

Indian Institute of Technology Tirupati
Dual Degree (B.Tech & M.Tech) Curriculum : Structural Engineering
from Academic Year 2019-2020 onwards

Semester-I

| S.No. | Course Code | Course Name | Category | L-T-P-C | Course Code (prior to Jul 2022) | Senate |
|----------------------|-------------------|--|-------------|--------------------|---------------------------------|---------|
| 1. | ES103M/ EA101M | Introduction to Programming/ Engineering Drawing | BET/ BES | 2-0-3-4 1-0-3-3 | ES1101/ EA1101 | 14 4 |
| 2. | CY101L/ CY102L | Physical and Theoretical Chemistry/ Organic and Inorganic Chemistry | SCY | 2-1-0-3 | CY1101/ CY1202 | 4 4 |
| 3. | ES101M | Concepts in Engineering and Design | BET | 1-0-2-2 | ID1101 | 4 |
| 4. | MA101L | Calculus | SMA | 3-1-0-4 | MA1101 | 4 |
| 5. | PH101L | Introduction to Classical Mechanics | SPH | 2-1-0-3 | PH1101 | 4 |
| 6. | PH103P/ CY103P | Physics Laboratory/ Chemistry Laboratory | SPH/ SCY | 0-0-3-2 | PH1103/ CY1204 | 4 4 |
| 7. | EA101P | Workshop-I | BES | 0-0-3-2 | EA1103 | 4 |
| 8. | HS10XN | Language Course (Pass/Fail) | HPF | 2-0-0-2 | HS110X | |
| Total Credits | | | | | 22/21 | |

Approved Language Courses

| Course Code | Course Name | Category | L-T-P-C | Course Code (prior to Jul 2022) | Senate |
|-------------|----------------------------------|----------|---------|---------------------------------|--------|
| HS101N | Proficiency in English | HPF | 2-0-0-2 | HS1101 | 4 |
| HS102N | Basic Course in German | | | HS1103 | 6 |
| HS103N | Basic Course in Japanese | | | HS1105 | 6 |
| HS104N | Basic Course in Sanskrit | | | HS1107 | 6 |
| HS105N | Basic Course in Spanish Language | | | HS1109 | 9 |

Semester-II

| S.No. | Course Code | Course Name | Category | L-T-P-C | Course Code (prior to Jul 2022) | Senate |
|----------------------|-------------------|--|-------------|--------------------|---------------------------------|---------|
| 1. | ES103M/ EA101M | Introduction to Programming/ Engineering Drawing | BET/ BES | 2-0-3-4 1-0-3-3 | ES1101/ EA1101 | 14 4 |
| 2. | CY101L/ CY102L | Physical and Theoretical Chemistry/ Organic and Inorganic Chemistry | SCY | 2-1-0-3 | CY1101/ CY1202 | 4 4 |
| 3. | ES201L | Engineering Mechanics | BET | 3-1-0-4 | ES2101 | 4 |
| 4. | MA102L | Differential Equations and Matrices | SMA | 3-1-0-4 | MA1202 | 4 |
| 5. | PH102L | Introduction to Electrodynamics and Quantum Mechanics | SPH | 2-1-0-3 | PH1202 | 4 |
| 6. | PH103P/ CY103P | Physics Laboratory/ Chemistry Laboratory | SPH/SCY | 0-0-3-2 | PH1103/ CY1204 | 4 4 |
| 7. | EA102P | Workshop-II | BES | 0-0-3-2 | EA1202 | 4 |
| Total Credits | | | | | 21/22 | |

Indian Institute of Technology Tirupati
Dual Degree (B.Tech & M.Tech) Curriculum : Structural Engineering
from Academic Year 2019-2020 onwards

Semester-III

| S. No. | Course Code | Course Name | Category | L-T-P-C | Course Code (prior to Jul 2022) | Senate |
|----------------------|-------------------|--|-------------|--------------------|---------------------------------|--------|
| 1. | CE201L | Strength of Materials | PMT | 3-1-0-4 | CE2101 | 8 |
| 2. | CE203L | Surveying | PMT | 3-0-0-3 | CE2103 | 8 |
| 3. | CE202L | Civil Engineering Materials and Construction | PMT | 3-0-0-3 | CE2105 | 8 |
| 4. | CE203P | Surveying Practical | PML | 0-0-3-2 | CE2191 | 8 |
| 5. | ES102L | Basic Electrical Engineering | BET | 3-1-0-4 | ES1201 | 8 |
| 6. | ES202L/ ES203L | Ecology and Environment/ Life Sciences | BET/ SLS | 2-0-0-2 2-0-0-2 | ES2103/ BS2101 | 8 9 |
| 7. | HSE1 | Humanities Elective-1 | HSS | 3-0-0-3 | | |
| 8. | MAE1 | Mathematics Elective-1 | SMA | 3-0-0-3 | | |
| Total Credits | | | | 24 | | |

Semester-IV

| S.No. | Course Code | Course Name | Category | L-T-P-C | Course Code (prior to Jul 2022) | Senate |
|----------------------|-------------------|---|-------------|--------------------|---------------------------------|--------|
| 1. | ES202L/ ES203L | Ecology and Environment/ Life Sciences | BET/ SLS | 2-0-0-2 2-0-0-2 | ES2103/ BS2101 | 8 9 |
| 2. | CE206L | Structural Analysis | PMT | 3-1-0-4 | CE2202 | 8 |
| 3. | CE204L | Geology and Soil Mechanics | PMT | 3-1-0-4 | CE2204 | 8 |
| 4. | CE207L | Fluid Mechanics and Hydraulics | PMT | 3-1-0-4 | CE2206 | 8 |
| 5. | CE206P | Structural Engineering Laboratory | PML | 0-0-3-2 | CE2292 | 8 |
| 6. | CE205P | Building Drawing | PML | 0-0-3-2 | CE2294 | 8 |
| 7. | HSE2 | Humanities Elective-2 | HSS | 3-0-0-3 | | |
| 8. | MAE2 | Mathematics Elective-2 | SMA | 3-0-0-3 | | |
| Total Credits | | | | 24 | | |

Indian Institute of Technology Tirupati
Dual Degree (B.Tech & M.Tech) Curriculum : Structural Engineering
from Academic Year 2019-2020 onwards

Semester-V

| S. No. | Course Code | Course Name | Category | L-T-P-C | Course Code (prior to Jul 2022) | Senate |
|----------------------|-------------|---|----------|-----------|---------------------------------|--------|
| 1. | CE301L | Basic Structural Steel Design | PMT | 3-1-0-4 | CE3101 | 8 |
| 2. | CE302L | Water Resources Engineering | PMT | 3-1-0-4 | CE3103 | 8 |
| 3. | CE303L | Environmental Engineering | PMT | 3-1-0-4 | CE3105 | 8 |
| 4. | CE305P | Hydraulics and Environmental Engineering Laboratory | PML | 0-0-3-2 | CE3191 | 8 |
| 5. | CE304P | Building Materials Laboratory | PML | 0-0-3-2 | CE3193 | 8 |
| 6. | FRE1 | Free Elective 1 | FRE | 3-0-0-3 | | |
| 7. | FRE2 | Free Elective 2 | FRE | 3-0-0-3 | | |
| Total Credits | | | | 22 | | |

Semester-VI

| S.No. | Course Code | Course Name | Category | L-T-P-C | Course Code (prior to Jul 2022) | Senate |
|----------------------|-------------|---------------------------------------|----------|-----------|---------------------------------|--------|
| 1. | CE306L | Basic Reinforced Concrete Design | PMT | 3-1-0-4 | CE3202 | 8 |
| 2. | CE307L | Geotechnical Engineering | PMT | 3-1-0-4 | CE3204 | 8 |
| 3. | CE308L | Transportation Engineering | PMT | 3-1-0-4 | CE3206 | 8 |
| 4. | CE308P | Transportation Engineering Laboratory | PML | 0-0-3-2 | CE3292 | 8 |
| 5. | DPE1 | Department Elective-1 | PMT | 3-0-0-3 | | |
| 6. | HSE3 | Humanities Elective-3 | HSS | 3-0-0-3 | | |
| SUMMER | | | | | | |
| 7. | CE391G | Industrial/Research Internship | PIT | ---2 | IT3202 | 1 |
| Total Credits | | | | 22 | | |

Indian Institute of Technology Tirupati
Dual Degree (B.Tech & M.Tech) Curriculum : Structural Engineering
from Academic Year 2019-2020 onwards

Semester-VII

| S. No. | Course Code | Course Name | Category | L-T-P-C | Course Code (prior to Jul 2022) | Senate |
|----------------------|-------------|--|----------|-----------|---------------------------------|--------|
| 1. | CE401L | Estimation and Construction Management | PMT | 3-1-0-4 | CE4101 | 8 |
| 2. | CE402L | Functional Design of Buildings | PMT | 2-0-0-2 | CE4103 | 8 |
| 3. | CE514L | Advanced Design of Concrete Structures | PMT | 3-0-0-3 | CE5108 | 8 |
| 4. | CE539L | Advanced Mechanics of Solids | PMT | 3-0-0-3 | CE5103 | 2 |
| 5. | DPE2 | Department Elective-2 | PMT | 3-0-0-3 | | |
| 6. | DPE3 | Department Elective-3 | PMT | 3-0-0-3 | | |
| 7. | CE493N | Industrial Lecture | PIL | 1-0-0-1 | IL4101 | 1 |
| Total Credits | | | | 19 | | |

Semester-VIII

| S. No. | Course Code | Course Name | Category | L-T-P-C | Course Code (prior to Jul 2022) | Senate |
|----------------------|-------------|--|----------|-----------|---------------------------------|--------|
| 1. | ME502L | Finite Element Method in Engineering Mechanics | PMT | 3-0-0-3 | ME5102 | 2 |
| 2. | CE515L | Advanced Design of Metal Structures | PMT | 3-0-0-3 | CE5204 | 8 |
| 3. | DPE4 | Department Elective-4 | PMT | 3-0-0-3 | | |
| 4. | DPE5 | Department Elective-5 | PMT | 3-0-0-3 | | |
| 5. | FRE3 | Free Elective-3 | FRE | 3-0-0-3 | | |
| 6. | CE516P | Advanced Structural Engineering Laboratory | PML | 0-0-3-2 | CE5193 | 8 |
| 7. | HS401L | Professional Ethics | HPE | 2-0-0-2 | HS4202 | 7 |
| Total Credits | | | | 19 | | |

Indian Institute of Technology Tirupati
Dual Degree (B.Tech & M.Tech) Curriculum : Structural Engineering
from Academic Year 2019-2020 onwards

Semester-IX

| S. No. | Course Code | Course Name | Category | L-T-P-C | Course Code (prior to Jul 2022) | Senate |
|----------------------|-------------|-----------------|----------|-----------|---------------------------------|--------|
| 1. | CE693G | Seminar | PMT | - - -1 | CE6110 | 4 |
| 2. | CE691G | Project Phase-I | PMP | - - -10 | CE6150 | 4 |
| 3. | FRE4 | Free Elective-4 | FRE | 3-0-0-3 | | |
| Total Credits | | | | 14 | | |

Semester-X

| S. No. | Course Code | Course Name | Category | L-T-P-C | Course Code (prior to Jul 2022) | Senate |
|----------------------|-------------|------------------|----------|-----------|---------------------------------|--------|
| 1. | CE692G | Project Phase-II | PMP | - - -15 | CE6250 | 4 |
| 2. | FRE5 | Free Elective-5 | FRE | 3-0-0-3 | | |
| Total Credits | | | | 18 | | |

TOTAL CREDITS: 205