | HS1001 | Professional Communication | 3 | 0 | 0 | 3 | 3 |
| Total Theory | | | | | | 16 | 16 |
| Practical | | | | | | | |
| 1. | PH1091 | Physics Lab – I | 0 | 0 | 3 | 3 | 2 |
| 2. | EC1091 | Basic Electronics Lab | 0 | 0 | 3 | 3 | 2 |
| 3. | CS1091 | Computer Programming Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 1. | ME1081 | Basic Manufacturing Systems | 0 | 0 | 3 | 3 | 2 |
| 2. | HS1081 | Professional Communication Lab | 0 | 0 | 2 | 2 | 1 |
| Total Practical & Sessional | | | | | | 14 | 9 |
| Semester Total | | | | | | 30 | 25 |

**SECOND SEMESTER
(SCHEME-II)**

| Theory | | | | | | | |
|--|-------------|-------------------------|---|---|---|-----------|-----------|
| Sl. No. | Course Code | Subject | L | T | P | Total | Credit |
| 1. | MA1002 | Mathematics –II | 3 | 1 | 0 | 4 | 4 |
| 2. | PH1002 | Physics – II | 3 | 0 | 0 | 3 | 3 |
| 3. | CH1001 | Chemistry | 3 | 1 | 0 | 4 | 4 |
| 4. | ME1001 | Engg. Mechanics | 3 | 1 | 0 | 4 | 4 |
| 5. | EE1001 | Electrical Science | 3 | 0 | 0 | 3 | 3 |
| Total Theory | | | | | | 18 | 18 |
| Practical | | | | | | | |
| 1. | PH1092 | Physics Lab – II | 0 | 0 | 3 | 3 | 2 |
| 2. | CH1091 | Chemistry Lab | 0 | 0 | 3 | 3 | 2 |
| 3. | EE1091 | Electrical Science Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 1. | CE1081 | Engg. Graphics | 0 | 0 | 3 | 3 | 2 |
| Total Practical & Sessional | | | | | | 12 | 8 |
| Semester Total | | | | | | 30 | 26 |
| 1 | EAA1 | Extra Academic Activity | | | | | P/NP |

SCHOOL OF CIVIL ENGINEERING

Course Structure for B.Tech in Civil Engineering and M.Tech in Construction Engineering & Management SEMESTER - III

| Theory | | | | | | | |
|--|-------------|--|---|---|---|-----------|-----------|
| Sl. No. | Course Code | Subjects | L | T | P | Total | Credit |
| 1 | MA2001 | Mathematics-III | 3 | 1 | 0 | 4 | 4 |
| 2 | CE2001 | Solid Mechanics | 3 | 1 | 0 | 4 | 4 |
| 3 | CE2003 | Fluid Mechanics-I | 3 | 1 | 0 | 4 | 4 |
| 4 | CE2005 | Surveying | 3 | 0 | 0 | 3 | 3 |
| 5 | CE2007 | Civil Engineering Materials & Construction | 3 | 0 | 0 | 3 | 3 |
| 6 | CE2009 | Environmental Engineering-I | 3 | 0 | 0 | 3 | 3 |
| Total of Theory | | | | | | 21 | 21 |
| Practical | | | | | | | |
| 1 | CE2091 | Environmental Engg. Lab | 0 | 0 | 3 | 3 | 2 |
| 2 | CE2093 | Material Testing Lab | 0 | 0 | 3 | 3 | 2 |
| 3 | CE2095 | Surveying Field Work-I | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 1 | CE2081 | Building Drawings | 0 | 0 | 3 | 3 | 2 |
| Total Practical & Sessional | | | | | | 12 | 8 |
| Semester Total | | | | | | 33 | 29 |

SEMESTER-IV

| Theory | | | | | | | |
|--|-------------|--------------------------------|---|---|---|-----------|-----------|
| Sl. No. | Course Code | Subjects | L | T | P | Total | Credit |
| 1 | MA2004 | Numerical Methods | 3 | 1 | 0 | 4 | 4 |
| 2 | CE2002 | Fluid Mechanics-II | 3 | 1 | 0 | 4 | 4 |
| 3 | CE2004 | Structural Analysis-I | 3 | 1 | 0 | 4 | 4 |
| 4 | CE2006 | Transportation Engineering-I | 3 | 0 | 0 | 3 | 3 |
| 5 | CE2008 | Advanced Surveying | 3 | 0 | 0 | 3 | 3 |
| 6 | CE2012 | Design of Concrete Structure-I | 3 | 1 | 0 | 4 | 4 |
| Total of Theory | | | | | | 22 | 22 |
| Practical | | | | | | | |
| 1 | CE2092 | Fluid Mechanics Lab | 0 | 0 | 3 | 3 | 2 |
| 2 | CE2094 | Transportation Engg. Lab. | 0 | 0 | 3 | 3 | 2 |
| 3 | CE2096 | Surveying Field Work-II | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 1 | | Language Lab | 0 | 0 | 2 | 2 | 1 |
| Total Practical & Sessional | | | | | | 11 | 7 |
| Semester Total | | | | | | 33 | 29 |

SEMESTER-V

| Theory | | | | | | | |
|--|-------------|-------------------------------|---|---|---|-----------|-----------|
| Sl. No. | Course Code | Subjects | L | T | P | Total | Credit |
| 1 | CE3001 | Structural Analysis-II | 3 | 1 | 0 | 4 | 4 |
| 2 | CE3003 | Water Resources Engineering-I | 3 | 1 | 0 | 4 | 4 |
| 3 | CE3005 | Geotechnical Engineering-I | 3 | 1 | 0 | 4 | 4 |
| 4 | CE3007 | Design of Steel Structure | 3 | 1 | 0 | 4 | 4 |
| 5 | HU2002 | Engineering Economics | 3 | 0 | 0 | 3 | 3 |
| Total of Theory | | | | | | 19 | 19 |
| Practical | | | | | | | |
| 1 | CE3091 | Geotechnical Engineering Lab. | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 1 | CE3081 | Hydrology & Irrigation Design | 0 | 0 | 3 | 3 | 2 |
| 2 | CE3083 | Structural Design (Steel) | 0 | 0 | 3 | 3 | 2 |
| 3 | | CAT-I | 0 | 0 | 2 | 2 | 1 |
| Total Practical & Sessional | | | | | | 11 | 7 |
| Semester Total | | | | | | 30 | 26 |

SEMESTER-VI

| Theory | | | | | | | |
|------------------------------------|-------------|------------------------------------|---|---|---|-----------|-----------|
| Sl. No. | Course Code | Subjects | L | T | P | Total | Credit |
| 1 | CE3002 | Water Resources Engineering-II | 3 | 1 | 0 | 4 | 4 |
| 2 | CE3004 | Geotechnical Engineering-II | 3 | 1 | 0 | 4 | 4 |
| 3 | CE3006 | Design of Concrete Structures-II | 3 | 1 | 0 | 4 | 4 |
| 4 | CE3008 | Environmental Engineering-II | 3 | 0 | 0 | 3 | 3 |
| 5 | CE3012 | Construction Planning & Management | 3 | 0 | 0 | 3 | 3 |
| Total of Theory | | | | | | 18 | 18 |
| Practical | | | | | | | |
| | | | | | | | |
| Sessional | | | | | | | |
| 1 | CE3082 | Water Resources Design | 0 | 0 | 3 | 3 | 2 |
| 2 | CE3084 | Structural Design (RCC) | 0 | 0 | 3 | 3 | 2 |
| 3 | CE3086 | Geotechnical Engineering Design | 0 | 0 | 3 | 3 | 2 |
| 4 | CE3088 | Estimating & Costing | 0 | 0 | 2 | 2 | 1 |
| 5 | | CAT-II | 0 | 0 | 2 | 2 | 1 |
| Total Practical / Sessional | | | | | | 13 | 8 |
| Semester Total | | | | | | 31 | 26 |

SEMESTER-VII

| Theory | | | | | | | |
|--|-------------|-------------------------------|---|---|---|-----------|-----------|
| Sl. No. | Course Code | Subjects | L | T | P | Total | Credit |
| 1 | CE4001 | Transportation Engineering-II | 3 | 0 | 0 | 3 | 3 |
| 2 | CE6101 | Project Planning & Control | 3 | 1 | 0 | 4 | 4 |
| 3 | CE6105 | Material Technology | 3 | 1 | 0 | 4 | 4 |
| 4 | CE6109 | Building Science | 3 | 1 | 0 | 4 | 4 |
| 5 | | Institute Elective | 3 | 0 | 0 | 3 | 3 |
| Total Theory | | | | | | 18 | 18 |
| Practical | | | | | | | |
| 1 | CE4091 | Concrete & Structure Lab. | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 1 | CE4081 | Transportation Design | 0 | 0 | 3 | 3 | 2 |
| 2 | CE4083 | Environmental Design | 0 | 0 | 3 | 3 | 2 |
| 3 | CE4085 | Project Preparation | 0 | 0 | 6 | 6 | 3 |
| 4 | CE4087 | Practical Training | - | - | - | - | 2 |
| Total Practical & Sessional | | | | | | 15 | 11 |
| Semester Total | | | | | | 33 | 29 |

SEMESTER-VIII

| Theory | | | | | | | |
|--|-------------|------------------------------------|---|---|---|-----------|-----------|
| Sl. No. | Course Code | Subjects | L | T | P | Total | Credit |
| 1 | CE6102 | Construction Engineering Practices | 3 | - | - | 3 | 3 |
| 2 | CE6104 | Advanced Construction Material | 3 | 1 | - | 4 | 4 |
| 3 | CE6106 | Construction Methods & Equipments | 3 | 1 | - | 4 | 4 |
| 4 | | Elective-I | 3 | - | - | 3 | 3 |
| 5 | | Elective-II | 3 | - | - | 3 | 3 |
| Total Theory | | | | | | 17 | 17 |
| Sessional | | | | | | | |
| 1 | CE4082 | Project | 0 | 0 | 9 | 9 | 5 |
| 2 | CE4084 | Comprehensive Viva Voce | - | - | - | - | 2 |
| 2 | CE4086 | Seminar | 0 | 0 | 3 | 3 | 2 |
| Total Practical & Sessional | | | | | | 12 | 9 |
| Semester Total | | | | | | 29 | 26 |

SEMESTER-IX

| Theory | | | | | | |
|--|--------------------|---|----------|----------|----------|---------------|
| Sl. No. | Course Code | Subjects | L | T | P | Credit |
| 1 | CE6103 | Construction Finance Management | 3 | - | - | 3 |
| 2 | CE6107 | Quantitative Methods in Construction Management | 3 | - | - | 3 |
| Total Theory | | | | | | 6 |
| Practical | | | | | | |
| 1 | CE6193 | Computer Application Lab | 0 | 0 | 3 | 2 |
| 2 | CE6195 | Advanced Material Testing Lab. | 0 | 0 | 3 | 2 |
| Sessional | | | | | | |
| 1 | CE6185 | Thesis Part-I | - | - | - | 10 |
| Total Practical & Sessional | | | | | | 14 |
| Semester Total | | | | | | 20 |

SEMESTER-X

| Theory | | | | | | |
|------------------------|--------------------|-------------------------|----------|----------|----------|---------------|
| Sl. No. | Course Code | Subjects | L | T | P | Credit |
| Sessional | | | | | | |
| 1 | CE6184 | Comprehensive Viva Voce | - | - | - | 2 |
| 2 | CE6186 | Seminar | 0 | 0 | 3 | 2 |
| 3 | CE6188 | Thesis Part-II | - | - | - | 20 |
| Total Sessional | | | | | | 24 |
| Semester Total | | | | | | 24 |

LIST OF INSTITUTE ELECTIVES

| Sl.No. | Subject Code | Subject Name | Credit |
|--------|--------------|----------------------------------|--------|
| 1. | HU3008 | Management Concept and Practices | 3 |
| 2. | HU3006 | Entrepreneurship | 3 |
| 3. | HU3004 | Human Resource Management | 3 |

LIST OF DEPARTMENT ELECTIVES - I & II

| Sl.No. | Subject Code | Subject Name | Credit |
|--------|--------------|--|--------|
| 1. | CE6132 | System Design and Value Analysis | 3 |
| 2. | CE6134 | Project quality and Safety Management | 3 |
| 3. | CE6136 | Building Services Planning | 3 |
| 4. | CE6138 | Advanced Repairs and Rehabilitation of Structure | 3 |
| 5. | CE6142 | Contract Laws and Regulations | 3 |
| 6. | CE6144 | Foundation Engineering | 3 |
| 7. | CE6146 | Quality Control in Construction | 3 |

SCHOOL OF CIVIL ENGINEERING

Course Structure for B.Tech in Civil Engineering and M.Tech in Structural Engineering

SEMESTER-III

| Theory | | | | | | | |
|--|-------------|--|---|---|---|-----------|-----------|
| Sl. No. | Course Code | Subjects | L | T | P | Total | Credit |
| 1 | MA2001 | Mathematics-III | 3 | 1 | 0 | 4 | 4 |
| 2 | CE2001 | Solid Mechanics | 3 | 1 | 0 | 4 | 4 |
| 3 | CE2003 | Fluid Mechanics-I | 3 | 1 | 0 | 4 | 4 |
| 4 | CE2005 | Surveying | 3 | 0 | 0 | 3 | 3 |
| 5 | CE2007 | Civil Engineering Materials & Construction | 3 | 0 | 0 | 3 | 3 |
| 6 | CE2009 | Environmental Engineering-I | 3 | 0 | 0 | 3 | 3 |
| Total of Theory | | | | | | 21 | 21 |
| Practical | | | | | | | |
| 1 | CE2091 | Environmental Engg. Lab | - | - | 3 | 3 | 2 |
| 2 | CE2093 | Material Testing Lab | - | - | 3 | 3 | 2 |
| 3 | CE2095 | Surveying Field Work-I | - | - | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 1 | CE2081 | Building Drawings | - | - | 3 | 3 | 2 |
| Total Practical & Sessional | | | | | | 12 | 8 |
| Semester Total | | | | | | 33 | 29 |

SEMESTER-IV

| Theory | | | | | | | |
|--|-------------|--------------------------------|---|---|---|-----------|-----------|
| Sl. No. | Course Code | Subjects | L | T | P | Total | Credit |
| 1 | MA2004 | Numerical Methods | 3 | 1 | 0 | 4 | 4 |
| 2 | CE2002 | Fluid Mechanics-II | 3 | 1 | 0 | 4 | 4 |
| 3 | CE2004 | Structural Analysis-I | 3 | 1 | 0 | 4 | 4 |
| 4 | CE2006 | Transportation Engineering-I | 3 | | 0 | 3 | 3 |
| 5 | CE2008 | Advanced Surveying | 3 | | 0 | 3 | 3 |
| 6 | CE2012 | Design of Concrete Structure-I | 3 | 1 | 0 | 4 | 4 |
| Total of Theory | | | | | | 22 | 22 |
| Practical | | | | | | | |
| 1 | CE2092 | Fluid Mechanics Lab | 0 | 0 | 3 | 3 | 2 |
| 2 | CE2094 | Transportation Engg. Lab. | 0 | 0 | 3 | 3 | 2 |
| 3 | CE2096 | Surveying Field Work-II | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 1 | | Language Lab | 0 | 0 | 2 | 2 | 1 |
| Total Practical & Sessional | | | | | | 11 | 7 |
| Semester Total | | | | | | 33 | 29 |

SEMESTER-V

| Theory | | | | | | | |
|--|-------------|-------------------------------|---|---|---|-----------|-----------|
| Sl. No. | Course Code | Subjects | L | T | P | Total | Credit |
| 1 | CE3001 | Structural Analysis-II | 3 | 1 | 0 | 4 | 4 |
| 2 | CE3003 | Water Resources Engineering-I | 3 | 1 | 0 | 4 | 4 |
| 3 | CE3005 | Geotechnical Engineering-I | 3 | 1 | 0 | 4 | 4 |
| 4 | CE3007 | Design of Steel Structure | 3 | 1 | 0 | 4 | 4 |
| 5 | HU2002 | Engineering Economics | 3 | 0 | 0 | 3 | 3 |
| Total of Theory | | | | | | 19 | 19 |
| Practical | | | | | | | |
| 1 | CE3091 | Geotechnical Engineering Lab. | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 1 | CE3081 | Hydrology & Irrigation Design | 0 | 0 | 3 | 3 | 2 |
| 2 | CE3083 | Structural Design (Steel) | 0 | 0 | 3 | 3 | 2 |
| 3 | | CAT-I | 0 | 0 | 2 | 2 | 1 |
| Total Practical & Sessional | | | | | | 11 | 7 |
| Semester Total | | | | | | 30 | 26 |

SEMESTER-VI

| Theory | | | | | | | |
|------------------------|-------------|------------------------------------|---|---|---|-----------|-----------|
| Sl. No. | Course Code | Subjects | L | T | P | Total | Credit |
| 1 | CE3002 | Water Resources Engineering-II | 3 | 1 | 0 | 4 | 4 |
| 2 | CE3004 | Geotechnical Engineering-II | 3 | 1 | 0 | 4 | 4 |
| 3 | CE3006 | Design of Concrete Structures-II | 3 | 1 | 0 | 4 | 4 |
| 4 | CE3008 | Environmental Engineering-II | 3 | 0 | 0 | 3 | 3 |
| 5 | CE3012 | Construction Planning & Management | 3 | 0 | 0 | 3 | 3 |
| Total of Theory | | | | | | 18 | 18 |
| Sessional | | | | | | | |
| 1 | CE3082 | Water Resources Design | 0 | 0 | 3 | 3 | 2 |
| 2 | CE3084 | Structural Design (RCC) | 0 | 0 | 3 | 3 | 2 |
| 3 | CE3086 | Geotechnical Engineering Design | 0 | 0 | 3 | 3 | 2 |
| 4 | CE3088 | Estimating & Costing | 0 | 0 | 2 | 2 | 1 |
| 5 | | CAT-II | 0 | 0 | 2 | 2 | 1 |
| Total Sessional | | | | | | 13 | 8 |
| Semester Total | | | | | | 31 | 26 |

SEMESTER-VII

| Theory | | | | | | | |
|--|-------------|-------------------------------------|---|---|---|-----------|-----------|
| Sl. No. | Course Code | Subjects | L | T | P | Total | Credit |
| 1 | CE4001 | Transportation Engineering-II | 3 | 0 | 0 | 3 | 3 |
| 2 | CE6201 | Advanced Structural Analysis | 3 | 1 | 0 | 4 | 4 |
| 3 | CE6203 | Theory of Elasticity and Plasticity | 3 | 0 | 0 | 3 | 3 |
| 4 | | Elective-I | 3 | 0 | 0 | 3 | 3 |
| 5 | | Institute Elective | 3 | 0 | 0 | 3 | 3 |
| Total Theory | | | | | | 16 | 16 |
| Practical | | | | | | | |
| 1 | CE4091 | Concrete & Structure Lab. | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 1 | CE4081 | Transportation Design | 0 | 0 | 3 | 3 | 2 |
| 2 | CE4083 | Environmental Design | 0 | 0 | 3 | 3 | 2 |
| 3 | CE4085 | Project | 0 | 0 | 6 | 6 | 3 |
| 4 | CE4087 | Practical Training | 0 | 0 | - | - | 2 |
| Total Practical & Sessional | | | | | | 15 | 11 |
| Semester Total | | | | | | 31 | 27 |

SEMESTER-VIII

| Theory | | | | | | | |
|------------------------------------|-------------|---|---|---|---|-----------|-----------|
| Sl. No. | Course Code | Subjects | L | T | P | Total | Credit |
| 1 | CE6202 | Advanced Steel Design | 3 | 1 | 0 | 4 | 4 |
| 2 | CE6204 | Advanced Reinforced Concrete Design | 3 | 1 | 0 | 4 | 4 |
| 3 | CE6206 | Structural Dynamics & Earth Quake Engineering | 3 | 1 | 0 | 4 | 4 |
| 4 | CE6208 | Stability of Structures | 3 | 0 | 0 | 3 | 3 |
| 5 | | Elective-II | 3 | 0 | 0 | 3 | 3 |
| Total Theory | | | | | | 18 | 18 |
| Sessional | | | | | | | |
| 1 | CE4082 | Project | 0 | 0 | 9 | 9 | 5 |
| 2 | CE4084 | Comprehensive Viva Voce | - | - | - | - | 2 |
| 2 | CE4086 | Seminar | 0 | 0 | 3 | 3 | 2 |
| Total Practical / Sessional | | | | | | 12 | 9 |
| Semester Total | | | | | | 30 | 27 |

SEMESTER-IX

| Theory | | | | | | |
|--|-------------|--|---|---|---|-----------|
| Sl. No. | Course Code | Subjects | L | T | P | Credit |
| 1 | CE6205 | Numerical Methods in Civil Engineering | 3 | 0 | 0 | 3 |
| 2 | CE6105 | Material Technology | 3 | 1 | 0 | 4 |
| Total Theory | | | | | | 7 |
| Practical | | | | | | |
| 1 | CE6291 | Structural Engineering Lab | 0 | 0 | 3 | 2 |
| 2 | CE6295 | Computational Lab | 0 | 0 | 3 | 2 |
| Sessional | | | | | | |
| 1 | CE6285 | Thesis Part-I | 0 | 0 | - | 10 |
| Total Practical & Sessional | | | | | | 14 |
| Semester Total | | | | | | 21 |

SEMESTER-X

| Theory | | | | | | |
|------------------------|-------------|-------------------------|---|---|---|-----------|
| Sl. No. | Course Code | Subjects | L | T | P | Credit |
| Sessional | | | | | | |
| 1 | CE6284 | Comprehensive Viva Voce | - | - | - | 2 |
| 2 | CE6286 | Seminar | 0 | 0 | 3 | 2 |
| 3 | CE6288 | Thesis Part-II | - | - | - | 20 |
| Total Sessional | | | | | | 24 |
| Semester Total | | | | | | 24 |

LIST OF INSTITUTE ELECTIVES

| Sl.No. | Subject Code | Subject Name | Credit |
|--------|--------------|----------------------------------|--------|
| 1. | HU3008 | Management Concept and Practices | 3 |
| 2. | HU3006 | Entrepreneurship | 3 |
| 3. | HU3004 | Human Resource Management | 3 |

LIST OF DEPARTMENT ELECTIVES

Department Elective-I

| Sl.No. | Subject Code | Subject Name | Credit |
|--------|--------------|--------------------------------------|--------|
| 1. | CE6231 | Finite Element Methods | 3 |
| 2. | CE6233 | Theory Of Plate And Shells | 3 |
| 3. | CE6235 | Advanced Foundation Engineering | 3 |
| 4. | CE6237 | Construction Planning And Management | 3 |
| 5. | CE6239 | Composite Structures | 3 |

Department Elective-II

| Sl.No. | Subject Code | Subject Name | Credit |
|--------|--------------|---------------------------------|--------|
| 1. | CE6232 | Design of Bridges | 3 |
| 2. | CE6234 | Pre-stressed Concrete | 3 |
| 3. | CE6236 | Design of Industrial Structures | 3 |
| 4. | CE6238 | Design of Offshore Structures | 3 |
| 5. | CE6242 | Soil-Structure Interaction | 3 |
| 6. | CE6244 | Optimization Techniques | 3 |

SCHOOL OF COMPUTER ENGINEERING

Course Structure for B.Tech in Computer Science & Engineering and M.Tech in Computer Science & Engineering

SEMESTER-III

| Theory | | | | | | | |
|--|-------------|---------------------------------|---|---|---|-----------|-----------|
| Sl. No. | Course Code | Subjects | L | T | P | Total | Credit |
| 1 | MA-2003 | Discrete Mathematics | 3 | 1 | 0 | 4 | 4 |
| 2 | CS-2001 | Data Structures & Algorithms | 3 | 1 | 0 | 4 | 4 |
| 3 | IT-2001 | Object Oriented Programming | 3 | 0 | 0 | 3 | 3 |
| 4 | MA-2001 | Mathematics III | 3 | 1 | 0 | 4 | 4 |
| 5 | EC-2009 | Digital Electronics Circuits | 3 | 1 | 0 | 4 | 4 |
| 6 | CH-2001 | Environmental Sciences | 2 | 0 | 0 | 2 | 2 |
| Total of Theory | | | | | | 21 | 21 |
| Practical | | | | | | | |
| 1 | CS-2091 | Data Structures Lab | 0 | 0 | 3 | 2 | 2 |
| 2 | IT-2091 | Object Oriented Programming Lab | 0 | 0 | 3 | 2 | 2 |
| 3 | EC-2093 | Digital Electronics Lab | 0 | 0 | 3 | 2 | 2 |
| Sessional | | | | | | | |
| Total Practical & Sessional | | | | | | 6 | 6 |
| Semester Total | | | | | | 27 | 27 |

SEMESTER-IV

| Theory | | | | | | | |
|--|-------------|--------------------------------------|---|---|---|-----------|-----------|
| Sl. No. | Course Code | Subjects | L | T | P | Total | Credit |
| 1 | CS-2004 | Database Management System | 3 | 1 | 0 | 4 | 4 |
| 2 | CS-2002 | Operating System | 3 | 1 | 0 | 4 | 4 |
| 3 | IT-2002 | Programming Tools and Techniques | 3 | 1 | 0 | 4 | 4 |
| 4 | EC-2004 | Principle of Digital Communication | 3 | 1 | 0 | 4 | 4 |
| 5 | MA-2002 | Mathematics – IV | 3 | 1 | 0 | 4 | 4 |
| Total of Theory | | | | | | 20 | 20 |
| Practical | | | | | | | |
| 1 | CS-2094 | DBMS Lab | 0 | 0 | 3 | 2 | 2 |
| 2 | CS-2092 | Operating System Lab | 0 | 0 | 3 | 2 | 2 |
| 3 | IT-2092 | Programming Tools and Techniques Lab | 0 | 0 | 3 | 2 | 2 |
| Sessional | | | | | | | |
| 1 | HS-2081 | Language Lab | 0 | 0 | 0 | 1 | 1 |
| Total Practical & Sessional | | | | | | 7 | 7 |
| Semester Total | | | | | | 27 | 27 |

SEMESTER-V

| Theory | | | | | | | |
|--|-------------|--|---|---|---|-----------|-----------|
| Sl. No. | Course Code | Subjects | L | T | P | Total | Credit |
| 1 | CS-3001 | Design & Analysis of Algorithms | 3 | 1 | 0 | 4 | 4 |
| 2 | IT-3003 | Software Engineering | 3 | 1 | 0 | 4 | 4 |
| 3 | IT-3001 | Computer Networks | 3 | 1 | 0 | 4 | 4 |
| 4 | CS-3003 | Formal Languages and Automata Theory | 3 | 1 | 0 | 4 | 4 |
| 5 | CS-3005 | Computer Organization and Architecture | 3 | 1 | 0 | 4 | 4 |
| Total of Theory | | | | | | 20 | 20 |
| Practical | | | | | | | |
| 1 | CS-3091 | Design & Analysis of Algorithms Lab | 0 | 0 | 3 | 2 | 2 |
| 2 | IT-3091 | Computer Networks Lab | 0 | 0 | 3 | 2 | 2 |
| Sessional | | | | | | | |
| 1 | TP-3081 | CAT -I | 0 | 0 | 0 | 1 | 1 |
| Total Practical & Sessional | | | | | | 5 | 5 |
| Semester Total | | | | | | 25 | 25 |

SEMESTER-VI

| Theory | | | | | | | |
|--|-------------|--|---|---|---|-----------|-----------|
| Sl. No. | Course Code | Subjects | L | T | P | Total | Credit |
| 1 | CS-3002 | Compiler Design | 3 | 1 | 0 | 4 | 4 |
| 2 | IT-3004 | Object Oriented System Design | 3 | 1 | 0 | 4 | 4 |
| 3 | CS-3006 | High Performance Computer Architecture | 3 | 1 | 0 | 4 | 4 |
| 4 | CS-3004 | Computer Graphics | 3 | 0 | 0 | 3 | 3 |
| 5 | | Institute Elective I | 0 | 0 | 0 | 3 | 3 |
| Total of Theory | | | | | | 18 | 18 |
| Practical | | | | | | | |
| 1 | CS-3092 | Compiler Design Lab | 0 | 0 | 3 | 2 | 2 |
| 2 | IT-3098 | Software Engineering Lab | 0 | 0 | 3 | 2 | 2 |
| 3 | CS-3094 | Computer Graphics Lab | 0 | 0 | 3 | 2 | 2 |
| Sessional | | | | | | | |
| 1 | TP-3082 | CAT -II | 0 | 0 | 0 | 1 | 1 |
| Total Practical & Sessional | | | | | | 7 | 7 |
| Semester Total | | | | | | 25 | 25 |

SEMESTER-VII

| Sl. No. | Course Code | Subjects | L | T | P | Total | Credit |
|--|-------------|---|---|---|---|-----------|-----------|
| 1 | CS-4001 | Artificial Intelligence | 3 | 1 | 0 | 4 | 4 |
| 2 | | Departmental Elective I / Open Elective | 3 | 0 | 0 | 3 | 3 |
| 3 | IT-3002 | Data Analytics | 3 | 1 | 0 | 4 | 4 |
| 4 | MA-6001 | Advanced Mathematics | 3 | 1 | 0 | 4 | 4 |
| 5 | CS-6101 | Algorithm & Complexity Analysis | 3 | 1 | 0 | 4 | 4 |
| 6 | | Institute Elective II | 3 | 0 | 0 | 3 | 3 |
| Total Theory | | | | | | 22 | 22 |
| Practical | | | | | | | |
| 1 | IT-3092 | Data Analytics Lab | 0 | 0 | 3 | 2 | 2 |
| 2 | CS-6191 | Computing Lab | 0 | 0 | 3 | 2 | 2 |
| Sessional | | | | | | | |
| 1 | CS-4081 | Project Preparation | 0 | 0 | 6 | 3 | 3 |
| 2 | CS-4083 | Practical Training | - | - | - | - | 2 |
| Total Practical & Sessional | | | | | | 7 | 9 |
| Semester Total | | | | | | 29 | 31 |

SEMESTER-VIII

| Sl. No. | Course Code | Subjects | L | T | P | Total | Credit |
|--|-------------|---|---|---|---|-----------|-----------|
| 1 | CS-6102 | Computational Intelligence | 3 | 1 | 0 | 4 | 4 |
| 2 | CS-6104 | Mobile Communication & Computing | 3 | 1 | 0 | 4 | 4 |
| 3 | | Departmental Elective II/ Open Elective | 3 | 0 | 0 | 3 | 3 |
| 4 | | Departmental Elective III | 3 | 0 | 0 | 3 | 3 |
| 5 | | Departmental Elective IV | 3 | 0 | 0 | 3 | 3 |
| Total Theory | | | | | | 17 | 17 |
| Practical | | | | | | | |
| 1 | CS-6192 | Computational Intelligence Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 1 | CS-4086 | Comprehensive Viva | - | - | - | - | 2 |
| 2 | CS-4082 | Project | 0 | 0 | 9 | 9 | 5 |
| 3 | CS-4084 | Seminar | 0 | 0 | 3 | 3 | 2 |
| Total Practical & Sessional | | | | | | 15 | 11 |
| Semester Total | | | | | | 32 | 28 |

SEMESTER-IX

| Theory | | | | | | |
|--|--------------------|------------------------------------|----------|----------|----------|---------------|
| Sl. No. | Course Code | Subjects | L | T | P | Credit |
| 1 | CS-6301 | Data Mining & Data Warehousing | 3 | 1 | 0 | 4 |
| 2 | CS-6201 | Cryptography | 3 | 1 | 0 | 4 |
| 3 | | Departmental Elective V | 3 | 0 | 0 | 3 |
| Total Theory | | | | | | 11 |
| Practical | | | | | | |
| 1 | CS-6391 | Data Mining & Data Warehousing Lab | 0 | 0 | 3 | 2 |
| Sessional | | | | | | |
| 1 | CS-6185 | Thesis I | - | - | - | 10 |
| Total Practical & Sessional | | | | | | 12 |
| Semester Total | | | | | | 23 |

SEMESTER-X

| Theory | | | | | | |
|--|--------------------|--------------------|----------|----------|----------|---------------|
| Sl. No. | Course Code | Subjects | L | T | P | Credit |
| 1 | | | | | | |
| Total Theory | | | | | | |
| Practical | | | | | | |
| Sessional | | | | | | |
| 1 | CS-6188 | Thesis II | - | - | - | 20 |
| 2 | CS-6186 | Seminar | 0 | 0 | 3 | 2 |
| 3 | CS-6184 | Comprehensive Viva | - | - | - | 2 |
| Total Practical & Sessional | | | | | | 24 |
| Semester Total | | | | | | 24 |

LIST OF DEPARTMENT ELECTIVES

Department Elective - I

| Sl.No. | Subject Code | Subject Name | Credit |
|--------|--------------|----------------------------------|--------|
| 1. | CS-4021 | Parallel & Distributed Computing | 3 |
| 2. | CS-4023 | Real Time Systems | 3 |
| 3. | CS-4043 | Image Processing | 3 |
| 4. | CS-4045 | Optimization Technique | 3 |
| 5. | IT-4045 | Server side Computing | 3 |

Department Elective - II

| Sl.No. | Subject Code | Subject Name | Credit |
|--------|--------------|--|--------|
| 1. | IT-4042 | M-Commerce | 3 |
| 2. | IT-4026 | Natural Language Processing | 3 |
| 3. | IT-4062 | Cyber Law & Intellectual Property Rights | 3 |
| 4. | IT-4044 | Internet of Things | 3 |
| 5. | CS-4026 | Robotics & Control | 3 |
| 6. | CS-4064 | Computer Vision | 3 |
| 7. | CS-4062 | Human Computer Interaction | 3 |

Department Elective - III & IV

| Sl.No. | Subject Code | Subject Name | Credit |
|--------|--------------|---|--------|
| 1. | CS-6126 | Embedded Systems | 3 |
| 2. | CS-6128 | Pattern Recognition | 3 |
| 3. | CS-6122 | Cloud Infrastructure & Services | 3 |
| 4. | CS-6124 | Service Oriented Architecture | 3 |
| 5. | CS-6132 | Geographical Information System | 3 |
| 6. | CS-6422 | Software Project Management | 3 |
| 7. | CS-6134 | Machine Learning | 3 |
| 8. | CS-6228 | Performance Evaluation of Information Systems | 3 |

Department Elective - V

| Sl.No. | Subject Code | Subject Name | Credit |
|--------|--------------|--------------------------------|--------|
| 1. | CS-6121 | Advanced Computer Architecture | 3 |
| 2. | CS-6123 | Distributed Computing | 3 |
| 3. | CS-6125 | Image Processing | 3 |
| 4. | CS-6421 | Software Design Pattern | 3 |

SCHOOL OF COMPUTER ENGINEERING

Course Structure for B.Tech in Computer Science & Engineering and M.Tech in Information Security

SEMESTER -III

| Theory | | | | | | | |
|------------------------|-------------|---------------------------------|---|---|---|-----------|-----------|
| Sl. No. | Course Code | Subjects | L | T | P | Total | Credit |
| 1 | MA2003 | Discrete Mathematics | 3 | 1 | 0 | 4 | 4 |
| 2 | CS-2001 | Data Structures & Algorithms | 3 | 1 | 0 | 4 | 4 |
| 3 | IT-2001 | Object Oriented Programming | 3 | 0 | 0 | 3 | 3 |
| 4 | MA2001 | Mathematics III | 3 | 1 | 0 | 4 | 4 |
| 5 | EC-2009 | Digital Electronics Circuits | 3 | 1 | 0 | 4 | 4 |
| 6 | CH-2001 | Environmental Sciences | 2 | 0 | 0 | 2 | 2 |
| Total of Theory | | | | | | 21 | 21 |
| Practical | | | | | | | |
| 1 | CS-2091 | Data Structures Lab | 0 | 0 | 3 | 2 | 2 |
| 2 | IT-2091 | Object Oriented Programming Lab | 0 | 0 | 3 | 2 | 2 |
| 3 | EC-2092 | Digital Electronics Lab | 0 | 0 | 3 | 2 | 2 |
| Total Practical | | | | | | 6 | 6 |
| Semester Total | | | | | | 27 | 27 |

SEMESTER-IV

| Theory | | | | | | | |
|--|-------------|--------------------------------------|---|---|---|-----------|-----------|
| Sl. No. | Course Code | Subjects | L | T | P | Total | Credit |
| 1 | CS-2004 | Database Management System | 3 | 1 | 0 | 4 | 4 |
| 2 | CS-2002 | Operating System | 3 | 1 | 0 | 4 | 4 |
| 3 | IT-2002 | Programming Tools and Techniques | 3 | 1 | 0 | 4 | 4 |
| 4 | EC-2004 | Principle of Digital Communication | 3 | 1 | 0 | 4 | 4 |
| 5 | MA2002 | Mathematics - IV | 3 | 1 | 0 | 4 | 4 |
| Total of Theory | | | | | | 20 | 20 |
| Practical | | | | | | | |
| 1 | CS-2094 | DBMS Lab | 0 | 0 | 3 | 2 | 2 |
| 2 | CS-2092 | Operating System Lab | 0 | 0 | 3 | 2 | 2 |
| 3 | IT-2092 | Programming Tools and Techniques Lab | 0 | 0 | 3 | 2 | 2 |
| Sessional | | | | | | | |
| 1 | HS-2081 | Language Lab | 0 | 0 | 2 | 2 | 1 |
| Total Practical & Sessional | | | | | | 8 | 7 |
| Semester Total | | | | | | 28 | 27 |

SEMESTER-V

| Theory | | | | | | | |
|--|-------------|--|---|---|---|-----------|-----------|
| Sl. No. | Course Code | Subjects | L | T | P | Total | Credit |
| 1 | CS-3001 | Design & Analysis of Algorithms | 3 | 1 | 0 | 4 | 4 |
| 2 | IT-3003 | Software Engineering | 3 | 1 | 0 | 4 | 4 |
| 3 | IT-3001 | Computer Networks | 3 | 1 | 0 | 4 | 4 |
| 4 | CS-3003 | Formal Languages and Automata Theory | 3 | 1 | 0 | 4 | 4 |
| 5 | CS-3005 | Computer Organization and Architecture | 3 | 1 | 0 | 4 | 4 |
| Total of Theory | | | | | | 20 | 20 |
| Practical | | | | | | | |
| 1 | CS-3091 | Design & Analysis of Algorithms Lab | 0 | 0 | 3 | 2 | 2 |
| 2 | IT-3091 | Computer Networks Lab | 0 | 0 | 3 | 2 | 2 |
| Sessional | | | | | | | |
| 1 | TP-3081 | CAT -I | 0 | 0 | 0 | 1 | 1 |
| Total Practical & Sessional | | | | | | 5 | 5 |
| Semester Total | | | | | | 25 | 25 |

SEMESTER-VI

| Theory | | | | | | | |
|--|-------------|--|---|---|---|-----------|-----------|
| Sl. No. | Course Code | Subjects | L | T | P | Total | Credit |
| 1 | CS-3002 | Compiler Design | 3 | 1 | 0 | 4 | 4 |
| 2 | IT-3004 | Object Oriented System Design | 3 | 1 | 0 | 4 | 4 |
| 3 | CS-3006 | High Performance Computer Architecture | 3 | 1 | 0 | 4 | 4 |
| 4 | CS-3004 | Computer Graphics | 3 | 0 | 0 | 3 | 3 |
| 5 | | Institute Elective I | | | | 3 | 3 |
| Total of Theory | | | | | | 18 | 18 |
| Practical | | | | | | | |
| 1 | CS-3092 | Compiler Design Lab | 0 | 0 | 3 | 2 | 2 |
| 2 | IT-3098 | Software Engineering Lab | 0 | 0 | 3 | 2 | 2 |
| 3 | CS-3094 | Computer Graphics Lab | 0 | 0 | 3 | 2 | 2 |
| Sessional | | | | | | | |
| 1 | TP-3082 | CAT -II | 0 | 0 | 0 | 1 | 1 |
| Total Practical & Sessional | | | | | | 7 | 7 |
| Semester Total | | | | | | 25 | 25 |

SEMESTER-VII

| Sl. No. | Course Code | Subjects | L | T | P | Total | Credit |
|--|-------------|---|---|---|---|-----------|-----------|
| 1 | CS-4001 | Artificial Intelligence | 3 | 1 | 0 | 4 | 4 |
| 2 | | Departmental Elective I / Open Elective | 3 | 0 | 0 | 3 | 3 |
| 3 | IT-3002 | Data Analytics | 3 | 1 | 0 | 4 | 0 |
| 4 | MA6001 | Advanced Mathematics | 3 | 1 | 0 | 4 | 4 |
| 5 | CS-6101 | Algorithm & Complexity Analysis | 3 | 1 | 0 | 4 | 4 |
| 6 | | Institute Elective II | 3 | 0 | 0 | 3 | 3 |
| Total Theory | | | | | | 22 | 22 |
| Practical | | | | | | | |
| 1 | IT-3092 | Data Analytics Lab | 0 | 0 | 3 | 2 | 2 |
| 2 | CS-6191 | Computing Lab | 0 | 0 | 3 | 2 | 2 |
| Sessional | | | | | | | |
| 1 | CS-4081 | Project Preparation | 0 | 0 | 6 | 3 | 3 |
| 2 | CS-4083 | Practical Training | - | - | - | 2 | 2 |
| Total Practical & Sessional | | | | | | 9 | 9 |
| Semester Total | | | | | | 31 | 31 |

SEMESTER-VIII

| Sl. No. | Course Code | Subjects | L | T | P | Total | Credit |
|--|-------------|------------------------------------|---|---|---|-----------|-----------|
| 1 | CS-6102 | Computational Intelligence | 3 | 1 | 0 | 4 | 4 |
| 2 | CS-6202 | Cyber Law & Security Policy | 3 | 1 | 0 | 4 | 4 |
| 3 | | School Elective II / Open Elective | 3 | 0 | 0 | 3 | 3 |
| 4 | | School Elective III | 3 | 0 | 0 | 3 | 3 |
| 5 | | School Elective IV | 3 | 0 | 0 | 3 | 3 |
| Total Theory | | | | | | 17 | 17 |
| Practical | | | | | | | |
| 1 | CS-6192 | Computational Intelligence Lab | 0 | 0 | 3 | 2 | 2 |
| Sessional | | | | | | | |
| 1 | CS-4086 | Comprehensive Viva | - | - | - | 2 | 2 |
| 2 | CS-4082 | Project | 0 | 0 | 9 | 5 | 5 |
| 3 | CS-4084 | Seminar | 0 | 0 | 3 | 2 | 2 |
| Total Practical & Sessional | | | | | | 11 | 11 |
| Semester Total | | | | | | 28 | 28 |

SEMESTER-IX

| Theory | | | | | | |
|--|-------------|-----------------------------|---|---|---|-----------|
| Sl. No. | Course Code | Subjects | L | T | P | Credit |
| 1 | CS-6203 | Information Theory & Coding | 3 | 1 | 0 | 4 |
| 2 | CS-6201 | Cryptography | 3 | 1 | 0 | 4 |
| 3 | | School Elective V | 3 | 0 | 0 | 3 |
| Total Theory | | | | | | 11 |
| Practical | | | | | | |
| 1 | CS-6291 | Information Security Lab | 0 | 0 | 3 | 2 |
| Sessional | | | | | | |
| 1 | CS-6285 | Thesis I | - | - | - | 10 |
| Total Practical & Sessional | | | | | | 12 |
| Semester Total | | | | | | 23 |

SEMESTER-X

| Theory | | | | | | |
|--|-------------|--------------------|---|---|---|-----------|
| Sl. No. | Course Code | Subjects | L | T | P | Credit |
| 1 | | | | | | |
| Total Theory | | | | | | |
| Practical | | | | | | |
| 1 | | | | | | |
| Sessional | | | | | | |
| 1 | CS-6288 | Thesis II | - | - | - | 20 |
| 2 | CS-6286 | Seminar | 0 | 0 | 3 | 2 |
| 3 | CS-6284 | Comprehensive Viva | - | - | - | 2 |
| Total Practical & Sessional | | | | | | 24 |
| Semester Total | | | | | | 24 |

LIST OF DEPARTMENT ELECTIVES

Department Elective - I

| Sl.No. | Subject Code | Subject Name | Credit |
|--------|--------------|----------------------------------|--------|
| 1. | CS-4021 | Parallel & Distributed Computing | 3 |
| 2. | CS-4023 | Real Time Systems | 3 |
| 3. | CS-4043 | Image Processing | 3 |
| 4. | CS-4045 | Optimization Technique | 3 |

Department Elective - II

| Sl.No. | Subject Code | Subject Name | Credit |
|--------|--------------|--|--------|
| 1. | IT-4042 | M-Commerce | 3 |
| 2. | IT-4062 | Cyber Law & Intellectual Property Rights | 3 |
| 3. | IT-4044 | Internet of Things | 3 |
| 4. | CS-4064 | Computer Vision | 3 |

Department Elective - III & IV

| Sl.No. | Subject Code | Subject Name | Credit |
|--------|--------------|---|--------|
| 1. | CS-6222 | Mobile Wireless Security | 3 |
| 2. | CS-6224 | Biometric Security | 3 |
| 3. | CS-6226 | Steganography and Digital Water Marking | 3 |
| 4. | CS-6228 | Performance Evaluation of Information Systems | 3 |

Department Elective - V

| Sl.No. | Subject Code | Subject Name | Credit |
|--------|--------------|----------------------------|--------|
| 1. | CS-6221 | Data & Knowledge Security | 3 |
| 2. | CS-6223 | Intrusion Detection System | 3 |
| 3. | CS-6225 | Digital Forensics | 3 |

SCHOOL OF COMPUTER ENGINEERING

Course Structure for B.Tech in Computer Science & Engineering and M.Tech in Data Analytics

SEMESTER -III

| Theory | | | | | | | |
|--|-------------|---------------------------------|---|---|---|-----------|-----------|
| Sl. No. | Course Code | Subjects | L | T | P | Total | Credit |
| 1 | MA2003 | Discrete Mathematics | 3 | 1 | 0 | 4 | 4 |
| 2 | CS-2001 | Data Structures & Algorithms | 3 | 1 | 0 | 4 | 4 |
| 3 | IT-2001 | Object Oriented Programming | 3 | 0 | 0 | 3 | 3 |
| 4 | MA2001 | Mathematics III | 3 | 1 | 0 | 4 | 4 |
| 5 | EC-2009 | Digital Electronics Circuits | 3 | 1 | 0 | 4 | 4 |
| 6 | CH-2001 | Environmental Sciences | 2 | 0 | 0 | 2 | 2 |
| Total of Theory | | | | | | 21 | 21 |
| Practical | | | | | | | |
| 1 | CS-2091 | Data Structures Lab | 0 | 0 | 3 | 2 | 2 |
| 2 | IT-2091 | Object Oriented Programming Lab | 0 | 0 | 3 | 2 | 2 |
| 3 | EC-2092 | Digital Electronics Lab | 0 | 0 | 3 | 2 | 2 |
| Sessional | | | | | | | |
| Total Practical & Sessional | | | | | | 6 | 6 |
| Semester Total | | | | | | 27 | 27 |

SEMESTER-IV

| Theory | | | | | | | |
|--|-------------|--------------------------------------|---|---|---|-----------|-----------|
| Sl. No. | Course Code | Subjects | L | T | P | Total | Credit |
| 1 | CS-2004 | Database Management System | 3 | 1 | 0 | 4 | 4 |
| 2 | CS-2002 | Operating System | 3 | 1 | 0 | 4 | 4 |
| 3 | IT-2002 | Programming Tools and Techniques | 3 | 1 | 0 | 4 | 4 |
| 4 | EC-2004 | Principle of Digital Communication | 3 | 1 | 0 | 4 | 4 |
| 5 | MA-2002 | Mathematics - IV | 3 | 1 | 0 | 4 | 4 |
| Total of Theory | | | | | | 20 | 20 |
| Practical | | | | | | | |
| 1 | CS-2094 | DBMS Lab | 0 | 0 | 3 | 2 | 2 |
| 2 | CS-2092 | Operating System Lab | 0 | 0 | 3 | 2 | 2 |
| 3 | IT-2092 | Programming Tools and Techniques Lab | 0 | 0 | 3 | 2 | 2 |
| Sessional | | | | | | | |
| 1 | HS-2081 | Language Lab | 0 | 0 | 2 | 2 | 1 |
| Total Practical & Sessional | | | | | | 8 | 7 |
| Semester Total | | | | | | 28 | 27 |

SEMESTER-V

| Theory | | | | | | | |
|------------------------|-------------|--|---|---|---|-----------|-----------|
| Sl. No. | Course Code | Subjects | L | T | P | Total | Credit |
| 1 | CS-3001 | Design & Analysis of Algorithms | 3 | 1 | 0 | 4 | 4 |
| 2 | IT-3003 | Software Engineering | 3 | 1 | 0 | 4 | 4 |
| 3 | IT-3001 | Computer Networks | 3 | 1 | 0 | 4 | 4 |
| 4 | CS-3003 | Formal Languages and Automata Theory | 3 | 1 | 0 | 4 | 4 |
| 5 | CS-3005 | Computer Organization and Architecture | 3 | 1 | 0 | 4 | 4 |
| Total of Theory | | | | | | 20 | 20 |
| Practical | | | | | | | |
| 1 | CS-3091 | Design & Analysis of Algorithms Lab | 0 | 0 | 3 | 2 | 2 |
| 2 | IT-3091 | Computer Networks Lab | 0 | 0 | 3 | 2 | 2 |
| 1 | TP-3081 | CAT -I | 0 | 0 | 0 | 1 | 1 |
| Total Practical | | | | | | 5 | 5 |
| Semester Total | | | | | | 25 | 25 |

SEMESTER-VI

| Theory | | | | | | | |
|--|-------------|--|---|---|---|-----------|-----------|
| Sl. No. | Course Code | Subjects | L | T | P | Total | Credit |
| 1 | CS-3002 | Compiler Design | 3 | 1 | 0 | 4 | 4 |
| 2 | IT-3004 | Object Oriented System Design | 3 | 1 | 0 | 4 | 4 |
| 3 | CS-3006 | High Performance Computer Architecture | 3 | 1 | 0 | 4 | 4 |
| 4 | CS-3004 | Computer Graphics | 3 | 0 | 0 | 3 | 3 |
| 5 | | Institute Elective I | 0 | 0 | 0 | 3 | 3 |
| Total of Theory | | | | | | 18 | 18 |
| Practical | | | | | | | |
| 1 | CS-3092 | Compiler Design Lab | 0 | 0 | 3 | 2 | 2 |
| 2 | IT-3098 | Software Engineering Lab | 0 | 0 | 3 | 2 | 2 |
| 3 | CS-3094 | Computer Graphics Lab | 0 | 0 | 3 | 2 | 2 |
| Sessional | | | | | | | |
| 1 | TP-3082 | CAT -II | 0 | 0 | 0 | 1 | 1 |
| Total Practical & Sessional | | | | | | 7 | 7 |
| Semester Total | | | | | | 25 | 25 |

SEMESTER-VII

| Sl. No. | Course Code | Subjects | L | T | P | Total | Credit |
|--|-------------|---|---|---|---|-----------|-----------|
| 1 | CS-4001 | Artificial Intelligence | 3 | 1 | 0 | 4 | 4 |
| 2 | | Departmental Elective I / Open Elective | 3 | 0 | 0 | 3 | 3 |
| 3 | IT-3002 | Data Analytics | 3 | 1 | 0 | 4 | 4 |
| 4 | MA6001 | Advanced Mathematics | 3 | 1 | 0 | 4 | 4 |
| 5 | CS-6101 | Algorithm & Complexity Analysis | 3 | 1 | 0 | 4 | 4 |
| 6 | | Institute Elective II | 0 | 0 | 0 | 3 | 3 |
| Total Theory | | | | | | 22 | 22 |
| Practical | | | | | | | |
| 1 | IT-3092 | Data Analytics Lab | 0 | 0 | 3 | 2 | 2 |
| 2 | CS-6191 | Computing Lab | 0 | 0 | 3 | 2 | 2 |
| Sessional | | | | | | | |
| 1 | CS-4081 | Project Preparation | 0 | 0 | 6 | 3 | 3 |
| 2 | CS-4083 | Practical Training | - | - | - | 2 | 2 |
| Total Practical & Sessional | | | | | | 9 | 9 |
| Semester Total | | | | | | 31 | 31 |

SEMESTER-VIII

| Sl. No. | Course Code | Subjects | L | T | P | Total | Credit |
|--|-------------|--|---|---|---|-----------|-----------|
| 1 | CS-6301 | Data Mining and Data Warehousing | 3 | 1 | 0 | 4 | 4 |
| 2 | CS-6102 | Computational Intelligence | 3 | 1 | 0 | 4 | 4 |
| 3 | | Departmental Elective II / Open Elective | 3 | 0 | 0 | 3 | 3 |
| 4 | | Departmental Elective III | 3 | 0 | 0 | 3 | 3 |
| 5 | | Departmental Elective IV | 3 | 0 | 0 | 3 | 3 |
| Total Theory | | | | | | 17 | 17 |
| Practical | | | | | | | |
| 1 | CS-6391 | Data Mining and Data Warehousing Lab | 0 | 0 | 3 | 2 | 2 |
| Sessional | | | | | | | |
| 1 | CS-4086 | Comprehensive Viva | - | - | - | 2 | 2 |
| 2 | CS-4082 | Project | 0 | 0 | 9 | 5 | 5 |
| 3 | CS-4084 | Seminar | 0 | 0 | 3 | 2 | 2 |
| Total Practical & Sessional | | | | | | 11 | 11 |
| Semester Total | | | | | | 28 | 28 |

SEMESTER-IX

| Theory | | | | | | |
|--|-------------|-------------------------|---|---|---|-----------|
| Sl. No. | Course Code | Subjects | L | T | P | Credit |
| 1 | CS-6303 | Database Design | 3 | 1 | 0 | 4 |
| 2 | CS-6201 | Cryptography | 3 | 1 | 0 | 4 |
| 3 | | Departmental Elective V | 3 | 0 | 0 | 3 |
| Total Theory | | | | | | 11 |
| Practical | | | | | | |
| 1 | CS-6393 | Advanced Database Lab | 0 | 0 | 3 | 2 |
| Sessional | | | | | | |
| 1 | CS-6385 | Thesis I | - | - | - | 10 |
| Total Practical & Sessional | | | | | | 12 |
| Semester Total | | | | | | 23 |

SEMESTER-X

| Theory | | | | | | |
|--|-------------|--------------------|---|---|---|-----------|
| Sl. No. | Course Code | Subjects | L | T | P | Credit |
| 1 | | | | | | |
| Total Theory | | | | | | |
| Practical | | | | | | |
| 1 | | | | | | |
| Sessional | | | | | | |
| 1 | CS-6388 | Thesis II | - | - | - | 20 |
| 2 | CS-6386 | Seminar | 0 | 0 | 3 | 2 |
| 3 | CS-6384 | Comprehensive Viva | - | - | - | 2 |
| Total Practical & Sessional | | | | | | 24 |
| Semester Total | | | | | | 24 |

LIST OF DEPARTMENT ELECTIVES

Department Elective - I

| Sl.No. | Subject Code | Subject Name | Credit |
|--------|--------------|----------------------------------|--------|
| 1. | CS-4021 | Parallel & Distributed Computing | 3 |
| 2. | CS-4023 | Real Time Systems | 3 |
| 3. | CS-4043 | Image Processing | 3 |
| 4. | CS-4045 | Optimization Technique | 3 |

Department Elective - II

| Sl.No. | Subject Code | Subject Name | Credit |
|--------|--------------|--|--------|
| 1. | IT-4062 | Cyber Law & Intellectual Property Rights | 3 |
| 2. | IT-4044 | Internet of Things | 3 |
| 3. | CS-4062 | Human Computer Interaction | 3 |
| 4. | CS-4064 | Computer Vision | 3 |

Department Elective - III & IV

| Sl.No. | Subject Code | Subject Name | Credit |
|--------|--------------|--------------------------------------|--------|
| 1. | CS-6324 | Distributed & Parallel Databases | 3 |
| 2. | CS-6326 | Database Implementation & Tuning | 3 |
| 3. | CS-6221 | Data & Knowledge Security | 3 |
| 4. | CS-6122 | Cloud Infrastructure and Services | 3 |
| 5. | CS-6332 | Geospatial Data Management | 3 |
| 6. | CS-6322 | Knowledge Representation & Reasoning | 3 |
| 7. | CS-6334 | Business Analytics and Intelligence | 3 |
| 8. | CS-6336 | Graph Theory and Applications | 3 |

Department Elective - V

| Sl.No. | Subject Code | Subject Name | Credit |
|--------|--------------|----------------------------------|--------|
| 1. | CS-6321 | Information Storage & Management | 3 |
| 2. | CS-6323 | M-Commerce | 3 |
| 3. | CS-6325 | Information Retrieval | 3 |
| 4. | CS-6327 | Enterprise Systems | 3 |

SCHOOL OF COMPUTER ENGINEERING

Course Structure for B.Tech in Computer Science & Engineering and M.Tech in Software Engineering

SEMESTER -III

| Theory | | | | | | | |
|------------------------|-------------|---------------------------------|---|---|---|-----------|-----------|
| Sl. No. | Course Code | Subjects | L | T | P | Total | Credit |
| 1 | MA2003 | Discrete Mathematics | 3 | 1 | 0 | 4 | 4 |
| 2 | CS-2001 | Data Structures & Algorithms | 3 | 1 | 0 | 4 | 4 |
| 3 | IT-2001 | Object Oriented Programming | 3 | 0 | 0 | 3 | 3 |
| 4 | MA2001 | Mathematics III | 3 | 1 | 0 | 4 | 4 |
| 5 | EC-2004 | Digital Electronics Circuits | 3 | 1 | 0 | 4 | 4 |
| 6 | CH-2001 | Environmental Sciences | 2 | 0 | 0 | 2 | 2 |
| Total of Theory | | | | | | 21 | 21 |
| Practical | | | | | | | |
| 1 | CS-2091 | Data Structures Lab | 0 | 0 | 3 | 2 | 2 |
| 2 | IT-2091 | Object Oriented Programming Lab | 0 | 0 | 3 | 2 | 2 |
| 3 | EC-2092 | Digital Electronics Lab | 0 | 0 | 3 | 2 | 2 |
| Total Practical | | | | | | 6 | 6 |
| Semester Total | | | | | | 27 | 27 |

SEMESTER-IV

| Theory | | | | | | | |
|--|-------------|--------------------------------------|---|---|---|-----------|-----------|
| Sl. No. | Course Code | Subjects | L | T | P | Total | Credit |
| 1 | CS-2004 | Database Management System | 3 | 1 | 0 | 4 | 4 |
| 2 | CS-2002 | Operating System | 3 | 1 | 0 | 4 | 4 |
| 3 | IT-2002 | Programming Tools and Techniques | 3 | 1 | 0 | 4 | 4 |
| 4 | EC-2004 | Principle of Digital Communication | 3 | 1 | 0 | 4 | 4 |
| 5 | MA2002 | Mathematics – IV | 3 | 1 | 0 | 4 | 4 |
| Total of Theory | | | | | | 20 | 20 |
| Practical | | | | | | | |
| 1 | CS-2094 | DBMS Lab | 0 | 0 | 3 | 2 | 2 |
| 2 | CS-2092 | Operating System Lab | 0 | 0 | 3 | 2 | 2 |
| 3 | IT-2092 | Programming Tools and Techniques Lab | 0 | 0 | 3 | 2 | 2 |
| Sessional | | | | | | | |
| 1 | HS-2081 | Language Lab | 0 | 0 | 1 | 1 | 1 |
| Total Practical & Sessional | | | | | | 7 | 7 |
| Semester Total | | | | | | 27 | 27 |

SEMESTER-V

| Theory | | | | | | | |
|--|-------------|--|---|---|---|-----------|-----------|
| Sl. No. | Course Code | Subjects | L | T | P | Total | Credit |
| 1 | CS-3001 | Design & Analysis of Algorithms | 3 | 1 | 0 | 4 | 4 |
| 2 | IT-3003 | Software Engineering | 3 | 1 | 0 | 4 | 4 |
| 3 | IT-3001 | Computer Networks | 3 | 1 | 0 | 4 | 4 |
| 4 | CS-3003 | Formal Languages and Automata Theory | 3 | 1 | 0 | 4 | 4 |
| 5 | CS-3005 | Computer Organization and Architecture | 3 | 1 | 0 | 4 | 4 |
| Total of Theory | | | | | | 20 | 20 |
| Practical | | | | | | | |
| 1 | CS-3091 | Design & Analysis of Algorithms Lab | 0 | 0 | 3 | 2 | 2 |
| 2 | IT-3091 | Computer Networks Lab | 0 | 0 | 3 | 2 | 2 |
| Sessional | | | | | | | |
| 1 | TP-3081 | CAT-I | 0 | 0 | 2 | 1 | 1 |
| Total Practical & Sessional | | | | | | 5 | 5 |
| Semester Total | | | | | | 25 | 25 |

SEMESTER-VI

| Theory | | | | | | | |
|--|-------------|--|---|---|---|-----------|-----------|
| Sl. No. | Course Code | Subjects | L | T | P | Total | Credit |
| 1 | CS-3002 | Compiler Design | 3 | 1 | 0 | 4 | 4 |
| 2 | IT-3004 | Object Oriented System Design | 3 | 1 | 0 | 4 | 4 |
| 3 | CS-3006 | High Performance Computer Architecture | 3 | 1 | 0 | 4 | 4 |
| 4 | CS-3004 | Computer Graphics | 3 | 0 | 0 | 3 | 3 |
| 5 | | Institute Elective I | 3 | 0 | 0 | 3 | 3 |
| Total of Theory | | | | | | 18 | 18 |
| Practical | | | | | | | |
| 1 | CS-3092 | Compiler Design Lab | 0 | 0 | 3 | 2 | 2 |
| 2 | IT-3098 | Software Engineering Lab | 0 | 0 | 3 | 2 | 2 |
| 3 | CS-3094 | Computer Graphics Lab | 0 | 0 | 3 | 2 | 2 |
| Sessional | | | | | | | |
| 1 | TP-3082 | CAT-II | 0 | 0 | 2 | 1 | 1 |
| Total Practical & Sessional | | | | | | 7 | 7 |
| Semester Total | | | | | | 25 | 25 |

SEMESTER-VII

| Sl. No. | Course Code | Subjects | L | T | P | Total | Credit |
|--|-------------|--|---|---|---|-----------|-----------|
| 1 | CS-4001 | Artificial Intelligence | 3 | 1 | 0 | 4 | 4 |
| 2 | | Departmental Elective I/ Open Elective | 3 | 0 | 0 | 3 | 3 |
| 3 | IT-3002 | Data Analytics | 3 | 1 | 0 | 4 | 4 |
| 4 | MA-6001 | Advanced Mathematics | 3 | 1 | 0 | 4 | 4 |
| 5 | CS-6101 | Algorithm & Complexity Analysis | 3 | 1 | 0 | 4 | 4 |
| 6 | | Institute Elective II | 3 | 0 | 0 | 3 | 3 |
| Total Theory | | | | | | 22 | 22 |
| Practical | | | | | | | |
| 1 | IT-3092 | Data Analytics Lab | 0 | 0 | 3 | 2 | 2 |
| 2 | CS-6191 | Computing Lab | 0 | 0 | 3 | 2 | 2 |
| Sessional | | | | | | | |
| 1 | CS-4081 | Project Preparation | 0 | 0 | 6 | 3 | 3 |
| 2 | CS-4083 | Practical Training | - | - | - | 2 | 2 |
| Total Practical & Sessional | | | | | | 9 | 9 |
| Semester Total | | | | | | 31 | 31 |

SEMESTER-VIII

| Sl. No. | Course Code | Subjects | L | T | P | Total | Credit |
|--|-------------|---|---|---|---|-----------|-----------|
| 1 | CS-6402 | Software Testing | 3 | 1 | 0 | 4 | 4 |
| 2 | CS-6102 | Computational Intelligence | 3 | 1 | 0 | 4 | 4 |
| 3 | | Departmental Elective II/ Open Elective | 3 | 0 | 0 | 3 | 3 |
| 4 | | Departmental Elective III | 3 | 0 | 0 | 3 | 3 |
| 5 | | Departmental Elective IV | 3 | 0 | 0 | 3 | 3 |
| Total Theory | | | | | | 17 | 17 |
| Practical | | | | | | | |
| 1 | CS-6492 | Software Testing Lab | 0 | 0 | 3 | 2 | 2 |
| Sessional | | | | | | | |
| 1 | CS-4086 | Comprehensive Viva | - | - | - | 2 | 2 |
| 2 | CS-4082 | Project | 0 | 0 | 9 | 5 | 5 |
| 3 | CS-4084 | Seminar | 0 | 0 | 3 | 2 | 2 |
| Total Practical & Sessional | | | | | | 11 | 11 |
| Semester Total | | | | | | 28 | 28 |

SEMESTER-IX

| Theory | | | | | | |
|--|-------------|-----------------------------------|---|---|---|-----------|
| Sl. No. | Course Code | Subjects | L | T | P | Credit |
| 1 | CS-6401 | Software requirements Engineering | 3 | 1 | 0 | 4 |
| 2 | CS-6201 | Cryptography | 3 | 1 | 0 | 4 |
| 3 | | Departmental Elective V | 3 | 0 | 0 | 3 |
| Total Theory | | | | | | 11 |
| Practical | | | | | | |
| 1 | CS-6491 | Software Design Lab | 0 | 0 | 3 | 2 |
| Sessional | | | | | | |
| 1 | CS-6485 | Thesis I | - | - | - | 10 |
| Total Practical & Sessional | | | | | | 12 |
| Semester Total | | | | | | 23 |

SEMESTER-X

| Theory | | | | | | |
|--|-------------|--------------------|---|---|---|-----------|
| Sl. No. | Course Code | Subjects | L | T | P | Credit |
| 1 | | | | | | |
| Total Theory | | | | | | |
| Practical | | | | | | |
| 1 | | | | | | |
| Sessional | | | | | | |
| 1 | CS-6488 | Thesis II | - | - | - | 20 |
| 2 | CS-6486 | Seminar | 0 | 0 | 3 | 2 |
| 3 | CS-6484 | Comprehensive Viva | - | - | - | 2 |
| Total Practical & Sessional | | | | | | 24 |
| Semester Total | | | | | | 24 |

LIST OF DEPARTMENT ELECTIVES

Department Elective - I

| Sl.No. | Subject Code | Subject Name | Credit |
|--------|--------------|----------------------------------|--------|
| 1. | CS-4021 | Parallel & Distributed Computing | 3 |
| 2. | CS-4023 | Real Time Systems | 3 |
| 3. | CS-4043 | Image Processing | 3 |
| 4. | CS-4045 | Optimization Technique | 3 |
| 5. | IT-4045 | Server side Computing | 3 |

Department Elective - II

| Sl.No. | Subject Code | Subject Name | Credit |
|--------|--------------|--|--------|
| 1. | IT-4042 | M-Commerce | 3 |
| 2. | IT-4026 | Natural Language Processing | 3 |
| 3. | IT-4062 | Cyber Law & Intellectual Property Rights | 3 |
| 4. | IT-4044 | Internet of Things | 3 |
| 5. | CS-4026 | Robotics & Control | 3 |
| 6. | CS-4064 | Computer Vision | 3 |
| 7. | CS-4062 | Human Computer Interaction | 3 |

Department Elective - III & IV

| Sl.No. | Subject Code | Subject Name | Credit |
|--------|--------------|---|--------|
| 1. | CS-6122 | Cloud Infrastructure & Services | 3 |
| 2. | CS-6422 | Software Project Management | 3 |
| 3. | CS-6424 | Software Engineering Process & Quality | 3 |
| 4. | CS-6124 | Service Oriented Architecture | 3 |
| 5. | CS-6426 | Software Reliability | 3 |
| 6. | CS-6322 | Knowledge Representation & Reasoning | 3 |
| 7. | CS-6428 | SW Maintenance & Configuration Management | 3 |
| 8. | CS-6432 | Software Metrics | 3 |
| 9. | CS-6228 | Performance Evaluation of Information Systems | 3 |

Department Elective - V

| Sl.No. | Subject Code | Subject Name | Credit |
|--------|--------------|-------------------------|--------|
| 1. | CS-6423 | Software Architecture | 3 |
| 2. | CS-6421 | Software Design Pattern | 3 |

SCHOOL OF ELECTRICAL ENGINEERING

Course Structure for B.Tech in Electrical Engineering and M.Tech in Power and Energy System

SEMESTER-III

| Theory | | | | | | | |
|--|--------------|---|---|---|---|-----------|-----------|
| Sl. No. | Subject Code | Subjects | L | T | P | Total | Credit |
| 1. | MA 2001 | Mathematics –III | 3 | 1 | 0 | 4 | 4 |
| 2. | EE 2001 | Electrical Machines-I | 3 | 1 | 0 | 4 | 4 |
| 3. | EE 2003 | Network Analysis | 3 | 1 | 0 | 4 | 4 |
| 4. | EC 2007 | Analog Electronics | 3 | 1 | 0 | 4 | 4 |
| 5. | CS 2003 | Data Structure and Java Programming | 3 | 1 | 0 | 4 | 4 |
| 6. | CH 2001 | Environmental Science | 2 | 0 | 0 | 2 | 2 |
| Total Theory | | | | | | 22 | 22 |
| Practical | | | | | | | |
| 1. | CS 2093 | Data Structure and Java Programming Lab | 0 | 0 | 3 | 3 | 2 |
| 2. | EE 2091 | Networks & Electronics Circuit Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 1. | HS 2081 | Language Lab | 0 | 0 | 3 | 3 | 1 |
| Total Practical & Sessional | | | | | | 9 | 5 |
| Total of Semester | | | | | | 31 | 27 |

SEMESTER-IV

| Theory | | | | | | | |
|--------------------------|--------------|---|---|---|---|-----------|-----------|
| Sl. No. | Subject Code | Subjects | L | T | P | Total | Credit |
| 1. | MA 2002 | Mathematics-IV | 3 | 1 | 0 | 4 | 4 |
| 2. | EE 2002 | Electrical Machines –II | 3 | 1 | 0 | 4 | 4 |
| 3. | EC 2009 | Digital Electronics Circuits | 3 | 1 | 0 | 4 | 4 |
| 4. | EE 2004 | Electrical Measurements and Instrumentation | 3 | 1 | 0 | 4 | 4 |
| 5. | ME 2016 | Thermal Engineering Applications | 3 | 1 | 0 | 4 | 4 |
| Total Theory | | | | | | 20 | 20 |
| Practical | | | | | | | |
| 1. | EE 2092 | Electrical Measurements and Instrumentation Lab | 0 | 0 | 3 | 3 | 2 |
| 2. | EE 2094 | Digital Circuit Lab | 0 | 0 | 3 | 3 | 2 |
| 3. | EE 2096 | Electrical Machines Lab | 0 | 0 | 3 | 3 | 2 |
| Total Practical | | | | | | 9 | 6 |
| Total of Semester | | | | | | 29 | 26 |

SEMESTER-V

| Theory | | | | | | | |
|--|---------------------|--|----------|----------|----------|--------------|---------------|
| Sl. No. | Subject Code | Subjects | L | T | P | Total | Credit |
| 1. | EE 3001 | Electric Power Transmission & Distribution | 3 | 1 | 0 | 4 | 4 |
| 2. | | Institute Elective I | 3 | 1 | 0 | 4 | 4 |
| 3. | EE 3003 | Linear Control Theory | 3 | 1 | 0 | 4 | 4 |
| 4. | EE 3005 | Power Electronics | 3 | 1 | 0 | 4 | 4 |
| 5. | EC 3003 | Microprocessors & Microcontrollers | 3 | 1 | 0 | 4 | 4 |
| Total Theory | | | | | | 20 | 20 |
| Practical | | | | | | | |
| 1. | EE 3091 | Power Electronics Lab | 0 | 0 | 3 | 3 | 2 |
| 2. | EE 3093 | Microprocessors Lab | 0 | 0 | 3 | 3 | 2 |
| 3. | EE 3095 | Control System Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 1. | TP 3081 | CAT-I | 0 | 0 | 2 | 2 | 1 |
| Total Practical & Sessional | | | | | | 11 | 7 |
| Total of Semester | | | | | | 31 | 27 |

SEMESTER-VI

| Theory | | | | | | | |
|--|---------------------|---|----------|----------|----------|--------------|---------------|
| Sl. No. | Subject Code | Subjects | L | T | P | Total | Credit |
| 1. | EE 3002 | Power Systems Operation & Control | 3 | 1 | 0 | 4 | 4 |
| 2. | EE 3004 | Electromagnetic Field | 3 | 0 | 0 | 3 | 3 |
| 3. | EC 3009 | Communication Engineering | 3 | 1 | 0 | 4 | 4 |
| 4. | EC 3008 | Introduction to Digital Signal Processing | 3 | 1 | 0 | 4 | 4 |
| 5. | | Institute Elective-II | 3 | 0 | 0 | 3 | 3 |
| 6. | | Department Elective-I / Open Elective | 3 | 0 | 0 | 3 | 3 |
| Total Theory | | | | | | 21 | 21 |
| Practical | | | | | | | |
| 1. | EE 3092 | Power Systems Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional: | | | | | | | |
| 1. | EE 3082 | Electrical Machine Design | 0 | 0 | 3 | 3 | 2 |
| 2. | TP 3082 | CAT-II | 0 | 0 | 2 | 2 | 1 |
| Total Practical & Sessional | | | | | | 8 | 5 |
| Total of Semester | | | | | | 29 | 26 |

SEMESTER-VII

| Theory | | | | | | | |
|--|--------------|---------------------------------|---|---|---|-----------|-----------|
| Sl. No. | Subject Code | Subjects | L | T | P | Total | Credit |
| 1. | EE4001 | Electric Drives | 3 | 1 | 0 | 4 | 4 |
| 2. | EE4003 | Switch Gear and Protection | 3 | 0 | 0 | 3 | 3 |
| 3. | EE6101 | Power System Dynamics | 3 | 1 | 0 | 4 | 4 |
| 4. | EE6103 | Non-Conventional Energy Systems | 3 | 1 | 0 | 4 | 4 |
| 5. | | Department Elective-II | 3 | 0 | 0 | 3 | 3 |
| Total Theory | | | | | | 18 | 18 |
| Practical | | | | | | | |
| 1. | EE4091 | Electric Drives Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional: | | | | | | | |
| 1. | EE4081 | Project Preparation | 0 | 0 | 6 | 6 | 3 |
| 2. | EE4083 | Practical Training | - | - | - | - | 2 |
| 3. | EE4085 | Power System Design | 0 | 0 | 3 | 3 | 2 |
| Total Practical & Sessional | | | | | | 12 | 9 |
| Total of Semester | | | | | | 30 | 27 |

SEMESTER-VIII

| Theory | | | | | | | |
|--|--------------|--|---|---|---|-----------|-----------|
| Sl. No. | Subject Code | Subjects | L | T | P | Total | Credit |
| 1. | EE6102 | Power System Restructuring | 3 | 1 | 0 | 4 | 4 |
| 2. | EE6104 | Electrical Energy Systems and Management | 3 | 1 | 0 | 4 | 4 |
| 3. | EE6122 | Computational Intelligent controllers | 3 | 0 | 0 | 3 | 3 |
| 4. | EE6132 | Solar Power Engineering | 3 | 0 | 0 | 3 | 3 |
| 5. | | Department Elective-III | 3 | 0 | 0 | 3 | 3 |
| Total Theory | | | | | | 17 | 17 |
| Practical | | | | | | | |
| 1. | EE6193 | Modeling and Simulation Laboratory | 0 | 0 | 3 | 3 | 2 |
| Sessional: | | | | | | | |
| 1. | EE 4082 | Project | 0 | 0 | 9 | 9 | 5 |
| 2. | EE 4084 | Seminar | 0 | 0 | 3 | 3 | 2 |
| 3. | EE 4086 | Comprehensive Viva | - | - | - | - | 2 |
| Total Practical & Sessional | | | | | | 15 | 11 |
| Total of Semester | | | | | | 32 | 28 |

SEMESTER-IX

| Theory | | | | | | |
|---|--------------|---------------------------------------|---|---|---|-----------|
| Sl. No. | Subject Code | Subjects | L | T | P | Credit |
| 1. | EE6121 | Computer Application in Power System | 3 | 0 | 0 | 3 |
| 2. | EE6131 | Power Quality Assessment & Mitigation | 3 | 0 | 0 | 3 |
| 3. | EE6135 | Energy Instrumentation | 3 | 0 | 0 | 3 |
| 4. | | Department Elective- IV | 3 | 0 | 0 | 3 |
| 5. | | Department Elective- V | 3 | 0 | 0 | 3 |
| Total Theory | | | | | | 15 |
| Practicals & Sessionals: | | | | | | |
| 1. | EE 6195 | Energy System Laboratory | 0 | 0 | 3 | 2 |
| 2. | EE 6185 | Thesis – Part -I | - | - | - | 10 |
| Total Practical & Sessionals | | | | | | 12 |
| Semester Total | | | | | | 27 |

SEMESTER-X

| Theory | | | | | | |
|--------------------------|--------------|-------------------------|---|---|---|-----------|
| Sl. No. | Subject Code | Subjects | L | T | P | Credit |
| Sessional | | | | | | |
| 1. | EE6188 | Thesis – Part -II | - | - | - | 20 |
| | EE6186 | Seminar | 0 | 0 | 3 | 2 |
| | EE6184 | Comprehensive Viva Voce | - | - | - | 2 |
| Total Sessionals | | | | | | 24 |
| Total of Semester | | | | | | 24 |

LIST OF INSTITUTE ELECTIVES

| Elective-I | | | |
|--------------------|--------------|---------------------------------|--------|
| Sl. No. | Subject Code | Subject Name | Credit |
| 1. | HS 2002 | Engineering Economics | 3 |
| 2. | HS 2004 | Public Finance | 3 |
| 3. | HS 2006 | International Economics | 3 |
| Elective-II | | | |
| 1. | HS 3002 | Organizational Behavior | 3 |
| 2. | HS 3004 | Human Resource Management | 3 |
| 3. | HS 3006 | Entrepreneurship | 3 |
| 4. | HS 3008 | Management Concepts & Practices | 3 |

LIST OF DEPARTMENT ELECTIVES

| Elective- 1 | | | |
|----------------------|---------|--|---|
| 1. | CS 3052 | RDBMS | 3 |
| 2. | EE 3022 | Power Apparatus Design | 3 |
| 3. | EE 3024 | Principles of Industrial Instrumentation | 3 |
| 4. | EE 3026 | Electrical Engineering Material | 3 |
| Elective- II | | | |
| 1. | EE4021 | Power Station Engineering | 3 |
| 2. | EE 4023 | Installation, Commissioning and Maintenance of Electrical Equipments | 3 |
| 3. | EE 4033 | Modern Control Theory | 3 |
| 4. | EE 4035 | Utilization of Electric Power | 3 |
| Elective- III | | | |
| 1. | EE6126 | Advanced Power System Protection | 3 |
| 2. | EE6128 | Power System Transients | 3 |
| 3. | EE6136 | Wind Power Engineering | 3 |
| 4. | EE6138 | Energy Management and Audit | 3 |
| Elective- IV | | | |
| 1. | EE6124 | HVDC and FACTS | 3 |
| 2. | EE6123 | Power Market Reforms | 3 |
| 3. | EE6125 | Safety and Reliability of Power Systems | 3 |
| 4. | EE6223 | Advanced Microprocessors & Applications | 3 |
| Elective- V | | | |
| 1. | EE6134 | Bio-Power Engineering | 3 |
| 2. | EE6137 | Advanced Energy Conversion System | 3 |
| 3. | EE6139 | Illumination Engineering | 3 |
| 4. | EE6140 | Energy and Environmental Impact Analysis | 3 |

SCHOOL OF ELECTRICAL ENGINEERING

Course Structure for B.Tech in Electrical Engineering and M.Tech in Power Electronics and Drives

SEMESTER-III

| Theory | | | | | | | |
|--|--------------|---|---|---|---|-----------|-----------|
| Sl. No. | Subject Code | Subjects | L | T | P | Total | Credit |
| 1. | MA 2001 | Mathematics –III | 3 | 1 | 0 | 4 | 4 |
| 2. | EE 2001 | Electrical Machines-I | 3 | 1 | 0 | 4 | 4 |
| 3. | EE 2003 | Network Analysis | 3 | 1 | 0 | 4 | 4 |
| 4. | EC 2007 | Analog Electronics | 3 | 1 | 0 | 4 | 4 |
| 5. | CS 2003 | Data Structure and Java Programming | 3 | 1 | 0 | 4 | 4 |
| 6. | CH 2001 | Environmental Science | 2 | 0 | 0 | 2 | 2 |
| Total Theory | | | | | | 22 | 22 |
| Practical | | | | | | | |
| 1. | CS 2093 | Data Structure and Java Programming Lab | 0 | 0 | 3 | 3 | 2 |
| 2. | EE 2091 | Networks & Electronics Circuit Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 1. | HS 2081 | Language Lab | 0 | 0 | 3 | 3 | 1 |
| Total Practical & Sessional | | | | | | 9 | 5 |
| Total of Semester | | | | | | 31 | 27 |

SEMESTER-IV

| Theory | | | | | | | |
|--|--------------|---|---|---|---|-----------|-----------|
| Sl. No. | Subject Code | Subjects | L | T | P | Total | Credit |
| 6. | MA 2002 | Mathematics-IV | 3 | 1 | 0 | 4 | 4 |
| 7. | EE 2002 | Electrical Machines –II | 3 | 1 | 0 | 4 | 4 |
| 8. | EC 2009 | Digital Electronics Circuits | 3 | 1 | 0 | 4 | 4 |
| 9. | EE 2004 | Electrical Measurements and Instrumentation | 3 | 1 | 0 | 4 | 4 |
| 10. | ME 2016 | Thermal Engineering Applications | 3 | 1 | 0 | 4 | 4 |
| Total Theory | | | | | | 20 | 20 |
| Practical | | | | | | | |
| 1. | EE 2092 | Electrical Measurements and Instrumentation Lab | 0 | 0 | 3 | 3 | 2 |
| 2. | EE 2094 | Digital Circuit Lab | 0 | 0 | 3 | 3 | 2 |
| 3. | EE 2096 | Electrical Machines Lab | 0 | 0 | 3 | 3 | 2 |
| Total Practical & Sessional | | | | | | 9 | 6 |
| Total of Semester | | | | | | 29 | 26 |

SEMESTER-V

| Theory | | | | | | | |
|--|---------------------|--|----------|----------|----------|--------------|---------------|
| Sl. No. | Subject Code | Subjects | L | T | P | Total | Credit |
| 1. | EE 3001 | Electric Power Transmission & Distribution | 3 | 1 | 0 | 4 | 4 |
| 2. | | Institute Elective I | 3 | 1 | 0 | 4 | 4 |
| 3. | EE 3003 | Linear Control Theory | 3 | 1 | 0 | 4 | 4 |
| 4. | EE 3005 | Power Electronics | 3 | 1 | 0 | 4 | 4 |
| 5. | EC 3003 | Microprocessors & Microcontrollers | 3 | 1 | 0 | 4 | 4 |
| Total Theory | | | | | | 20 | 20 |
| Practical: | | | | | | | |
| 1. | EE 3091 | Power Electronics Lab | 0 | 0 | 3 | 3 | 2 |
| 2. | EE 3093 | Microprocessors Lab | 0 | 0 | 3 | 3 | 2 |
| 3. | EE 3095 | Control System Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 1. | TP 3081 | CAT-I | 0 | 0 | 2 | 2 | 1 |
| Total Practical & Sessional | | | | | | 11 | 7 |
| Total of Semester | | | | | | 31 | 27 |

SEMESTER-VI

| Theory | | | | | | | |
|--|---------------------|---|----------|----------|----------|--------------|---------------|
| Sl. No. | Subject Code | Subjects | L | T | P | Total | Credit |
| 7. | EE 3002 | Power Systems Operation & Control | 3 | 1 | 0 | 4 | 4 |
| 8. | EE 3004 | Electromagnetic Field | 3 | 0 | 0 | 3 | 3 |
| 9. | EC 3009 | Communication Engineering | 3 | 1 | 0 | 4 | 4 |
| 10. | EC 3008 | Introduction to Digital Signal Processing | 3 | 1 | 0 | 4 | 4 |
| 11. | | Institute Elective-II | 3 | 0 | 0 | 3 | 3 |
| 12. | | Department Elective-I / Open Elective | 3 | 0 | 0 | 3 | 3 |
| Total Theory | | | | | | 21 | 21 |
| Practical | | | | | | | |
| 1. | EE 3092 | Power Systems Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional: | | | | | | | |
| 1. | EE 3082 | Electrical Machine Design | 0 | 0 | 3 | 3 | 2 |
| 2. | TP 3082 | CAT-II | 0 | 0 | 2 | 2 | 1 |
| Total Practical & Sessional | | | | | | 8 | 5 |
| Total of Semester | | | | | | 29 | 26 |

SEMESTER-VII

| Theory | | | | | | | |
|--|--------------|--|---|---|---|-----------|-----------|
| Sl. No. | Subject Code | Subjects | L | T | P | Total | Credit |
| 1. | EE4001 | Electric Drives | 3 | 1 | 0 | 4 | 4 |
| 2. | EE4003 | Switch Gear and Protection | 3 | 0 | 0 | 3 | 3 |
| 3. | EE6201 | Generalized theory of Electrical Machine | 3 | 1 | 0 | 4 | 4 |
| 4. | EE6203 | Power Electronics Converter-I | 3 | 1 | 0 | 4 | 4 |
| 5. | | Department Elective-II | 3 | 0 | 0 | 3 | 3 |
| Total Theory | | | | | | 18 | 18 |
| Practical | | | | | | | |
| 1. | EE4091 | Electric Drives Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional: | | | | | | | |
| 1. | EE4081 | Project Preparation | 0 | 0 | 6 | 6 | 3 |
| 2. | EE4083 | Practical Training | - | - | - | - | 2 |
| 3. | EE4085 | Power System Design | 0 | 0 | 3 | 3 | 2 |
| Total Practical & Sessional | | | | | | 12 | 9 |
| Total of Semester | | | | | | 30 | 27 |

SEMESTER-VIII

| Theory | | | | | | | |
|--|--------------|--|---|---|---|-----------|-----------|
| Sl. No. | Subject Code | Subjects | L | T | P | Total | Credit |
| 1. | EE6202 | Advanced Electric Drives | 3 | 1 | 0 | 4 | 4 |
| 2. | EE6204 | Power Electronics Converter-II | 3 | 1 | 0 | 4 | 4 |
| 3. | EE6122 | Computational Intelligent Controllers | 3 | 0 | 0 | 3 | 3 |
| 4. | EE6124 | HVDC and FACTS | 3 | 0 | 0 | 3 | 3 |
| 5. | | Department Elective-III | 3 | 0 | 0 | 3 | 3 |
| Total Theory | | | | | | 17 | 17 |
| Practical | | | | | | | |
| 1. | EE6294 | Power Electronics Modelling and Simulation Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional: | | | | | | | |
| 1. | EE 4082 | Project | 0 | 0 | 9 | 9 | 5 |
| 2. | EE 4084 | Seminar | 0 | 0 | 3 | 3 | 2 |
| 3. | EE 4086 | Comprehensive Viva | - | - | - | - | 2 |
| Total Practical & Sessional | | | | | | 15 | 11 |
| Total of Semester | | | | | | 32 | 28 |

SEMESTER-IX

| Theory | | | | | | |
|-------------------------|---------------------|---|----------|----------|----------|---------------|
| Sl. No. | Subject Code | Subjects | L | T | P | Credit |
| 1. | EE6223 | Advanced Microprocessors & Applications | 3 | 0 | 0 | 3 |
| 2. | EE6131 | Power Quality Assessment & Mitigation | 3 | 0 | 0 | 3 |
| 3. | EE6103 | Non-Conventional Energy Systems | 3 | 1 | 0 | 4 |
| 4. | | Department Elective- IV | 3 | 0 | 0 | 3 |
| Total Theory | | | | | | 13 |
| Sessional | | | | | | |
| 1. | EE6283 | Design of Power Electronics System | 0 | 0 | 3 | 2 |
| 2. | EE 6285 | Thesis – Part -I | - | - | - | 10 |
| Total Sessionals | | | | | | 12 |
| Semester Total | | | | | | 25 |

SEMESTER-X

| Theory | | | | | | |
|--------------------------|---------------------|-------------------------|----------|----------|----------|---------------|
| Sl. No. | Subject Code | Subjects | L | T | P | Credit |
| Sessional | | | | | | |
| 1. | EE6288 | Thesis – Part -II | - | - | - | 20 |
| | EE6286 | Seminar | 0 | 0 | 3 | 2 |
| | EE6284 | Comprehensive Viva Voce | - | - | - | 2 |
| Total Sessionals | | | | | | 24 |
| Total of Semester | | | | | | 24 |

LIST OF INSTITUTE ELECTIVES

Elective-I

| Sl. No. | Subject Code | Subject Name | Credit |
|---------|--------------|-------------------------|--------|
| 1. | HS 2002 | Engineering Economics | 3 |
| 2. | HS 2004 | Public Finance | 3 |
| 3. | HS 2006 | International Economics | 3 |

Elective-II

| | | | |
|----|---------|---------------------------------|---|
| 1. | HS 3002 | Organizational Behavior | 3 |
| 2. | HS 3004 | Human Resource Management | 3 |
| 3. | HS 3006 | Entrepreneurship | 3 |
| 4. | HS 3008 | Management Concepts & Practices | 3 |

LIST OF DEPARTMENT ELECTIVES

Elective- 1

| | | | |
|----|---------|--|---|
| 1. | CS 3052 | RDBMS | 3 |
| 2. | EE 3022 | Power Apparatus Design | 3 |
| 3. | EE 3024 | Principles of Industrial Instrumentation | 3 |
| 4. | EE 3026 | Electrical Engineering Material | 3 |

Elective- II

| | | | |
|----|---------|--|---|
| 1. | EE4021 | Power Station Engineering | 3 |
| 2. | EE 4023 | Installation, Commissioning and Maintenance of Electrical Equipments | 3 |
| 3. | EE 4033 | Modern Control Theory | 3 |
| 4. | EE 4035 | Utilization of Electric Power | 3 |

Elective- III

| | | | |
|----|---------|---|---|
| 1. | EE 6123 | Power Market Reforms | 3 |
| 2. | EE6126 | Advanced Power System Protection | 3 |
| 3. | EE6222 | Dynamics of Power Electronics Converter | 3 |
| 4. | EE6232 | Traction and Hybrid Electric Vehicle | 3 |

Elective- IV

| | | | |
|----|--------|--|---|
| 1. | EE6221 | Industrial Instrumentation and Transducers | 3 |
| 2. | EE6233 | Advanced Digital Signal processing | 3 |
| 3. | EE6121 | Computer Application in Power System | 3 |
| 4. | EE6137 | Advanced Energy Conversion System | 3 |

SCHOOL OF ELECTRONICS ENGINEERING

Course Structure for B.Tech in Electronics & Electrical Engineering and M.Tech in Power Electronics & Drives

SEMESTER-III

| Theory | | | | | | | |
|---|--------------|------------------------------------|---|---|---|-----------|-----------|
| Sl. No | Subject Code | Course Title | L | T | P | Total | Credits |
| 1. | MA2001 | Mathematics-III | 3 | 1 | 0 | 4 | 4 |
| 2. | EC2007 | Analog Electronics | 3 | 1 | 0 | 4 | 4 |
| 3. | EE2003 | Network Analysis | 3 | 1 | 0 | 4 | 4 |
| 4. | EC2003 | Signals & Systems | 3 | 0 | 0 | 3 | 3 |
| 5. | EE2001 | Electrical Machine – I | 3 | 1 | 0 | 4 | 4 |
| 6. | CS2003 | Data Structure & Java Programming | 3 | 1 | 0 | 4 | 4 |
| Total of Theory | | | | | | 23 | 23 |
| Practical | | | | | | | |
| 7. | EC2091 | Electronic Circuits & Networks Lab | | | | 3 | 2 |
| 8. | CS2093 | Data Structure & Programming Lab | | | | 3 | 2 |
| Sessional | | | | | | | |
| 9. | HS2081 | Language Lab | | | | 2 | 1 |
| Total of Practical & Sessional | | | | | | 8 | 5 |
| Semester Total | | | | | | 31 | 28 |

SEMESTER-IV

| Theory | | | | | | | |
|---------------------------|--------------|------------------------------------|---|---|---|-----------|-----------|
| Sl. No | Subject Code | Course Title | L | T | P | Total | Credits |
| 1. | MA2002 | Mathematics – IV | 3 | 1 | 0 | 4 | 4 |
| 2. | EC2009 | Digital Electronic Circuits | 3 | 1 | 0 | 4 | 4 |
| 3. | EE2002 | Electrical Machine – II | 3 | 1 | 0 | 4 | 4 |
| 4. | EC2008 | Measurements & Instrumentation | 3 | 1 | 0 | 4 | 4 |
| 5. | | Inst. Elective – I | 3 | 0 | 0 | 3 | 3 |
| 6. | CH2001 | Environmental Science | 2 | 0 | 0 | 2 | 2 |
| Total of Theory | | | | | | 21 | 21 |
| Practical | | | | | | | |
| 7. | EC2096 | Digital & Linear IC Lab | 0 | 0 | 3 | 3 | 2 |
| 8. | EC2098 | Measurements & Instrumentation Lab | 0 | 0 | 3 | 3 | 2 |
| 9. | EE2096 | Electrical Machine Lab | 0 | 0 | 3 | 3 | 2 |
| Total of Practical | | | | | | 9 | 6 |
| Semester Total | | | | | | 30 | 27 |

SEMESTER-V

| Theory | | | | | | | |
|---|--------------|--|---|---|---|-----------|-----------|
| Sl. No | Subject Code | Course Title | L | T | P | Total | Credits |
| 1. | EC3001 | Electromagnetic Theory | 3 | 1 | 0 | 4 | 4 |
| 2. | EE3001 | Electric Power Transmission & Distribution | 3 | 1 | 0 | 4 | 4 |
| 3. | EC3003 | Microprocessors & Microcontrollers | 3 | 1 | 0 | 4 | 4 |
| 4. | EL3001 | Control Systems | 3 | 1 | 0 | 4 | 4 |
| 5. | EC3007 | Digital Signal Processing | 3 | 1 | 0 | 4 | 4 |
| Total of Theory | | | | | | 20 | 20 |
| Practical | | | | | | | |
| 6. | EL3091 | Control Systems Lab | 0 | 0 | 3 | 3 | 2 |
| 7. | EC3095 | DSP Lab | 0 | 0 | 3 | 3 | 2 |
| 8. | EC3093 | Microprocessor & Microcontroller Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 9. | TP3081 | C A T - I | 0 | 0 | 2 | 2 | 1 |
| Total of Practical & Sessional | | | | | | 11 | 7 |
| Semester Total | | | | | | 31 | 27 |

SEMESTER-VI

| Theory | | | | | | | |
|---|--------------|------------------------------------|---|---|---|-----------|-----------|
| Sl. No | Subject Code | Course Title | L | T | P | Total | Credits |
| 1. | EC3009 | Communication Engg. | 3 | 1 | 0 | 4 | 4 |
| 2. | EE3005 | Power Electronics | 3 | 1 | 0 | 4 | 4 |
| 3. | EE3002 | Power Systems Operation & Control | 3 | 1 | 0 | 4 | 4 |
| 4. | | Dept. Elective – I / Open Elective | 3 | 0 | 0 | 3 | 3 |
| 5. | | Inst. Elective – II | 3 | 0 | 0 | 3 | 3 |
| Total of Theory | | | | | | 18 | 18 |
| Practical | | | | | | | |
| 6. | EC3091 | Communication Engg Lab | 0 | 0 | 3 | 3 | 2 |
| 7. | EE3091 | Power Electronics Lab | 0 | 0 | 3 | 3 | 2 |
| 8. | EE3092 | Power Systems Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 9. | TP3082 | C A T - II | 0 | 0 | 2 | 2 | 1 |
| Total of Practical & Sessional | | | | | | 11 | 7 |
| Semester Total | | | | | | 29 | 25 |

SEMESTER-VII

| Theory | | | | | | | |
|---|--------------|---|---|---|---|-----------|-----------|
| Sl. No | Subject Code | Course Title | L | T | P | Total | Credits |
| 1. | EE4001 | Electric Drives | 3 | 1 | 0 | 4 | 4 |
| 2. | EE4003 | Switch Gear & Protection | 3 | 0 | 0 | 3 | 3 |
| 3. | EE6201 | Generalized Theory of Electrical Machines | 3 | 1 | 0 | 4 | 4 |
| 4. | EE6203 | Power Electronic Converters - I | 3 | 1 | 0 | 4 | 4 |
| 5. | | Dept. Elective – II | 3 | 0 | 0 | 3 | 3 |
| Total of Theory | | | | | | 18 | 18 |
| Practical | | | | | | | |
| 6. | EE4091 | Electric Drives Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 7. | EE4085 | Power System Design | 0 | 0 | 3 | 3 | 2 |
| 8. | EL4081 | Project Preparation | 0 | 0 | 6 | 6 | 3 |
| 9. | EL4083 | Practical Training | - | - | - | - | 2 |
| Total of Practical & Sessional | | | | | | 12 | 9 |
| Semester Total | | | | | | 30 | 27 |

SEMESTER-VIII

| Theory | | | | | | | |
|---|--------------|---------------------------------------|---|---|---|-----------|-----------|
| Sl. No | Subject Code | Course Title | L | T | P | Total | Credits |
| 1. | | Dept. Elective – III | 3 | 0 | 0 | 3 | 3 |
| 2. | EE6202 | Advanced Electric Drives | 3 | 1 | 0 | 4 | 4 |
| 3. | EE6204 | Power Electronic Converter - II | 3 | 1 | 0 | 4 | 4 |
| 4. | EE6122 | Computational Intelligent Controllers | 3 | 0 | 0 | 3 | 3 |
| 5. | EE6126 | Advanced Power System Protection | 3 | 0 | 0 | 3 | 3 |
| Total of Theory | | | | | | 17 | 17 |
| Practical | | | | | | | |
| 6. | EE6193 | Modeling and Simulation Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 7. | EL4082 | Project | 0 | 0 | 9 | 9 | 5 |
| 8. | EL4084 | Seminar | 0 | 0 | 3 | 3 | 2 |
| 9. | EL4086 | General Viva Voce | - | - | - | - | 2 |
| Total of Practical & Sessional | | | | | | 15 | 11 |
| Semester Total | | | | | | 32 | 28 |

SEMESTER-IX

| Theory | | | | | | |
|---------------------------|---------------------|---|----------|----------|----------|----------------|
| Sl. No | Subject Code | Subject Title | L | T | P | Credits |
| 1 | EE6223 | Advanced Microprocessors & Applications | 3 | 0 | 0 | 3 |
| 2 | EE6103 | Non-Conventional Energy Systems | 3 | 1 | 0 | 4 |
| 3 | EE6131 | Power Quality Assessment & Mitigation | 3 | 0 | 0 | 3 |
| 4 | | Elective - IV | 3 | 0 | 0 | 3 |
| Total of Theory | | | | | | 13 |
| Sessional | | | | | | |
| 5 | EE6283 | Design of Power Electronic Systems | 0 | 0 | 3 | 2 |
| 6 | EE6285 | Thesis (Part-I) | - | - | - | 10 |
| Total of Sessional | | | | | | 12 |
| Semester Total | | | | | | 25 |

SEMESTER-X

| Sessional | | | | | | |
|---------------------------|---------------------|-------------------------|----------|----------|----------|----------------|
| Sl. No | Subject Code | Subject Title | L | T | P | Credits |
| 1 | EE6286 | Seminar | 0 | 0 | 3 | 2 |
| 2 | EE6284 | Comprehensive Viva Voce | - | - | - | 2 |
| 3 | EE6288 | Thesis (Part-II) | | | | 20 |
| Total of Sessional | | | | | | 24 |
| Total Semester | | | | | | 24 |

LIST OF DEPARTMENT ELECTIVES

Deptt. Elective-I

| Sl. No | Subject Code | Subject Name | Credit |
|--------|--------------|--------------------------|--------|
| 1. | EL3002 | Advanced Control Systems | 3 |
| 2. | EC3004 | VLSI Design | 3 |
| 3. | EC3024 | Embedded Systems | 3 |
| 4. | CS3054 | Computer Architecture | 3 |

Deptt. Elective – II

| Sl. No | Subject Code | Subject Name | Credit |
|--------|--------------|---------------------------------|--------|
| 1. | EL4001 | Industrial Automation & Control | 3 |
| 2. | EE4021 | Power Station Engg | 3 |
| 3. | EI4021 | Industrial Instrumentation | 3 |
| 4. | CS3032 | RDBMS | 3 |

Deptt. Elective – III

| Sl. No | Subject Code | Subject Name | Credit |
|--------|--------------|---|--------|
| 1. | EE6124 | HVDC & FACTS | 3 |
| 2. | EC6108 | Digital Image Processing | 3 |
| 3. | EE6222 | Dynamics of Power Electronics Converter | 3 |
| 4. | EE6138 | Energy Management & Audit | 3 |

Deptt. Elective – IV

| Sl. No | Subject Code | Subject Name | Credit |
|--------|--------------|---------------------------------------|--------|
| 1. | EE6233 | Advanced Digital Signal Processing | 3 |
| 2. | EE6121 | Computer Application in Power Systems | 3 |
| 3. | EE6123 | Power Market Reforms | 3 |
| 4. | EE6137 | Advanced Energy Conversion System | 3 |

SCHOOL OF ELECTRONICS ENGINEERING

Course Structure for B.Tech in Electronics & Electrical Engineering and M.Tech in VLSI Design & Embedded System

SEMESTER-III

| Theory | | | | | | | |
|---|--------------|------------------------------------|---|---|---|-----------|-----------|
| Sl. No | Subject Code | Course Title | L | T | P | Total | Credits |
| 1. | MA2001 | Mathematics-III | 3 | 1 | 0 | 4 | 4 |
| 2. | EC2007 | Analog Electronics | 3 | 1 | 0 | 4 | 4 |
| 3. | EE2003 | Network Analysis | 3 | 1 | 0 | 4 | 4 |
| 4. | EC2003 | Signals & Systems | 3 | 0 | 0 | 3 | 3 |
| 5. | EE2001 | Electrical Machine – I | 3 | 1 | 0 | 4 | 4 |
| 6. | CS2003 | Data Structure & Java Programming | 3 | 1 | 0 | 4 | 4 |
| Total of Theory | | | | | | 23 | 23 |
| Practical | | | | | | | |
| 7. | EC2091 | Electronic Circuits & Networks Lab | | | | 3 | 2 |
| 8. | CS2093 | Data Structure & Programming Lab | | | | 3 | 2 |
| Sessional | | | | | | | |
| 9. | HS2081 | Language Lab | | | | 2 | 1 |
| Total of Practical & Sessional | | | | | | 8 | 5 |
| Semester Total | | | | | | 31 | 28 |

SEMESTER-IV

| Theory | | | | | | | |
|---------------------------|--------------|------------------------------------|---|---|---|-----------|-----------|
| Sl. No | Subject Code | Course Title | L | T | P | Total | Credits |
| 1. | MA2002 | Mathematics – IV | 3 | 1 | 0 | 4 | 4 |
| 2. | EC2009 | Digital Electronic Circuits | 3 | 1 | 0 | 4 | 4 |
| 3. | EE2002 | Electrical Machine – II | 3 | 1 | 0 | 4 | 4 |
| 4. | EC2008 | Measurements & Instrumentation | 3 | 1 | 0 | 4 | 4 |
| 5. | | Inst. Elective – I | 3 | 0 | 0 | 3 | 3 |
| 6. | CH2001 | Environmental Science | 2 | 0 | 0 | 2 | 2 |
| Total of Theory | | | | | | 21 | 21 |
| Practical | | | | | | | |
| 7. | EC2096 | Digital & Linear IC Lab | 0 | 0 | 3 | 3 | 2 |
| 8. | EC2098 | Measurements & Instrumentation Lab | 0 | 0 | 3 | 3 | 2 |
| 9. | EE2096 | Electrical Machine Lab | 0 | 0 | 3 | 3 | 2 |
| Total of Practical | | | | | | 9 | 6 |
| Semester Total | | | | | | 30 | 27 |

SEMESTER-V

| Theory | | | | | | | |
|---|--------------|--|---|---|---|-----------|-----------|
| Sl. No | Subject Code | Course Title | L | T | P | Total | Credits |
| 1. | EC3001 | Electromagnetic Theory | 3 | 1 | 0 | 4 | 4 |
| 2. | EE3001 | Electric Power Transmission & Distribution | 3 | 1 | 0 | 4 | 4 |
| 3. | EC3003 | Microprocessors & Microcontrollers | 3 | 1 | 0 | 4 | 4 |
| 4. | EL3001 | Control Systems | 3 | 1 | 0 | 4 | 4 |
| 5. | EC3007 | Digital Signal Processing | 3 | 1 | 0 | 4 | 4 |
| Total of Theory | | | | | | 20 | 20 |
| Practical | | | | | | | |
| 6. | EL3091 | Control Systems Lab | 0 | 0 | 3 | 3 | 2 |
| 7. | EC3095 | DSP Lab | 0 | 0 | 3 | 3 | 2 |
| 8. | EC3093 | Microprocessor & Microcontroller Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 9. | TP3081 | C A T - I | 2 | 0 | 0 | 2 | 1 |
| Total of Practical & Sessional | | | | | | 11 | 7 |
| Semester Total | | | | | | 31 | 27 |

SEMESTER-VI

| Theory | | | | | | | |
|---|--------------|------------------------------------|---|---|---|-----------|-----------|
| Sl. No | Subject Code | Course Title | L | T | P | Total | Credits |
| 1. | EC3009 | Communication Engg | 3 | 1 | 0 | 4 | 4 |
| 2. | EE3005 | Power Electronics | 3 | 1 | 0 | 4 | 4 |
| 3. | EE3002 | Power System Operation & Control | 3 | 1 | 0 | 4 | 4 |
| 4. | | Dept. Elective – I / Open Elective | 3 | 0 | 0 | 3 | 3 |
| 5. | | Inst. Elective – II | 3 | 0 | 0 | 3 | 3 |
| Total of Theory | | | | | | 18 | 18 |
| Practical | | | | | | | |
| 6. | EC3091 | Communication Engg Lab | 0 | 0 | 3 | 3 | 2 |
| 7. | EE3091 | Power Electronics Lab | 0 | 0 | 3 | 3 | 2 |
| 8. | EE3092 | Power Systems Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 9. | TP3082 | C A T - II | 0 | 0 | 2 | 2 | 1 |
| Total of Practical & Sessional | | | | | | 11 | 7 |
| Semester Total | | | | | | 29 | 25 |

SEMESTER-VII

| Theory | | | | | | | |
|---|--------------|---------------------------------|---|---|---|-----------|-----------|
| Sl. No | Subject Code | Course Title | L | T | P | Total | Credits |
| 1. | EE4001 | Electric Drives | 3 | 1 | 0 | 4 | 4 |
| 2. | EE4003 | Switch Gear & Protection | 3 | 0 | 0 | 3 | 3 |
| 3. | EL4001 | Industrial Automation & Control | 3 | 0 | 0 | 3 | 3 |
| 4. | EC6201 | Digital VLSI Circuits | 3 | 1 | 0 | 4 | 4 |
| 5. | EC6205 | Digital System Design | 3 | 1 | 0 | 4 | 4 |
| Total of Theory | | | | | | 18 | 18 |
| Practical | | | | | | | |
| 6. | EC6293 | Digital System Design Lab | 0 | 0 | 3 | 3 | 2 |
| 7. | EE4091 | Electric Drives Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 8. | EL4081 | Project Preparation | | | | 6 | 3 |
| 9. | EL4083 | Practical Training | - | - | - | - | 2 |
| Total of Practical & Sessional | | | | | | 12 | 9 |
| Semester Total | | | | | | 30 | 27 |

SEMESTER-VIII

| Theory | | | | | | | |
|---|--------------|---------------------------|---|---|---|-----------|-----------|
| Sl. No | Subject Code | Course Title | L | T | P | Total | Credits |
| 1. | | Dept Elective II | 3 | 0 | 0 | 3 | 3 |
| 2. | EC6204 | Testing of VLSI Circuits | 3 | 1 | 0 | 4 | 4 |
| 3. | EC6202 | Embedded System Design | 3 | 1 | 0 | 4 | 4 |
| 4. | EC6107 | Analog CMOS VLSI Circuits | 3 | 1 | 0 | 4 | 4 |
| 5. | | Dept. Elective – III | 3 | 0 | 0 | 3 | 3 |
| Total of Theory | | | | | | 18 | 18 |
| Practical | | | | | | | |
| 6. | EC6294 | Embedded System Lab | 0 | 0 | 3 | 3 | 2 |
| 7. | EC6291 | VLSI Design Lab-I | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 8. | EL4082 | Project | 0 | 0 | 9 | 9 | 5 |
| 9. | EL4084 | Seminar | 0 | 0 | 3 | 3 | 2 |
| 10. | EL4086 | General Viva-Voce | - | - | - | - | 2 |
| Total of Practical & Sessional | | | | | | 18 | 13 |
| Semester Total | | | | | | 36 | 31 |

SEMESTER-IX

| Theory | | | | | | |
|---|--------------|---------------------|---|---|---|-----------|
| Sl. No | Subject Code | Course Title | L | T | P | Credits |
| 1 | EC6203 | MOS Device Modeling | 3 | 1 | 0 | 4 |
| 2 | | Dept. Elective –IV | 3 | 0 | 0 | 3 |
| 3 | | Dept. Elective –V | 3 | 0 | 0 | 3 |
| Total of Theory | | | | | | 10 |
| Practical | | | | | | |
| 4 | EC6292 | VLSI Design Lab II | 0 | 0 | 3 | 2 |
| Total of Practical | | | | | | 2 |
| Sessional | | | | | | |
| 5 | EC6285 | Thesis (Part-I) | | | | 10 |
| Total of Practical & Sessional | | | | | | 12 |
| Semester Total | | | | | | 22 |

SEMESTER-X

| Sessional | | | | | | |
|---------------------------|--------|-------------------------|---|---|---|-----------|
| 1 | EC6286 | Seminar | 0 | 0 | 3 | 2 |
| 2 | EC6284 | Comprehensive Viva Voce | - | - | - | 2 |
| 3 | EC6288 | Thesis (Part-II) | | | | 20 |
| Total of Sessional | | | | | | 24 |
| Semester Total | | | | | | 24 |

LIST OF INSTITUTE ELECTIVES

Elective – I

| Sl. No | Subject Code | Subject Name | Credit |
|--------|--------------|-------------------------|--------|
| 1. | HS2002 | Engineering Economics | 3 |
| 2. | HS2006 | International Economics | 3 |
| 3. | HS2004 | Public Finance | 3 |

Elective – II

| Sl. No | Subject Code | Subject Name | Credit |
|--------|--------------|---------------------------------|--------|
| 1. | HS3006 | Entrepreneurship | 3 |
| 2. | HS3008 | Management Concepts & Practices | 3 |
| 3. | HS3002 | Organizational Behavior | 3 |
| 4. | HS3004 | Human Resource Management | 3 |

LIST OF DEPARTMENT ELECTIVES

Elective-I

| Sl. No | Subject Code | Subject Name | Credit |
|--------|--------------|--------------------------|--------|
| 1. | EL3002 | Advanced Control Systems | 3 |
| 2. | EC3004 | VLSI Design | 3 |
| 3. | EC3024 | Embedded Systems | 3 |
| 4. | CS3054 | Computer Architecture | 3 |

Elective-II

| Sl. No | Subject Code | Subject Name | Credit |
|--------|--------------|-----------------------------------|--------|
| 1. | EC4025 | Optical & Satellite Communication | 3 |
| 2. | EC3026 | Computational Intelligence | 3 |
| 3. | EI4021 | Industrial Instrumentation | 3 |
| 4. | EC6108 | Digital Image Processing | 3 |

Elective-III

| Sl. No | Subject Code | Subject Name | Credit |
|--------|--------------|------------------------------|--------|
| 1. | EC6211 | VLSI Technology | 3 |
| 2. | EC6215 | Microcontroller Based Design | 3 |
| 3. | EC6213 | Architectural Design of IC | 3 |
| 4. | EC6224 | Low Power VLSI Design | 3 |

Elective IV & V

| Sl. No | Subject Code | Subject Name | Credit |
|--------|--------------|---|--------|
| 1. | EC6222 | Mixed Signal IC Design | 3 |
| 2. | EC6226 | Advanced Digital VLSI Circuits | 3 |
| 3. | EC6228 | Optimization Technique & Soft Computing Application | 3 |
| 4. | EC6232 | Real Time Embedded System | 3 |
| 5. | EC6234 | RF IC Design | 3 |
| 6. | EC6236 | MEMS Design | 3 |
| 7. | EC6242 | CAD for VLSI | 3 |
| 8. | EC6246 | Memory Design | 3 |

SCHOOL OF ELECTRONICS ENGINEERING

Course Structure for B.Tech in Electronics & Telecommunication Engineering and M.Tech in Communication System Engineering

SEMESTER-III

| Theory | | | | | | | |
|---|--------------|--------------------------------------|---|---|---|-----------|-----------|
| Sl. No | Subject Code | Course Title | L | T | P | Total | Credits |
| 1. | MA2001 | Mathematics – III | 3 | 1 | 0 | 4 | 4 |
| 2. | EC2001 | Analog Electronic Circuits – I | 3 | 1 | 0 | 4 | 4 |
| 3. | EC2003 | Signals & Systems | 3 | 0 | 0 | 3 | 3 |
| 4. | EE2003 | Network Analysis | 3 | 1 | 0 | 4 | 4 |
| 5. | EC2005 | Semiconductor Devices | 3 | 0 | 0 | 3 | 3 |
| 6. | CS2003 | Data Structure & Java Programming | 3 | 1 | 0 | 4 | 4 |
| Total of Theory | | | | | | 22 | 22 |
| Practical | | | | | | | |
| 7. | EC2091 | Electronic Circuits and Networks Lab | 0 | 0 | 3 | 3 | 2 |
| 8. | CS2093 | Data Structure & Programming Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 9. | HS2081 | Language Lab | 0 | 0 | 2 | 2 | 1 |
| Total of Practical & Sessional | | | | | | 8 | 5 |
| Semester Total | | | | | | 30 | 27 |

SEMESTER-IV

| Theory | | | | | | | |
|---------------------------|--------------|----------------------------------|---|---|---|-----------|-----------|
| Sl. No | Subject Code | Course Title | L | T | P | Total | Credits |
| 1. | MA2002 | Mathematics – IV | 3 | 1 | 0 | 4 | 4 |
| 2. | EC2002 | Analog Electronic Circuits – II | 3 | 1 | 0 | 4 | 4 |
| 3. | EC2009 | Digital Electronic Circuits | 3 | 1 | 0 | 4 | 4 |
| 4. | EC2006 | Analog Communication Techniques | 3 | 1 | 0 | 4 | 4 |
| 5. | EC2008 | Measurements and Instrumentation | 3 | 1 | 0 | 4 | 4 |
| 6. | CH2001 | Environmental Science | 2 | 0 | 0 | 2 | 2 |
| Total of Theory | | | | | | 22 | 22 |
| Practical | | | | | | | |
| 7. | EC2092 | Analog Integrated Circuits Lab | 0 | 0 | 3 | 3 | 2 |
| 8. | EC2093 | Digital Electronic Circuits Lab | 0 | 0 | 3 | 3 | 2 |
| Total of Practical | | | | | | 6 | 4 |
| Semester Total | | | | | | 28 | 26 |

SEMESTER-V

| Theory | | | | | | | |
|---|--------------|--------------------------------------|---|---|---|-----------|-----------|
| Sl. No | Subject Code | Course Title | L | T | P | Total | Credits |
| 1. | EC3001 | Electromagnetic Theory | 3 | 1 | 0 | 4 | 4 |
| 2. | EC3003 | Microprocessors & Microcontrollers | 3 | 1 | 0 | 4 | 4 |
| 3. | EL3001 | Control Systems | 3 | 1 | 0 | 4 | 4 |
| 4. | EC3005 | Digital Communication Techniques | 3 | 1 | 0 | 4 | 4 |
| 5. | | Institute Elective – I | 3 | 0 | 0 | 3 | 3 |
| Total of Theory | | | | | | 19 | 19 |
| Practical | | | | | | | |
| 6. | EC3091 | Communication Engineering Lab | 0 | 0 | 3 | 3 | 2 |
| 7. | EC3093 | Microprocessor & Microcontroller Lab | 0 | 0 | 3 | 3 | 2 |
| 8. | EI3093 | Control & Instrumentation Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 9. | TP3081 | C A T - I | 0 | 0 | 2 | 2 | 1 |
| Total of Practical & Sessional | | | | | | 11 | 7 |
| Semester Total | | | | | | 30 | 26 |

SEMESTER-VI

| Theory | | | | | | | |
|---|--------------|---|---|---|---|-----------|-----------|
| Sl. No | Subject Code | Course Title | L | T | P | Total | Credits |
| 1. | EC3002 | Antenna & Wave Propagation | 3 | 1 | 0 | 4 | 4 |
| 2. | EC3004 | VLSI Design | 3 | 0 | 0 | 3 | 3 |
| 3. | EC3007 | Digital Signal Processing | 3 | 1 | 0 | 4 | 4 |
| 4. | | Dept. Elective – I / Open Elective | 3 | 0 | 0 | 3 | 3 |
| 5. | EC3006 | Data Communication & Networking | 3 | 1 | 0 | 4 | 4 |
| Total of Theory | | | | | | 18 | 18 |
| Practical | | | | | | | |
| 6. | EC3094 | VLSI Lab | 0 | 0 | 3 | 3 | 2 |
| 7. | EC3095 | DSP Lab | 0 | 0 | 3 | 3 | 2 |
| 8. | EC3096 | Electronic System Design & Simulation Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 9. | TP3082 | C A T - II | 0 | 0 | 2 | 2 | 1 |
| Total of Practical & Sessional | | | | | | 11 | 7 |
| Semester Total | | | | | | 29 | 25 |

SEMESTER-VII

| Theory | | | | | | | |
|---------------------------|--------------|--|---|---|---|-----------|-----------|
| Sl. No | Subject Code | Course Title | L | T | P | Total | Credits |
| 1. | EC4001 | RF & Microwave Engg | 3 | 1 | 0 | 4 | 4 |
| 2. | | Institute Elective – II | 3 | 0 | 0 | 3 | 3 |
| 3. | EC6105 | Advanced Wireless & Mobile Communication Systems | 3 | 1 | 0 | 4 | 4 |
| 4. | EC6103 | Information Theory & Coding Techniques | 3 | 1 | 0 | 4 | 4 |
| 5. | | Dept. Elective – II | 3 | 0 | 0 | 3 | 3 |
| Total of Theory | | | | | | 18 | 18 |
| Practical | | | | | | | |
| 6. | EC4091 | Microwave & Antenna Lab | 0 | 0 | 3 | 3 | 2 |
| 7. | EC4093 | Wireless Communication & Networking Lab | 0 | 0 | 3 | 3 | 2 |
| Total of Practical | | | | | | 6 | 4 |
| Sessional | | | | | | | |
| 8. | EC4081 | Project Preparation | 0 | 0 | 6 | 6 | 3 |
| 9. | EC4083 | Practical Training | - | - | - | - | 2 |
| Total of Sessional | | | | | | 6 | 5 |
| Semester Total | | | | | | 30 | 27 |

SEMESTER-VIII

| Theory | | | | | | | |
|---|--------------|---------------------------------------|---|---|---|-----------|-----------|
| Sl. No | Subject Code | Course Title | L | T | P | Total | Credits |
| 1. | EC6104 | Optical Communication Systems | 3 | 1 | 0 | 4 | 4 |
| 2. | EC6102 | Telecom Switching, Network & Protocol | 3 | 0 | 0 | 3 | 3 |
| 3. | EC6112 | Communication & Network Security | 3 | 0 | 0 | 3 | 3 |
| 4. | | Dept. Elective – III | 3 | 0 | 0 | 3 | 3 |
| 5. | | Dept. Elective – IV | 3 | 0 | 0 | 3 | 3 |
| Total of Theory | | | | | | 16 | 16 |
| Practical | | | | | | | |
| 6. | EC6192 | Adv. Design & Simulation Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 7. | EC4082 | Project | 0 | 0 | 9 | 9 | 5 |
| 8. | EC4084 | Seminar | 0 | 0 | 3 | 3 | 2 |
| 9. | EC4086 | General Viva Voce | - | - | - | - | 2 |
| Total of Practical & Sessional | | | | | | 15 | 11 |
| Semester Total | | | | | | 31 | 27 |

SEMESTER-IX

| Theory | | | | | | |
|---|---------------------|---------------------------------------|----------|----------|----------|----------------|
| Sl. No | Subject Code | Subject Title | L | T | P | Credits |
| 1 | MA6003 | Adv. Mathematics -I | 3 | 1 | 0 | 4 |
| 2 | EC6101 | Adv. Digital Communication Techniques | 3 | 1 | 0 | 4 |
| 3 | EC6303 | Microwave Devices & Circuits | 3 | 1 | 0 | 4 |
| 4 | | Dept. Elective – V | 3 | 0 | 0 | 3 |
| Total of Theory | | | | | | 15 |
| Practical | | | | | | |
| 5 | EC6191 | Telecommunication System Engg Lab | 0 | 0 | 3 | 2 |
| Sessional | | | | | | |
| 6 | EC6185 | Thesis (Part-I) | - | - | - | 10 |
| Total of Practical & Sessional | | | | | | 12 |
| Semester Total | | | | | | 27 |

SEMESTER-X

| Sl. No | Subject Code | Subject Title | L | T | P | Credits |
|------------------------|---------------------|-------------------------|----------|----------|----------|----------------|
| 1 | EC6186 | Seminar | 0 | 0 | 3 | 2 |
| 2 | EC6184 | Comprehensive Viva Voce | - | - | - | 2 |
| 3 | EC6188 | Thesis (Part-II) | | | | 20 |
| Total Sessional | | | | | | 24 |
| Total Semester | | | | | | 24 |

LIST OF INSTITUTE ELECTIVES

Elective – I

| Sl. No | Subject Code | Subject Name | Credit |
|--------|--------------|-------------------------|--------|
| 1. | HS2002 | Engineering Economics | 3 |
| 2. | HS2006 | International Economics | 3 |
| 3. | HS2004 | Public Finance | 3 |

Elective – II

| Sl. No | Subject Code | Subject Name | Credit |
|--------|--------------|---------------------------------|--------|
| 1. | HS3006 | Entrepreneurship | 3 |
| 2. | HS3008 | Management Concepts & Practices | 3 |
| 3. | HS3002 | Organizational Behavior | 3 |
| 4. | HS3004 | Human Resource Management | 3 |

LIST OF DEPARTMENT ELECTIVES

Elective-I

| Sl. No | Subject Code | Subject Name | Credit |
|--------|--------------|----------------------------|--------|
| 1. | EC3022 | Advanced Microprocessors | 3 |
| 2. | EC3024 | Embedded Systems | 3 |
| 3. | EE3028 | Power Electronics Circuits | 3 |
| 4 | EC3026 | Computational Intelligence | 3 |

Elective – II

| Sl. No | Subject Code | Subject Name | Credit |
|--------|--------------|---|--------|
| 1. | EC4021 | Radar & Television Engg. | 3 |
| 2. | EL4001 | Industrial Automation & Control | 3 |
| 3. | EC4023 | Adaptive Systems & Signal Processing | 3 |
| 4 | EI4025 | Principle of Analytical Instrumentation | 3 |

Elective – III

| Sl. No | Subject Code | Subject Name | Credit |
|--------|--------------|-----------------------------|--------|
| 1. | EC6108 | Digital Image Processing | 3 |
| 2. | EC6224 | Low Power VLSI Design | 3 |
| 3. | EI4032 | Bio-medical Instrumentation | 3 |
| 4 | EC4028 | Smart Antennas | 3 |

Elective – IV

| Sl. No | Subject Code | Subject Name | Credit |
|--------|--------------|--|--------|
| 1. | EC6128 | Wireless Sensor Network | 3 |
| 2. | EC6313 | Optimization Techniques in Engineering | 3 |
| 3. | EC6124 | Digital Voice & Video Communication | 3 |
| 4 | EC6122 | Satellite Communication Systems | 3 |

Elective – V

| Sl. No | Subject Code | Subject Name | Credit |
|--------|--------------|--|--------|
| 1. | EC6114 | Spread Spectrum Techniques and Multiple Access | 3 |
| 2. | EC6132 | Mobile Adhoc Networks | 3 |
| 3. | EC6314 | Radar and Navigation Engineering | 3 |
| 4 | EC6316 | Microwave Integrated Circuits | 3 |

SCHOOL OF ELECTRONICS ENGINEERING

Course Structure for B.Tech in Electronics Telecommunication Engineering and M.Tech in VLSI Engineering & Embedded System

SEMESTER-III

| Theory | | | | | | | |
|---|--------------|--------------------------------------|---|---|---|-----------|-----------|
| Sl. No | Subject Code | Course Title | L | T | P | Total | Credits |
| 1. | MA2001 | Mathematics – III | 3 | 1 | 0 | 4 | 4 |
| 2. | EC2001 | Analog Electronic Circuits – I | 3 | 1 | 0 | 4 | 4 |
| 3. | EC2003 | Signals & Systems | 3 | 0 | 0 | 3 | 3 |
| 4. | EE2003 | Network Analysis | 3 | 1 | 0 | 4 | 4 |
| 5. | EC2005 | Semiconductor Devices | 3 | 0 | 0 | 3 | 3 |
| 6. | CS2003 | Data Structure & Java Programming | 3 | 1 | 0 | 4 | 4 |
| Total of Theory | | | | | | 22 | 22 |
| Practical | | | | | | | |
| 7. | EC2091 | Electronic Circuits and Networks Lab | 0 | 0 | 3 | 3 | 2 |
| 8. | CS2093 | Data Structure & Programming Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 9. | HS2081 | Language Lab | 0 | 0 | 2 | 2 | 1 |
| Total of Practical & Sessional | | | | | | 8 | 5 |
| Semester Total | | | | | | 30 | 27 |

SEMESTER-IV

| Theory | | | | | | | |
|---------------------------|--------------|----------------------------------|---|---|---|-----------|-----------|
| Sl. No | Subject Code | Course Title | L | T | P | Total | Credits |
| 1. | MA2002 | Mathematics – IV | 3 | 1 | 0 | 4 | 4 |
| 2. | EC2002 | Analog Electronic Circuits – II | 3 | 1 | 0 | 4 | 4 |
| 3. | EC2009 | Digital Electronic Circuits | 3 | 1 | 0 | 4 | 4 |
| 4. | EC2006 | Analog Communication Techniques | 3 | 1 | 0 | 4 | 4 |
| 5. | EC2008 | Measurements and Instrumentation | 3 | 1 | 0 | 4 | 4 |
| 6. | CH2001 | Environmental Science | 2 | 0 | 0 | 2 | 2 |
| Total of Theory | | | | | | 22 | 22 |
| Practical | | | | | | | |
| 7. | EC2092 | Analog Integrated Circuits Lab | 0 | 0 | 3 | 3 | 2 |
| 8. | EC2093 | Digital Electronic Circuits Lab | 0 | 0 | 3 | 3 | 2 |
| Total of Practical | | | | | | 6 | 4 |
| Semester Total | | | | | | 28 | 26 |

SEMESTER-V

| Theory | | | | | | | |
|---|--------------|--------------------------------------|---|---|---|-----------|-----------|
| Sl. No | Subject Code | Course Title | L | T | P | Total | Credits |
| 1. | EC3001 | Electromagnetic Theory | 3 | 1 | 0 | 4 | 4 |
| 2. | EC3003 | Microprocessors & Microcontrollers | 3 | 1 | 0 | 4 | 4 |
| 3. | EL3001 | Control Systems | 3 | 1 | 0 | 4 | 4 |
| 4. | EC3005 | Digital Communication Techniques | 3 | 1 | 0 | 4 | 4 |
| 5. | | Institute Elective – I | 3 | 0 | 0 | 3 | 3 |
| Total of Theory | | | | | | 19 | 19 |
| Practical | | | | | | | |
| 6. | EC3091 | Communication Engineering Lab | 0 | 0 | 3 | 3 | 2 |
| 7. | EC3093 | Microprocessor & Microcontroller Lab | 0 | 0 | 3 | 3 | 2 |
| 8. | EI3093 | Control & Instrumentation Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 9. | TP3081 | C A T - I | 0 | 0 | 2 | 2 | 1 |
| Total of Practical & Sessional | | | | | | 11 | 7 |
| Semester Total | | | | | | 30 | 26 |

SEMESTER-VI

| Theory | | | | | | | |
|---|--------------|---|---|---|---|-----------|-----------|
| Sl. No | Subject Code | Course Title | L | T | P | Total | Credits |
| 1. | EC3002 | Antenna & Wave Propagation | 3 | 1 | 0 | 4 | 4 |
| 2. | EC3004 | VLSI Design | 3 | 0 | 0 | 3 | 3 |
| 3. | EC3007 | Digital Signal Processing | 3 | 1 | 0 | 4 | 4 |
| 4. | | Dept. Elective – I / Open Elective | 3 | 0 | 0 | 3 | 3 |
| 5. | EC3006 | Data Communication & Networking | 3 | 1 | 0 | 4 | 4 |
| Total of Theory | | | | | | 18 | 18 |
| Practical | | | | | | | |
| 6. | EC3094 | VLSI Lab | 0 | 0 | 3 | 3 | 2 |
| 7. | EC3095 | DSP Lab | 0 | 0 | 3 | 3 | 2 |
| 8. | EC3096 | Electronic System Design & Simulation Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 9. | TP3082 | CAT - II | 0 | 0 | 2 | 2 | 1 |
| Total of Practical & Sessional | | | | | | 11 | 7 |
| Semester Total | | | | | | 29 | 25 |

SEMESTER-VII

| Theory | | | | | | | |
|---|--------------|---|---|---|---|-----------|-----------|
| Sl. No | Subject Code | Course Title | L | T | P | Total | Credits |
| 1. | | Institute Elective – II | 3 | 0 | 0 | 3 | 3 |
| 2. | EC4003 | Wireless & Mobile Communication Engg | 3 | 1 | 0 | 4 | 4 |
| 3. | EC4001 | RF & Microwave Engg. | 3 | 1 | 0 | 4 | 4 |
| 4. | EC6201 | Digital VLSI Circuits | 3 | 1 | 0 | 4 | 4 |
| 5. | EC6205 | Digital System design | 3 | 1 | 0 | 4 | 4 |
| Total of Theory | | | | | | 19 | 19 |
| Practical | | | | | | | |
| 6. | EC6293 | Digital System Design Lab | 0 | 0 | 3 | 3 | 2 |
| 7. | EC4093 | Wireless Communication & Networking Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 8. | EC4081 | Project Preparation | 0 | 0 | 6 | 6 | 3 |
| 9. | EC4083 | Practical Training | - | - | - | - | 2 |
| Total of Practical & Sessional | | | | | | 12 | 9 |
| Semester Total | | | | | | 31 | 28 |

SEMESTER-VIII

| Theory | | | | | | | |
|---|--------------|---------------------------|---|---|---|-----------|-----------|
| Sl. No | Subject Code | Course Title | L | T | P | Total | Credits |
| 1. | | Dept Elective II | 3 | 0 | 0 | 3 | 3 |
| 2. | EC6204 | Testing of VLSI Circuits | 3 | 1 | 0 | 4 | 4 |
| 3. | EC6202 | Embedded System Design | 3 | 1 | 0 | 4 | 4 |
| 4 | EC6107 | Analog CMOS VLSI Circuits | 3 | 1 | 0 | 4 | 4 |
| 5. | | Dept. Elective III | 3 | 0 | 0 | 3 | 3 |
| Total of Theory | | | | | | 18 | 18 |
| Practical | | | | | | | |
| 6. | EC6294 | Embedded System Lab | 0 | 0 | 3 | 3 | 2 |
| 7 | EC6291 | VLSI Design Lab-I | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 8 | EC4082 | Project | 0 | 0 | 9 | 9 | 5 |
| 9 | EC4084 | Seminar | 0 | 0 | 3 | 3 | 2 |
| 10 | EC4086 | General Viva-Voce | - | - | - | - | 2 |
| Total of Practical & Sessional | | | | | | 18 | 13 |
| Semester Total | | | | | | 36 | 31 |

SEMESTER-IX

| Theory | | | | | | |
|--|--------------|---------------------|---|---|---|-----------|
| Sl. No | Subject Code | Course Title | L | T | P | Credits |
| 1 | EC6201 | MOS Device Modeling | 3 | 1 | 0 | 4 |
| 2 | | Dept. Elective- IV | 3 | 0 | 0 | 3 |
| 3 | | Dept. Elective- V | 3 | 0 | 0 | 3 |
| Total of Theory | | | | | | 10 |
| Practical | | | | | | |
| 4. | EC6292 | VLSI Design Lab II | 0 | 0 | 3 | 2 |
| Sessional | | | | | | |
| 5. | EC6285 | Thesis (Part-I) | | | | 10 |
| Total Practical & Sessional | | | | | | 12 |
| Semester Total | | | | | | 22 |

SEMESTER-X

| Sessional | | | | | | |
|---------------------------|--------|-------------------------|---|---|---|-----------|
| 1 | EC6286 | Seminar | 0 | 0 | 3 | 2 |
| 2 | EC6284 | Comprehensive Viva Voce | - | - | - | 2 |
| 3 | EC6288 | Thesis (Part-II) | | | | 20 |
| Total of Sessional | | | | | | 24 |
| Semester Total | | | | | | 24 |

LIST OF INSTITUTE ELECTIVES

Elective – I

| Sl. No | Subject Code | Subject Name | Credit |
|--------|--------------|-------------------------|--------|
| 1. | HS2002 | Engineering Economics | 3 |
| 2. | HS2006 | International Economics | 3 |
| 3. | HS2004 | Public Finance | 3 |

Elective – II

| Sl. No | Subject Code | Subject Name | Credit |
|--------|--------------|---------------------------------|--------|
| 1. | HS3006 | Entrepreneurship | 3 |
| 2. | HS3008 | Management Concepts & Practices | 3 |
| 3. | HS3002 | Organizational Behavior | 3 |
| 4. | HS3004 | Human Resource Management | 3 |

LIST OF DEPARTMENTAL ELECTIVES

Elective-I

| Sl. No | Subject Code | Subject Name | Credit |
|--------|--------------|----------------------------|--------|
| 1. | EC3022 | Advanced Microprocessors | 3 |
| 2. | EC3024 | Embedded Systems | 3 |
| 3. | EE3028 | Power Electronics Circuits | 3 |
| 4. | EC3026 | Computational Intelligence | 3 |

Elective-II

| Sl. No | Subject Code | Subject Name | Credit |
|--------|--------------|---|--------|
| 1. | EL4001 | Industrial Automation & Control | 3 |
| 2. | EC4021 | Radar & Television Engg | 3 |
| 3. | EI4025 | Principle of Analytical Instrumentation | 3 |
| 4. | EC6108 | Digital Image Processing | 3 |

Elective-III

| Sl. No | Subject Code | Subject Name | Credit |
|--------|--------------|--------------------------------|--------|
| 1. | EC6211 | VLSI Technology | 3 |
| 2. | EC6213 | Architectural Design of IC | 3 |
| 3. | CS6103 | Advanced Computer Architecture | 3 |
| 4. | EC6224 | Low Power VLSI Design | 3 |

Elective-IV & V

| Sl. No | Subject Code | Subject Name | Credit |
|--------|--------------|---|--------|
| 1. | EC6222 | Mixed Signal IC Design | 3 |
| 2. | EC6226 | Advanced Digital VLSI Design | 3 |
| 3. | EC6228 | Optimization Technique & Soft Computing Application | 3 |
| 4. | EC6232 | Real Time Embedded System | 3 |
| 5. | EC6234 | RF IC Design | 3 |
| 6. | EC6236 | MEMS Design | 3 |
| 7. | EC6238 | Digital Signal Processor Architectures | 3 |
| 8. | EC6242 | CAD for VLSI | 3 |

SCHOOL OF ELECTRONICS ENGINEERING

Course Structure for B.Tech in Electronics & Telecommunication Engineering and M.Tech in RF & Microwave Engineering

SEMESTER-III

| Theory | | | | | | | |
|---|--------------|--------------------------------------|---|---|---|-----------|-----------|
| Sl. No | Subject Code | Course Title | L | T | P | Total | Credits |
| 1. | MA2001 | Mathematics – III | 3 | 1 | 0 | 4 | 4 |
| 2. | EC2001 | Analog Electronic Circuits – I | 3 | 1 | 0 | 4 | 4 |
| 3. | EC2003 | Signals & Systems | 3 | 0 | 0 | 3 | 3 |
| 4. | EE2003 | Network Analysis | 3 | 1 | 0 | 4 | 4 |
| 5. | EC2005 | Semiconductor Devices | 3 | 0 | 0 | 3 | 3 |
| 6. | CS2003 | Data Structure & Java Programming | 3 | 1 | 0 | 4 | 4 |
| Total of Theory | | | | | | 22 | 22 |
| Practical | | | | | | | |
| 7. | EC2091 | Electronic Circuits and Networks Lab | 0 | 0 | 3 | 3 | 2 |
| 8. | CS2093 | Data Structure & Programming Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 9. | HS2081 | Language Lab | 0 | 0 | 2 | 2 | 1 |
| Total of Practical & Sessional | | | | | | 8 | 5 |
| Semester Total | | | | | | 30 | 27 |

SEMESTER-IV

| Theory | | | | | | | |
|---------------------------|--------------|----------------------------------|---|---|---|-----------|-----------|
| Sl.No | Subject Code | Course Title | L | T | P | Total | Credits |
| 1. | MA2002 | Mathematics – IV | 3 | 1 | 0 | 4 | 4 |
| 2. | EC2002 | Analog Electronic Circuits – II | 3 | 1 | 0 | 4 | 4 |
| 3. | EC2009 | Digital Electronic Circuits | 3 | 1 | 0 | 4 | 4 |
| 4. | EC2006 | Analog Communication Techniques | 3 | 1 | 0 | 4 | 4 |
| 5. | EC2008 | Measurements and Instrumentation | 3 | 1 | 0 | 4 | 4 |
| 6. | CH2001 | Environmental Science | 2 | 0 | 0 | 2 | 2 |
| Total of Theory | | | | | | 22 | 22 |
| Practical | | | | | | | |
| 7. | EC2092 | Analog Integrated Circuits Lab | 0 | 0 | 3 | 3 | 2 |
| 8. | EC2093 | Digital Electronic Circuits Lab | 0 | 0 | 3 | 3 | 2 |
| Total of Practical | | | | | | 6 | 4 |
| Semester Total | | | | | | 28 | 26 |

SEMESTER-V

| Theory | | | | | | | |
|---|--------------|--------------------------------------|---|---|---|-----------|-----------|
| Sl. No | Subject Code | Course Title | L | T | P | Total | Credits |
| 1. | EC3001 | Electromagnetic Theory | 3 | 1 | 0 | 4 | 4 |
| 2. | EC3003 | Microprocessors & Microcontrollers | 3 | 1 | 0 | 4 | 4 |
| 3. | EL3001 | Control Systems | 3 | 1 | 0 | 4 | 4 |
| 4. | EC3005 | Digital Communication Techniques | 3 | 1 | 0 | 4 | 4 |
| 5. | | Institute Elective – I | 3 | 0 | 0 | 3 | 3 |
| Total of Theory | | | | | | 19 | 19 |
| Practical | | | | | | | |
| 6. | EC3091 | Communication Engineering Lab | 0 | 0 | 3 | 3 | 2 |
| 7. | EC3093 | Microprocessor & Microcontroller Lab | 0 | 0 | 3 | 3 | 2 |
| 8. | EI3093 | Control & Instrumentation Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 9. | TP3081 | C A T - I | 2 | 0 | 0 | 2 | 1 |
| Total of Practical & Sessional | | | | | | 11 | 7 |
| Semester Total | | | | | | 30 | 26 |

SEMESTER-VI

| Theory | | | | | | | |
|---|--------------|---|---|---|---|-----------|-----------|
| Sl. No | Subject Code | Course Title | L | T | P | Total | Credits |
| 1. | EC3002 | Antenna & Wave Propagation | 3 | 1 | 0 | 4 | 4 |
| 2. | EC3004 | VLSI Design | 3 | 0 | 0 | 3 | 3 |
| 3. | EC3007 | Digital Signal Processing | 3 | 1 | 0 | 4 | 4 |
| 4. | | Dept. Elective – I/ Open Elective | 3 | 0 | 0 | 3 | 3 |
| 5. | EC3006 | Data Communication & Networking | 3 | 1 | 0 | 4 | 4 |
| Total of Theory | | | | | | 18 | 18 |
| Practical | | | | | | | |
| 6. | EC3094 | VLSI Lab | 0 | 0 | 3 | 3 | 2 |
| 7. | EC3095 | DSP Lab | 0 | 0 | 3 | 3 | 2 |
| 8. | EC3096 | Electronic System Design & Simulation Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 9. | TP3082 | C A T - II | 2 | 0 | 0 | 2 | 1 |
| Total of Practical & Sessional | | | | | | 11 | 7 |
| Semester Total | | | | | | 29 | 25 |

SEMESTER-VII

| Theory | | | | | | | |
|---|--------------|---|---|---|---|-----------|-----------|
| Sl. No | Subject Code | Course Title | L | T | P | Total | Credits |
| 1. | EC4001 | RF & Microwave Engg. | 3 | 1 | 0 | 4 | 4 |
| 2. | | Institute Elective - II | 3 | 0 | 0 | 3 | 3 |
| 3. | EC4003 | Wireless & Mobile Communication Engg. | 3 | 1 | 0 | 4 | 4 |
| 4. | | Dept. Elective – II | 3 | 0 | 0 | 3 | 3 |
| 5. | EC6305 | Antenna Theory and Techniques | 3 | 1 | 0 | 4 | 4 |
| Total of Theory | | | | | | 18 | 18 |
| Practical | | | | | | | |
| 6. | EC4093 | Wireless Communication & Networking Lab | 0 | 0 | 3 | 3 | 2 |
| 7. | EC6391 | Advanced Microwave Engineering Laboratory | 0 | 0 | 3 | 2 | 2 |
| Sessional | | | | | | | |
| 8. | EC4081 | Project Preparation | 0 | 0 | 6 | 6 | 3 |
| 9. | EC4083 | Practical Training | - | - | - | - | 2 |
| Total of Practical & Sessional | | | | | | 11 | 9 |
| Semester Total | | | | | | 29 | 27 |

SEMESTER-VIII

| Theory | | | | | | | |
|---|--------------|--|---|---|---|-----------|-----------|
| Sl. No | Subject Code | Course Title | L | T | P | Total | Credits |
| 1. | EC6302 | RF Circuit Design | 3 | 1 | 0 | 4 | 4 |
| 2. | EC6304 | Computational Techniques in Electromagnetics | 3 | 1 | 0 | 4 | 4 |
| 3. | EC6104 | Optical Communication Systems | 3 | 1 | 0 | 4 | 4 |
| 4. | | Dept. Elective – III | 3 | 0 | 0 | 3 | 3 |
| 5. | | Dept Elective – IV /Open Elective | 3 | 0 | 0 | 3 | 3 |
| Total of Theory | | | | | | 18 | 18 |
| Practical | | | | | | | |
| 1 | EC6392 | Microwave Design and Simulation Laboratory | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 5. | EC4082 | Project | 0 | 0 | 9 | 9 | 5 |
| 6. | EC4084 | Seminar | 0 | 0 | 3 | 3 | 2 |
| 7. | EC4086 | General Viva-Voce | - | - | - | - | 2 |
| Total of Practical & Sessional | | | | | | 15 | 11 |
| Semester Total | | | | | | 33 | 29 |

SEMESTER – IX

| Theory | | | | | | |
|------------------------|---------------------|--------------------------------|----------|----------|----------|----------------|
| Sl. No | Subject Code | Course Title | L | T | P | Credits |
| 1. | MA6003 | Advanced Mathematics-I | 3 | 1 | 0 | 4 |
| 2. | EC6301 | Advanced Electromagnetics | 3 | 1 | 0 | 4 |
| 3. | EC6303 | Microwave Devices and Circuits | 3 | 1 | 0 | 4 |
| 4 | | Department Elective-V | 3 | 0 | 0 | 3 |
| Total of Theory | | | | | | 15 |
| Sessional | | | | | | |
| 1 | EC6385 | Thesis – Part-I | | | | 10 |
| Total Sessional | | | | | | 10 |
| Semester Total | | | | | | 25 |

SEMESTER – X

| Sessional | | | | | | |
|------------------------|---------------------|-------------------------|----------|----------|----------|----------------|
| Sl. No | Subject Code | Course Title | L | T | P | Credits |
| 1 | EC6384 | Comprehensive Viva Voce | - | - | - | 2 |
| 2 | EC6386 | Seminar | 0 | 0 | 3 | 2 |
| 3 | EC6388 | Thesis Part-II | - | - | - | 20 |
| Total Sessional | | | | | | 24 |
| Semester Total | | | | | | 24 |

LIST OF INSTITUTE ELECTIVES

Elective – I

| Sl. No | Subject Code | Subject Name | Credit |
|--------|--------------|------------------------------|--------|
| 1. | HS2002 | Engineering Economics | 3 |
| 2. | HS2006 | International Trade & Policy | 3 |
| 3. | HS2004 | Public Finance | 3 |

Elective – II

| | | | |
|----|--------|---------------------------------|---|
| 1. | HS3006 | Entrepreneurship | 3 |
| 2. | HS3008 | Management Concepts & Practices | 3 |
| 3. | HS3002 | Organizational Behavior | 3 |
| 4. | HS3004 | Human Resource Management | 3 |

LIST OF DEPARTMENT ELECTIVES

Elective-I

| Sl. No | Subject Code | Subject Name | Credit |
|--------|--------------|----------------------------|--------|
| 1. | EC3022 | Advanced Microprocessors | 3 |
| 2. | EC3024 | Embedded Systems | 3 |
| 3. | EE3028 | Power Electronics Circuits | 3 |
| 4. | EC3026 | Computational Intelligence | 3 |

Elective – II

| | | | |
|----|--------|--------------------------------------|---|
| 1. | EC4021 | Radar & Television Engg. | 3 |
| 2. | EL4001 | Industrial Automation & Control | 3 |
| 3. | EC4023 | Adaptive Systems & Signal Processing | 3 |
| 4. | EC6311 | Microwave Remote Sensing | 3 |

Elective – III

| | | | |
|----|--------|---------------------------------------|---|
| 1. | EC6108 | Digital Image Processing | 3 |
| 2. | EC6224 | Low Power VLSI Design | 3 |
| 3. | EC6326 | Millimeter Wave Communication Systems | 3 |
| 4. | EC6322 | Planar and Small Antennas | 3 |

Elective – IV

| Sl. No | Subject Code | Subject Name | Credit |
|--------|--------------|--|--------|
| 1. | EC6128 | Wireless Sensor Network | 3 |
| 2. | EC6313 | Optimization Techniques in Engineering | 3 |
| 3. | EC6124 | Digital Voice & Video Communication | 3 |
| 4. | EC6122 | Satellite Communication Systems | 3 |

Elective – V

| | | | |
|----|--------|--|---|
| 1. | EC6114 | Spread Spectrum Techniques and Multiple Access | 3 |
| 2. | EC6132 | Mobile Adhoc Networks | 3 |
| 3. | EC6314 | Radar and Navigation Engineering | 3 |
| 4. | EC6316 | Microwave Integrated Circuits | 3 |

SCHOOL OF MECHANICAL ENGINEERING

**Course Structure for B.Tech in Mechanical Engineering and M.Tech in
Manufacturing Process & Systems**

SEMESTER-III

| Theory | | | | | | | |
|---|--------------------|-----------------------------------|----------|----------|----------|--------------|---------------|
| Sl No. | Course Code | Subject | L | T | P | Total | Credit |
| 1 | ME2001 | Engineering Thermodynamics | 3 | 1 | 0 | 4 | 4 |
| 2 | ME2003 | Fluid Mechanics | 3 | 0 | 0 | 3 | 3 |
| 3 | ME2005 | Mechanics of Solids | 3 | 1 | 0 | 4 | 4 |
| 4 | ME2007 | Material Science and Engineering | 3 | 0 | 0 | 3 | 3 |
| 5 | ME2009 | Kinematics & Kinetics of Machines | 3 | 0 | 0 | 3 | 3 |
| 6 | MA2001 | Mathematics-III | 3 | 1 | 0 | 4 | 4 |
| Total of Theory | | | | | | 21 | 21 |
| Practical | | | | | | | |
| 1 | ME2091 | Fluid Mechanics Lab | 0 | 0 | 3 | 3 | 2 |
| 2 | ME2093 | Material Testing Lab | 0 | 0 | 3 | 3 | 2 |
| 3 | ME2095 | Kinematic Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 1 | ME2081 | Machine Drawing | 0 | 0 | 3 | 3 | 2 |
| Total of Practical & Sessional | | | | | | 12 | 8 |
| Semester Total | | | | | | 33 | 29 |

SEMESTER-IV

| Theory | | | | | | | |
|---|--------------------|---|----------|----------|----------|--------------|---------------|
| Sl No. | Course Code | Subject | L | T | P | Total | Credit |
| 1 | ME2002 | Machine Dynamics | 3 | 0 | 0 | 3 | 3 |
| 2 | ME2004 | Heat Transfer | 3 | 1 | 0 | 4 | 4 |
| 3 | ME2006 | Basic Manufacturing Processes | 3 | 0 | 0 | 3 | 3 |
| 4 | EE2006 | Introduction to Electrical Machines and Power Electronics | 3 | 0 | 0 | 3 | 3 |
| 5 | MA2004 | Numerical Methods | 3 | 1 | 0 | 4 | 4 |
| 6 | CH2001 | Environmental Science | 2 | 0 | 0 | 2 | 2 |
| Total of Theory | | | | | | 19 | 19 |
| Practical | | | | | | | |
| 1 | ME2092 | Machine Dynamics Lab | 0 | 0 | 3 | 3 | 2 |
| 2 | ME2094 | Heat Transfer Lab | 0 | 0 | 3 | 3 | 2 |
| 3 | EE2098 | Electrical Machines and Power Electronics Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 1 | ME2082 | Manufacturing Practice | 0 | 0 | 3 | 3 | 2 |
| 2 | HS2081 | Language Lab | 0 | 0 | 2 | 2 | 1 |
| Total of Practical & Sessional | | | | | | 14 | 9 |
| Semester Total | | | | | | 33 | 28 |

SEMESTER-V

| Theory | | | | | | | |
|---|-------------|--|---|---|---|-----------|-----------|
| SI No. | Course Code | Subject | L | T | P | Total | Credit |
| 1 | ME3001 | Fluid Dynamics & Hydraulic Machines | 3 | 1 | 0 | 4 | 4 |
| 2 | ME3003 | Internal Combustion Engines & Gas Turbines | 3 | 0 | 0 | 3 | 3 |
| 3 | ME3005 | Mechanical Measurements and Control | 3 | 0 | 0 | 3 | 3 |
| 4 | ME3007 | Manufacturing Processes & Design | 3 | 0 | 0 | 3 | 3 |
| 5 | ME3009 | Fundamentals of Machine Design | 3 | 0 | 0 | 3 | 3 |
| 6 | | Institute Elective-I | 3 | 0 | 0 | 3 | 3 |
| Total of Theory | | | | | | 19 | 19 |
| Practical | | | | | | | |
| 1 | ME3091 | Hydraulic Machines Lab | 0 | 0 | 3 | 3 | 2 |
| 2 | ME3093 | Measurements and Instrumentation Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 1 | ME3081 | Machine Design | 0 | 0 | 3 | 3 | 2 |
| 2 | ME3083 | CAD Lab | 0 | 0 | 3 | 3 | 2 |
| 3 | TP3081 | CAT-I | 0 | 0 | 2 | 2 | 1 |
| Total of Practical & Sessional | | | | | | 14 | 9 |
| Semester Total | | | | | | 33 | 28 |

SEMESTER-VI

| Theory | | | | | | | |
|---|-------------|--|---|---|---|-----------|-----------|
| SI No. | Course Code | Subject | L | T | P | Total | Credit |
| 1 | ME3002 | Refrigeration & Air Conditioning | 3 | 0 | 0 | 3 | 3 |
| 2 | ME3004 | Metal Cutting & Cutting Tool Design | 3 | 1 | 0 | 4 | 4 |
| 3 | ME3006 | Metrology, Quality Control and Reliability | 3 | 0 | 0 | 3 | 3 |
| 4 | ME3008 | Industrial Engineering & Management | 3 | 0 | 0 | 3 | 3 |
| 5 | ME3012 | Design of Machine Elements | 3 | 0 | 0 | 3 | 3 |
| 6 | | Institute Elective-II | 3 | 0 | 0 | 3 | 3 |
| Total of Theory | | | | | | 19 | 19 |
| Practical | | | | | | | |
| 1 | ME3092 | IC Engines & RAC Lab | 0 | 0 | 3 | 3 | 2 |
| 2 | ME3094 | Computational Technique Practice lab | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 1 | ME3082 | Metal Cutting & Cutting Tool Design | 0 | 0 | 3 | 3 | 2 |
| 2 | ME3084 | Computer Aided Design and Analysis | 0 | 0 | 3 | 3 | 2 |
| 3 | TP3082 | CAT-II | 0 | 0 | 2 | 2 | 1 |
| Total of Practical & Sessional | | | | | | 14 | 9 |
| Semester Total | | | | | | 33 | 28 |

SEMESTER-VII

| Theory | | | | | | | |
|---|-------------|--|---|---|---|-----------|-----------|
| SI No. | Course Code | Subject | L | T | P | Total | Credit |
| 1 | | Department Elective-I | 3 | 0 | 0 | 3 | 3 |
| 2 | | Department Elective-II/Open Elective | 3 | 0 | 0 | 3 | 3 |
| 3 | ME6103 | Metal Forming and Metal Casting | 3 | 1 | 0 | 4 | 4 |
| 4 | ME6107 | Advanced Manufacturing and Fabrication Processes | 3 | 1 | 0 | 4 | 4 |
| Total of Theory | | | | | | 14 | 14 |
| Practical | | | | | | | |
| 1 | ME4091 | Advanced Manufacturing Process Lab | 0 | 0 | 3 | 3 | 2 |
| 2 | ME6193 | CIM Lab – I | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 1 | ME4081 | Project Preparation | 0 | 0 | 6 | 6 | 3 |
| 2 | ME4083 | Practical Training | - | - | - | 0 | 2 |
| Total of Practical & Sessional | | | | | | 12 | 9 |
| Semester Total | | | | | | 26 | 23 |

SEMESTER-VIII

| Theory | | | | | | | |
|---|-------------|-----------------------------------|---|---|---|-----------|-----------|
| SI No. | Course Code | Subject | L | T | P | Total | Credit |
| 1 | ME6104 | Metrology and Quality Control | 3 | 1 | 0 | 4 | 4 |
| 2 | ME6102 | CNC & Adaptive Control | 3 | 1 | 0 | 4 | 4 |
| 3 | ME6144 | Advanced Materials and Processing | 3 | 0 | 0 | 3 | 3 |
| 4 | ME6106 | Optimization Techniques | 3 | 1 | 0 | 4 | 4 |
| Total of Theory | | | | | | 15 | 15 |
| Practical | | | | | | | |
| 1 | ME6194 | CIM Lab – II | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 1 | ME4082 | Project | 0 | 0 | 9 | 9 | 5 |
| 2 | ME4084 | Seminar | 0 | 0 | 3 | 3 | 2 |
| 3 | ME4086 | Comprehensive Viva | - | - | - | - | 2 |
| Total of Practical & Sessional | | | | | | 15 | 11 |
| Semester Total | | | | | | 30 | 26 |

SEMESTER-IX

| Theory | | | | | | |
|---|-------------|-----------------------------------|---|---|---|-----------|
| SI No. | Course Code | Subject | L | T | P | Credit |
| 1 | ME6101 | Project Planning and Control | 3 | 1 | 0 | 4 |
| 2 | ME6109 | Robotics and Robotic Applications | 3 | 1 | 0 | 4 |
| 3 | | Department Elective-III | 3 | 0 | 0 | 3 |
| 4 | | Department Elective-IV | 3 | 0 | 0 | 3 |
| Total of Theory | | | | | | 14 |
| Practical | | | | | | |
| 1 | ME6191 | MPPE Lab | 0 | 0 | 3 | 2 |
| Sessional | | | | | | |
| 1 | ME6185 | Thesis Part-I | - | - | - | 10 |
| Total of Practical & Sessional | | | | | | 12 |
| Semester Total | | | | | | 26 |

SEMESTER-X

| Theory | | | | | | |
|---------------------------|-------------|-------------------------|---|---|---|-----------|
| SI No. | Course Code | Subject | L | T | P | Credit |
| Sessional | | | | | | |
| 1 | ME6184 | Comprehensive Viva Voce | - | - | - | 2 |
| 2 | ME6186 | Seminar | 0 | 0 | 3 | 2 |
| 3 | ME6188 | Thesis Part - II | - | - | - | 20 |
| Total of Sessional | | | | | | 24 |
| Semester Total | | | | | | 24 |

LIST OF INSTITUTE ELECTIVES

Institute Elective – I

| Sl.No. | Subject Code | Subject Name | Credit |
|--------|--------------|-------------------------|--------|
| 1. | HS2002 | Engineering Economics | 3 |
| 2. | HS2004 | Public Finance | 3 |
| 3. | HS2006 | International Economics | 3 |

Institute Elective – II

| Sl.No. | Subject Code | Subject Name | Credit |
|--------|--------------|---------------------------------|--------|
| 1. | HS3002 | Organizational Behavior | 3 |
| 2. | HS3004 | Human Resource Management | 3 |
| 3. | HS3006 | Entrepreneurship | 3 |
| 4. | HS3008 | Management Concepts & Practices | 3 |

LIST OF DEPARTMENT ELECTIVES

Department Elective-I

| Sl.No. | Subject Code | Subject Name | Credit |
|--------|--------------|-----------------------------------|--------|
| 1. | ME4061 | Operations Research | 3 |
| 2. | ME4063 | Metal Forming Processes | 3 |
| 3. | ME4065 | Modeling and Simulation | 3 |
| 4. | ME4067 | Machine Tool Technology | 3 |
| 5. | ME4069 | Computer Integrated Manufacturing | 3 |

Department Elective-II

| Sl.No. | Subject Code | Subject Name | Credit |
|--------|--------------|--|--------|
| 1. | ME4041 | Mechanical Vibration and Noise Engineering | 3 |
| 2. | ME4043 | Introduction to Composite Materials | 3 |
| 3. | ME4045 | Introduction to Finite Element Method | 3 |
| 4. | ME4047 | Tribology | 3 |
| 5. | ME4049 | Advanced Mechanics of Solids | 3 |

Department Elective-III

| Sl.No. | Subject Code | Subject Name | Credit |
|--------|--------------|--------------------------------------|--------|
| 1. | ME6126 | Flexible Manufacturing Systems | 3 |
| 2. | ME6134 | Production System Design and Control | 3 |
| 3. | ME6142 | Quality Engineering and Management | 3 |
| 4. | ME6136 | Competitive Manufacturing Strategies | 3 |

Department Elective-IV

| Sl.No. | Subject Code | Subject Name | Credit |
|--------|--------------|---|--------|
| 1. | ME6128 | Artificial Intelligence for Manufacturing | 3 |
| 2. | ME6148 | Work Science | 3 |
| 3. | ME6152 | Materials Management | 3 |
| 4. | ME6154 | Mechatronics | 3 |

SCHOOL OF MECHANICAL ENGINEERING

Course Structure for B.Tech in Mechanical Engineering and M.Tech in Thermal Engineering

SEMESTER-III

| Theory | | | | | | | |
|---|--------------------|-----------------------------------|----------|----------|----------|--------------|---------------|
| Sl No. | Course Code | Subject | L | T | P | Total | Credit |
| 1 | ME2001 | Engineering Thermodynamics | 3 | 1 | 0 | 4 | 4 |
| 2 | ME2003 | Fluid Mechanics | 3 | 0 | 0 | 3 | 3 |
| 3 | ME2005 | Mechanics of Solids | 3 | 1 | 0 | 4 | 4 |
| 4 | ME2007 | Material Science and Engineering | 3 | 0 | 0 | 3 | 3 |
| 5 | ME2009 | Kinematics & Kinetics of Machines | 3 | 0 | 0 | 3 | 3 |
| 6 | MA2001 | Mathematics-III | 3 | 1 | 0 | 4 | 4 |
| Total of Theory | | | | | | 21 | 21 |
| Practical | | | | | | | |
| 1 | ME2091 | Fluid Mechanics Lab | 0 | 0 | 3 | 3 | 2 |
| 2 | ME2093 | Material Testing Lab | 0 | 0 | 3 | 3 | 2 |
| 3 | ME2095 | Kinematic Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 1 | ME2081 | Machine Drawing | 0 | 0 | 3 | 3 | 2 |
| Total of Practical & Sessional | | | | | | 12 | 8 |
| Semester Total | | | | | | 33 | 29 |

SEMESTER-IV

| Theory | | | | | | | |
|---|--------------------|---|----------|----------|----------|--------------|---------------|
| Sl No. | Course Code | Subject | L | T | P | Total | Credit |
| 1 | ME2002 | Machine Dynamics | 3 | 0 | 0 | 3 | 3 |
| 2 | ME2004 | Heat Transfer | 3 | 1 | 0 | 4 | 4 |
| 3 | ME2006 | Basic Manufacturing Processes | 3 | 0 | 0 | 3 | 3 |
| 4 | EE2006 | Introduction to Electrical Machines and Power Electronics | 3 | 0 | 0 | 3 | 3 |
| 5 | MA2004 | Numerical Methods | 3 | 1 | 0 | 4 | 4 |
| 6 | CH2001 | Environmental Science | 2 | 0 | 0 | 2 | 2 |
| Total of Theory | | | | | | 19 | 19 |
| Practical | | | | | | | |
| 1 | ME2092 | Machine Dynamics Lab | 0 | 0 | 3 | 3 | 2 |
| 2 | ME2094 | Heat Transfer Lab | 0 | 0 | 3 | 3 | 2 |
| 3 | EE2098 | Electrical Machines and Power Electronics Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 1 | ME2082 | Manufacturing Practice | 0 | 0 | 3 | 3 | 2 |
| 2 | HS2081 | Language Lab | 0 | 0 | 2 | 2 | 1 |
| Total of Practical & Sessional | | | | | | 14 | 9 |
| Semester Total | | | | | | 33 | 28 |

SEMESTER-V

| Theory | | | | | | | |
|---|-------------|--|---|---|---|-----------|-----------|
| Sl No. | Course Code | Subject | L | T | P | Total | Credit |
| 1 | ME3001 | Fluid Dynamics & Hydraulic Machines | 3 | 1 | 0 | 4 | 4 |
| 2 | ME3003 | Internal Combustion Engines & Gas Turbines | 3 | 0 | 0 | 3 | 3 |
| 3 | ME3005 | Mechanical Measurements and Control | 3 | 0 | 0 | 3 | 3 |
| 4 | ME3007 | Manufacturing Processes & Design | 3 | 0 | 0 | 3 | 3 |
| 5 | ME3009 | Fundamentals of Machine Design | 3 | 0 | 0 | 3 | 3 |
| 6 | | Institute Elective-I | 3 | 0 | 0 | 3 | 3 |
| Total of Theory | | | | | | 19 | 19 |
| Practical | | | | | | | |
| 1 | ME3091 | Hydraulic Machines Lab | 0 | 0 | 3 | 3 | 2 |
| 2 | ME3093 | Measurements and Instrumentation Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 1 | ME3081 | Machine Design | 0 | 0 | 3 | 3 | 2 |
| 2 | ME3083 | CAD Lab | 0 | 0 | 3 | 3 | 2 |
| 3 | TP3081 | CAT-I | 0 | 0 | 2 | 2 | 1 |
| Total of Practical & Sessional | | | | | | 14 | 9 |
| Semester Total | | | | | | 33 | 28 |

SEMESTER-VI

| Theory | | | | | | | |
|---|-------------|--|---|---|---|-----------|-----------|
| Sl No. | Course Code | Subject | L | T | P | Total | Credit |
| 1 | ME3002 | Refrigeration & Air Conditioning | 3 | 0 | 0 | 3 | 3 |
| 2 | ME3004 | Metal Cutting & Cutting Tool Design | 3 | 1 | 0 | 4 | 4 |
| 3 | ME3006 | Metrology, Quality Control and Reliability | 3 | 0 | 0 | 3 | 3 |
| 4 | ME3008 | Industrial Engineering & Management | 3 | 0 | 0 | 3 | 3 |
| 5 | ME3012 | Design of Machine Elements | 3 | 0 | 0 | 3 | 3 |
| 6 | | Institute Elective-II | 3 | 0 | 0 | 3 | 3 |
| Total of Theory | | | | | | 19 | 19 |
| Practical | | | | | | | |
| 1 | ME3092 | IC Engines & RAC Lab | 0 | 0 | 3 | 3 | 2 |
| 2 | ME3094 | Computational Technique Practice lab | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 1 | ME3082 | Metal Cutting & Cutting Tool Design | 0 | 0 | 3 | 3 | 2 |
| 2 | ME3084 | Computer Aided Design and Analysis | 0 | 0 | 3 | 3 | 2 |
| 3 | TP3082 | CAT-II | 0 | 0 | 2 | 2 | 1 |
| Total of Practical & Sessional | | | | | | 14 | 9 |
| Semester Total | | | | | | 33 | 28 |

SEMESTER-VII

| Theory | | | | | | | |
|---|-------------|--------------------------------------|---|---|---|-----------|-----------|
| Sl No. | Course Code | Subject | L | T | P | Total | Credit |
| 1 | | Department Elective-I | 3 | 0 | 0 | 3 | 3 |
| 2 | | Department Elective-II/Open Elective | 3 | 0 | 0 | 3 | 3 |
| 3 | ME4003 | Power Plant Engineering | 3 | 0 | 0 | 3 | 3 |
| 4 | ME6201 | Advanced Fluid Mechanics | 3 | 1 | 0 | 4 | 4 |
| 5 | ME6232 | Non-Conventional Energy Sources | 3 | 1 | 0 | 4 | 4 |
| Total of Theory | | | | | | 17 | 17 |
| Practical | | | | | | | |
| 1 | ME6293 | Engineering Software Lab.-I | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 1 | ME4081 | Project Preparation | 0 | 0 | 6 | 6 | 3 |
| 2 | ME4083 | Practical Training | 0 | 0 | 0 | 0 | 2 |
| Total of Practical & Sessional | | | | | | 9 | 7 |
| Semester Total | | | | | | 26 | 24 |

SEMESTER-VIII

| Theory | | | | | | | |
|---|-------------|--|---|---|---|-----------|-----------|
| Sl No. | Course Code | Subject | L | T | P | Total | Credit |
| 1 | | Department Elective-III/ Open Elective | 3 | 0 | 0 | 3 | 3 |
| 2 | ME6204 | Thermal Systems Design & Optimization | 3 | 1 | 0 | 4 | 4 |
| 3 | ME6206 | Computational Heat and Fluid Flow | 3 | 0 | 0 | 3 | 3 |
| | ME6208 | Theory of Combustion & Emission | 3 | 1 | 0 | 4 | 4 |
| Total of Theory | | | | | | 14 | 14 |
| Practical | | | | | | | |
| 1 | ME6294 | Engineering Software Lab.-II | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 1 | ME4082 | Project | 0 | 0 | 9 | 9 | 5 |
| 2 | ME4084 | Seminar | 0 | 0 | 3 | 3 | 2 |
| 3 | ME4086 | Comprehensive Viva | - | - | - | - | 2 |
| Total of Practical & Sessional | | | | | | 15 | 11 |
| Semester Total | | | | | | 29 | 25 |

SEMESTER-IX

| Theory | | | | | | |
|---|--------------------|---|----------|----------|----------|---------------|
| Sl No. | Course Code | Subject | L | T | P | Credit |
| 1 | ME6207 | Finite Element Method in Thermal Analysis | 3 | 1 | 0 | 4 |
| 2 | ME6205 | Advanced Heat and Mass Transfer | 3 | 1 | 0 | 4 |
| 3 | PG | Advanced Computational Heat Transfer | 3 | 0 | 0 | 3 |
| 4 | | Department Elective-IV | 3 | 0 | 0 | 3 |
| Total of Theory | | | | | | 14 |
| Practical | | | | | | |
| 1 | ME6291 | Thermal Engineering Lab.-I | 0 | 0 | 3 | 2 |
| Sessional | | | | | | |
| 1 | ME6285 | Thesis Part-I | - | - | - | 10 |
| Total of Practical & Sessional | | | | | | 12 |
| Semester Total | | | | | | 26 |

SEMESTER-X

| Theory | | | | | | |
|---------------------------|--------------------|-------------------------|----------|----------|----------|---------------|
| Sl No. | Course Code | Subject | L | T | P | Credit |
| Sessional | | | | | | |
| 1 | ME6284 | Comprehensive Viva Voce | - | - | - | 2 |
| 2 | ME6286 | Seminar | 0 | 0 | 3 | 2 |
| 3 | ME6288 | Thesis Part – II | - | - | - | 20 |
| Total of Sessional | | | | | | 24 |
| Semester Total | | | | | | 24 |

LIST OF INSTITUTE ELECTIVES

Institute Elective – I

| Sl.No. | Subject Code | Subject Name | Credit |
|--------|--------------|-------------------------|--------|
| 1. | HS2002 | Engineering Economics | 3 |
| 2. | HS2004 | Public Finance | 3 |
| 3. | HS2006 | International Economics | 3 |

Institute Elective – II

| Sl.No. | Subject Code | Subject Name | Credit |
|--------|--------------|---------------------------------|--------|
| 1. | HS3002 | Organizational Behavior | 3 |
| 2. | HS3004 | Human Resource Management | 3 |
| 3. | HS3006 | Entrepreneurship | 3 |
| 4. | HS3008 | Management Concepts & Practices | 3 |

LIST OF DEPARTMENT ELECTIVES

Department Elective-I

| Sl.No. | Subject Code | Subject Name | Credit |
|--------|--------------|--|--------|
| 1. | ME4021 | Automobile Engineering | 3 |
| 2. | ME4023 | Gas Dynamics & Jet Propulsion | 3 |
| 3. | ME4025 | Computational Fluid Dynamics | 3 |
| 4. | ME4027 | Micro and Nano Fluidies | 3 |
| 5. | ME4029 | Alternative Fuels and Renewable Energy | 3 |

Department Elective-II

| Sl.No. | Subject Code | Subject Name | Credit |
|--------|--------------|--|--------|
| 1. | ME4041 | Mechanical Vibration and Noise Engineering | 3 |
| 2. | ME4043 | Introduction to Composite Materials | 3 |
| 3. | ME4045 | Introduction to Finite Element Method | 3 |
| 4. | ME4047 | Tribology | 3 |
| 5. | ME4049 | Advanced Mechanics of Solids | 3 |

Department Elective-III

| Sl.No. | Subject Code | Subject Name | Credit |
|--------|--------------|------------------------------------|--------|
| 1. | ME6222 | Advanced Turbo machinery | 3 |
| 2. | ME6224 | Micro Scale Heat Transfer | 3 |
| 3. | ME6226 | Bio Heat Transfer | 3 |
| 4. | ME6228 | Energy Conservation and Management | 3 |
| 5. | ME6234 | Advanced Thermal Control Systems | 3 |
| 6. | ME6236 | Cryogenic Engineering | 3 |

Department Elective-IV

| Sl.No. | Subject Code | Subject Name | Credit |
|--------|--------------|---|--------|
| 1. | ME6223 | Alternative Fuels for IC Engines | 3 |
| 2. | ME6225 | Analytical Methods in Heat Transfer | 3 |
| 3. | ME6227 | Heat Exchanger Analysis and Design | 3 |
| 4. | ME6229 | Introduction to Nano-Technology | 3 |
| 5. | ME6231 | Experimental Methods in Thermal Engineering | 3 |
| 6. | ME6235 | Environmental Pollution and Control | 3 |

SCHOOL OF MECHANICAL ENGINEERING

Course Structure for B.Tech in Mechanical Engineering and M.Tech in Machine Design

SEMESTER-III

| Theory | | | | | | | |
|---|-------------|-----------------------------------|---|---|---|-----------|-----------|
| Sl No. | Course Code | Subject | L | T | P | Total | Credit |
| 1 | ME2001 | Engineering Thermodynamics | 3 | 1 | 0 | 4 | 4 |
| 2 | ME2003 | Fluid Mechanics | 3 | 0 | 0 | 3 | 3 |
| 3 | ME2005 | Mechanics of Solids | 3 | 1 | 0 | 4 | 4 |
| 4 | ME2007 | Material Science and Engineering | 3 | 0 | 0 | 3 | 3 |
| 5 | ME2009 | Kinematics & Kinetics of Machines | 3 | 0 | 0 | 3 | 3 |
| 6 | MA2001 | Mathematics-III | 3 | 1 | 0 | 4 | 4 |
| Total of Theory | | | | | | 21 | 21 |
| Practical | | | | | | | |
| 1 | ME2091 | Fluid Mechanics Lab | 0 | 0 | 3 | 3 | 2 |
| 2 | ME2093 | Material Testing Lab | 0 | 0 | 3 | 3 | 2 |
| 3 | ME2095 | Kinematics Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 1 | ME2081 | Machine Drawing | 0 | 0 | 3 | 3 | 2 |
| Total of Practical & Sessional | | | | | | 12 | 8 |
| Semester Total | | | | | | 33 | 29 |

SEMESTER-IV

| Theory | | | | | | | |
|---|-------------|---|---|---|---|-----------|-----------|
| Sl No. | Course Code | Subject | L | T | P | Total | Credit |
| 1 | ME2002 | Machine Dynamics | 3 | 0 | 0 | 3 | 3 |
| 2 | ME2004 | Heat Transfer | 3 | 1 | 0 | 4 | 4 |
| 3 | ME2006 | Basic Manufacturing Processes | 3 | 0 | 0 | 3 | 3 |
| 4 | EE2006 | Introduction to Electrical Machines and Power Electronics | 3 | 0 | 0 | 3 | 3 |
| 5 | MA2004 | Numerical Methods | 3 | 1 | 0 | 4 | 4 |
| 6 | CH2001 | Environmental Science | 2 | 0 | 0 | 2 | 2 |
| Total of Theory | | | | | | 19 | 19 |
| Practical | | | | | | | |
| 1 | ME2092 | Machine Dynamics Lab | 0 | 0 | 3 | 3 | 2 |
| 2 | ME2094 | Heat Transfer Lab | 0 | 0 | 3 | 3 | 2 |
| 3 | EE2098 | Electrical Machines and Power Electronics Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 1 | ME2082 | Manufacturing Practice | 0 | 0 | 3 | 3 | 2 |
| 2 | HS2081 | Language Lab | 0 | 0 | 2 | 2 | 1 |
| Total of Practical & Sessional | | | | | | 14 | 9 |
| Semester Total | | | | | | 33 | 28 |

SEMESTER-V

| Theory | | | | | | | |
|---|-------------|--|---|---|---|-----------|-----------|
| SI No. | Course Code | Subject | L | T | P | Total | Credit |
| 1 | ME3001 | Fluid Dynamics & Hydraulic Machines | 3 | 1 | 0 | 4 | 4 |
| 2 | ME3003 | Internal Combustion Engines & Gas Turbines | 3 | 0 | 0 | 3 | 3 |
| 3 | ME3005 | Mechanical Measurements and Control | 3 | 0 | 0 | 3 | 3 |
| 4 | ME3007 | Manufacturing Processes & Design | 3 | 0 | 0 | 3 | 3 |
| 5 | ME3009 | Fundamentals of Machine Design | 3 | 0 | 0 | 3 | 3 |
| 6 | | Institute Elective-I | 3 | 0 | 0 | 3 | 3 |
| Total of Theory | | | | | | 19 | 19 |
| Practical | | | | | | | |
| 1 | ME3091 | Hydraulic Machines Lab | 0 | 0 | 3 | 3 | 2 |
| 2 | ME3093 | Measurements and Instrumentation Lab | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 1 | ME3081 | Machine Design | 0 | 0 | 3 | 3 | 2 |
| 2 | ME3083 | CAD Lab | 0 | 0 | 3 | 3 | 2 |
| 3 | TP3081 | CAT-I | 0 | 0 | 2 | 2 | 1 |
| Total of Practical & Sessional | | | | | | 14 | 9 |
| Semester Total | | | | | | 33 | 28 |

SEMESTER-VI

| Theory | | | | | | | |
|---|-------------|--|---|---|---|-----------|-----------|
| SI No. | Course Code | Subject | L | T | P | Total | Credit |
| 1 | ME3002 | Refrigeration & Air Conditioning | 3 | 0 | 0 | 3 | 3 |
| 2 | ME3004 | Metal Cutting & Cutting Tool Design | 3 | 1 | 0 | 4 | 4 |
| 3 | ME3006 | Metrology, Quality Control and Reliability | 3 | 0 | 0 | 3 | 3 |
| 4 | ME3008 | Industrial Engineering & Management | 3 | 0 | 0 | 3 | 3 |
| 5 | ME3012 | Design of Machine Elements | 3 | 0 | 0 | 3 | 3 |
| 6 | | Institute Elective-II | 3 | 0 | 0 | 3 | 3 |
| Total of Theory | | | | | | 19 | 19 |
| Practical | | | | | | | |
| 1 | ME3092 | IC Engines & RAC Lab | 0 | 0 | 3 | 3 | 2 |
| 2 | ME3094 | Computational Technique Practice lab | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 1 | ME3082 | Metal Cutting & Cutting Tool Design | 0 | 0 | 3 | 3 | 2 |
| 2 | ME3084 | Computer Aided Design and Analysis | 0 | 0 | 3 | 3 | 2 |
| 3 | TP3082 | CAT-II | 0 | 0 | 2 | 2 | 1 |
| Total of Practical & Sessional | | | | | | 14 | 9 |
| Semester Total | | | | | | 33 | 28 |

SEMESTER-VII

| Theory | | | | | | | |
|---|-------------|---|---|---|---|-----------|-----------|
| Sl No. | Course Code | Subject | L | T | P | Total | Credit |
| 1 | | Department Elective-I | 3 | 0 | 0 | 3 | 3 |
| 2 | | Department Elective-II/Open Elective | 3 | 0 | 0 | 3 | 3 |
| 3 | ME6301 | Theory of Elasticity and Plasticity | 3 | 1 | 0 | 4 | 4 |
| 4 | ME6303 | Advanced Mechanics of Solids and Structures | 3 | 1 | 0 | 4 | 4 |
| Total of Theory | | | | | | 14 | 14 |
| Practical | | | | | | | |
| 1 | ME4091 | Advanced Manufacturing Process Lab | 0 | 0 | 3 | 3 | 2 |
| 2 | ME6393 | Advanced Mechanical Design Lab-I | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 1 | ME4081 | Project Preparation | 0 | 0 | 6 | 6 | 3 |
| 2 | ME4083 | Practical Training | 0 | 0 | 0 | 0 | 2 |
| Total of Practical & Sessional | | | | | | 12 | 9 |
| Semester Total | | | | | | 26 | 23 |

SEMESTER-VIII

| Theory | | | | | | | |
|---|-------------|---|---|---|---|-----------|-----------|
| Sl No. | Course Code | Subject | L | T | P | Total | Credit |
| 1 | ME6302 | Engineering Tribology | 3 | 1 | 0 | 4 | 4 |
| 2 | ME6304 | Finite Element Method for Design | 3 | 1 | 0 | 4 | 4 |
| 3 | ME6306 | Analysis and Performance of Composite Materials | 3 | 1 | 0 | 4 | 4 |
| 4 | ME6329 | Theory of Advanced Mechanisms and Machines | 3 | 0 | 0 | 3 | 3 |
| Total of Theory | | | | | | 15 | 15 |
| Practical | | | | | | | |
| 1 | ME6392 | Advanced Mechanical Design Lab-II | 0 | 0 | 3 | 3 | 2 |
| Sessional | | | | | | | |
| 1 | ME4082 | Project | 0 | 0 | 9 | 9 | 5 |
| 2 | ME4084 | Seminar | 0 | 0 | 3 | 3 | 2 |
| 3 | ME4086 | Comprehensive Viva | 0 | 0 | 0 | 0 | 2 |
| Total of Practical & Sessional | | | | | | 15 | 11 |
| Semester Total | | | | | | 30 | 26 |

SEMESTER-IX

| Theory | | | | | | |
|---|--------------------|---|----------|----------|----------|---------------|
| Sl No. | Course Code | Subject | L | T | P | Credit |
| 1 | ME6305 | Noise and Vibration control Engineering | 3 | 1 | 0 | 4 |
| 2 | ME6321 | Fracture and Fatigue based Design | 3 | 0 | 0 | 3 |
| 3 | | Department Elective-III | 3 | 0 | 0 | 3 |
| 4 | | Department Elective-IV | 3 | 0 | 0 | 3 |
| Total of Theory | | | | | | 13 |
| Practical | | | | | | |
| 1 | ME6391 | Numerical Simulation Lab | 0 | 0 | 3 | 2 |
| Sessional | | | | | | |
| 1 | ME6385 | Thesis Part-I | - | - | - | 10 |
| Total of Practical & Sessional | | | | | | 12 |
| Semester Total | | | | | | 25 |

SEMESTER-X

| Theory | | | | | | |
|---------------------------|--------------------|-------------------------|----------|----------|----------|---------------|
| Sl No. | Course Code | Subject | L | T | P | Credit |
| Practical | | | | | | |
| Sessional | | | | | | |
| 1 | ME6386 | Seminar | 0 | 0 | 3 | 2 |
| 2 | ME6384 | Comprehensive Viva Voce | - | - | - | 2 |
| 3 | ME6388 | Thesis Part - II | | | | 20 |
| Total of Sessional | | | | | | 24 |
| Semester Total | | | | | | 24 |

LIST OF INSTITUTE ELECTIVES

Institute Elective – I

| Sl.No. | Subject Code | Subject Name | Credit |
|--------|--------------|-------------------------|--------|
| 1. | HS2002 | Engineering Economics | 3 |
| 2. | HS2004 | Public Finance | 3 |
| 3. | HS2006 | International Economics | 3 |

Institute Elective – II

| Sl.No. | Subject Code | Subject Name | Credit |
|--------|--------------|---------------------------------|--------|
| 1. | HS3002 | Organizational Behavior | 3 |
| 2. | HS3004 | Human Resource Management | 3 |
| 3. | HS3006 | Entrepreneurship | 3 |
| 4. | HS3008 | Management Concepts & Practices | 3 |

LIST OF DEPARTMENT ELECTIVES

Department Elective-I

| Sl.No. | Subject Code | Subject Name | Credit |
|--------|--------------|--|--------|
| 1. | ME4041 | Mechanical Vibration and Noise Engineering | 3 |
| 2. | ME4043 | Introduction to Composite Materials | 3 |
| 3. | ME4045 | Introduction to Finite Element Method | 3 |
| 4. | ME4047 | Tribology | 3 |
| 5. | ME4049 | Advanced Mechanics of Solids | 3 |

Department Elective-II

| Sl.No. | Subject Code | Subject Name | Credit |
|--------|--------------|--|--------|
| 1. | ME4021 | Automobile Engineering | 3 |
| 2. | ME4023 | Gas Dynamics & Jet Propulsion | 3 |
| 3. | ME4025 | Computational Fluid Dynamics | 3 |
| 4. | ME4027 | Micro and Nano Fluidics | 3 |
| 5. | ME4029 | Alternative Fuels and Renewable Energy | 3 |

Department Elective-III

| Sl.No. | Subject Code | Subject Name | Credit |
|--------|--------------|--|--------|
| 1. | ME6331 | Advanced Control Theory | 3 |
| 2. | ME6323 | Experimental Stress Analysis | 3 |
| 3. | ME6325 | Theory of Plates and Shells | 3 |
| 4. | ME6327 | Simulation of Dynamic Systems | 3 |
| 5. | ME6334 | Soft Computing and Optimization Techniques | 3 |

Department Elective-IV

| Sl.No. | Subject Code | Subject Name | Credit |
|--------|--------------|---|--------|
| 1. | ME6322 | Analysis of Functionally Graded Materials | 3 |
| 2. | ME6324 | MEMS and NEMS | 3 |
| 3. | ME6326 | Design Optimization | 3 |
| 4. | ME6328 | Dynamics of Rotors | 3 |
| 5. | ME6332 | Theory of Non-Linear Vibration and Shock | 3 |



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