# EXCEL ENGINEERING COLLEGE
## (Autonomous)

**Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai**
**Accredited by NBA and NAAC with "A+"and Recognized by UGC(2f&12B)**
**KOMARAPALAYAM - 637303**

**B.E. CIVIL ENGINEERING**
**REGULATION – 2020**
**CHOICE BASED CREDIT SYSTEM**
**I TO VIII SEMESTERS CURRICULUM**

| SEMESTER I | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sub Code** | **Course** | **Category** | **Periods/Week** | | | **C** | **Maximum Marks** | | |
| | | | **L** | **T** | **P** | | **CA** | **FE** | **Total** |
| **Theory Course (s)** | | | | | | | | | |
| 20MA102 | Mathematics - I for Building Sciences | BS | 3 | 2 | 0 | 4 | 40 | 60 | 100 |
| 20CE101 | Basics of Civil Engineering | ES | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| **Theory with Practical Course (s)** | | | | | | | | | |
| 20ENEXX | Language Elective - I* | HSS | 2 | 0 | 2 | 3 | 50 | 50 | 100 |
| 20CH102 | Chemistry for Building Sciences | BS | 3 | 0 | 2 | 4 | 50 | 50 | 100 |
| 20ME101 | Engineering Graphics | ES | 1 | 0 | 4 | 3 | 50 | 50 | 100 |
| **Practical Course (s)** | | | | | | | | | |
| 20CE102 | Civil Engineering Practices Laboratory | ES | 0 | 0 | 2 | 1 | 50 | 50 | 100 |
| **Mandatory Course (s)** | | | | | | | | | |
| 20MC101 | Induction Programme | MC | 2 Weeks | | | 0 | 100 | 0 | 100 |
| | | **Total** | **12** | **2** | **10** | **18** | **380** | **320** | **700** |
| ***Language Electives – I** | | | | | | | | | |
| 20ENE01 | Communicative English | HSS | 2 | 0 | 2 | 3 | 50 | 50 | 100 |
| 20ENE02 | Advanced Communicative English | HSS | 2 | 0 | 2 | 3 | 50 | 50 | 100 |

| SEMESTER II | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sub Code** | **Course** | **Category** | **Periods/Week** | | | **C** | **Maximum Marks** | | |
| | | | **L** | **T** | **P** | | **CA** | **FE** | **Total** |
| **Theory Course (s)** | | | | | | | | | |
| 20MA202 | Mathematics - II for Building Sciences | BS | 3 | 2 | 0 | 4 | 40 | 60 | 100 |
| 20ME201 | Engineering Mechanics | ES | 3 | 2 | 0 | 4 | 40 | 60 | 100 |
| **Theory with Practical Course (s)** | | | | | | | | | |
| 20ENEXX | Language Elective - II* | HSS | 2 | 0 | 2 | 3 | 50 | 50 | 100 |
| 20PH202 | Physics for Building Sciences | BS | 3 | 0 | 2 | 4 | 50 | 50 | 100 |
| 20CS201 | Problem Solving using Python | ES | 3 | 0 | 2 | 4 | 50 | 50 | 100 |
| **Practical Course (s)** | | | | | | | | | |
| 20CE201 | Computer Aided Building Drawing Laboratory | PC | 0 | 0 | 4 | 2 | 50 | 50 | 100 |
| **Mandatory Course (s)** | | | | | | | | | |
| 20MC201 | Environmental Sciences | MC | 2 | 0 | 0 | 0 | 100 | 0 | 100 |
| | | **Total** | **16** | **4** | **10** | **21** | **380** | **320** | **700** |
| ***Language Electives - II** | | | | | | | | | |
| 20ENE02 | Advanced Communicative English | HSS | 2 | 0 | 2 | 3 | 50 | 50 | 100 |
| 20ENE03 | Hindi | HSS | 2 | 0 | 2 | 3 | 50 | 50 | 100 |
| 20ENE04 | French | HSS | 2 | 0 | 2 | 3 | 50 | 50 | 100 |
| 20ENE05 | German | HSS | 2 | 0 | 2 | 3 | 50 | 50 | 100 |

| SEMESTER III | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sub Code** | **Course** | **Category** | **Periods/Week** | | | **C** | **Maximum Marks** | | |
| | | | **L** | **T** | **P** | | **CA** | **FE** | **Total** |
| **Theory Course (s)** | | | | | | | | | |
| 20MA301 | Transforms and Boundary Value Problems | BS | 3 | 2 | 0 | 4 | 40 | 60 | 100 |
| 20CE301 | Mechanics of Solids | ES | 3 | 2 | 0 | 4 | 40 | 60 | 100 |
| 20CE302 | Fluid Mechanics | ES | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CE303 | Engineering Geology | PC | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| **Theory with Practical Course (s)** | | | | | | | | | |
| 20CE304 | Surveying I | PC | 3 | 0 | 2 | 4 | 50 | 50 | 100 |
| 20CE305 | Construction Materials | PC | 3 | 0 | 2 | 4 | 50 | 50 | 100 |
| **Mandatory Course (s)** | | | | | | | | | |
| 20MC302 | Interpersonal Skills | MC | 0 | 0 | 2 | 0 | 100 | 0 | 100 |
| | | **Total** | **18** | **4** | **6** | **22** | **360** | **340** | **700** |

| SEMESTER IV | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sub Code** | **Course** | **Category** | **Periods/Week** | | | **C** | **Maximum Marks** | | |
| | | | **L** | **T** | **P** | | **CA** | **FE** | **Total** |
| **Theory Course (s)** | | | | | | | | | |
| 20MA401 | Numerical Analysis and Statistics | BS | 3 | 2 | 0 | 4 | 40 | 60 | 100 |
| 20CE401 | Concrete Technology | PC | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CE402 | Geotechnical Engineering I | PC | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CE403 | Strength of Materials | PC | 3 | 2 | 0 | 4 | 40 | 60 | 100 |
| **Theory with Practical Course (s)** | | | | | | | | | |
| 20CE404 | Surveying II | PC | 3 | 0 | 2 | 4 | 50 | 50 | 100 |
| 20CE405 | Applied Hydraulic Engineering | ES | 3 | 0 | 2 | 4 | 50 | 50 | 100 |
| **Practical Course (s)** | | | | | | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 20CE406 | Strength of Materials Laboratory | PC | 0 | 0 | 2 | 1 | 50 | 50 | 100 |
| **Mandatory Course (s)** | | | | | | | | | |
| 20MC401 | Soft Skills | MC | 2 | 0 | 0 | 0 | 100 | 0 | 100 |
| | | **Total** | **20** | **4** | **6** | **23** | **410** | **390** | **800** |

| **SEMESTER V** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sub Code** | **Course** | **Category** | **Periods/Week** | | | **C** | **Maximum Marks** | | |
| | | | **L** | **T** | **P** | | **CA** | **FE** | **Total** |
| **Theory Course (s)** | | | | | | | | | |
| 20CE501 | Design of Reinforced Cement Concrete Elements | PC | 3 | 2 | 0 | 4 | 40 | 60 | 100 |
| 20CE502 | Structural Analysis I | PC | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEEXX | Professional Elective-I | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20YYOXX | Open Elective-I | OE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| **Theory with Practical Course (s)** | | | | | | | | | |
| 20CE503 | Environmental Engineering I | PC | 3 | 0 | 2 | 4 | 50 | 50 | 100 |
| 20CE504 | Geotechnical Engineering II | PC | 3 | 0 | 2 | 4 | 50 | 50 | 100 |
| **Practical Course (s)** | | | | | | | | | |
| 20CE505 | Survey Camp | PC | 1 Week | | | 1 | 100 | 0 | 100 |
| | | **Total** | **18** | **2** | **4** | **22** | **360** | **340** | **700** |

| **SEMESTER VI** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sub Code** | **Course** | **Category** | **Periods/Week** | | | **C** | **Maximum Marks** | | |
| | | | **L** | **T** | **P** | | **CA** | **FE** | **Total** |
| **Theory Course (s)** | | | | | | | | | |
| 20CE601 | Design of Steel Structural Elements | PC | 3 | 2 | 0 | 4 | 40 | 60 | 100 |
| 20CE602 | Structural Analysis II | PC | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CE603 | Environmental Engineering II | PC | 3 | 0 | 0 | 3 | 40 | 60 | 100 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 20CEEXX | Professional Elective-II | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20YYOXX | Open Elective-II | OE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| **Theory with Practical Course (s)** | | | | | | | | | |
| 20CE604 | Highway Engineering | PC | 3 | 0 | 2 | 4 | 50 | 50 | 100 |
| **Employment Enhancement Course (s)** | | | | | | | | | |
| 20CE605 | Mini Project | EEC | 0 | 0 | 2 | 1 | 50 | 50 | 100 |
| 20CE606 | Internship | EEC | 2 weeks | | | 1 | 100 | 0 | 100 |
| | | **Total** | **18** | **2** | **4** | **22** | **400** | **400** | **800** |

| **SEMESTER VII** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sub Code** | **Course** | **Category** | **Periods/Week** | | | **C** | **Maximum Marks** | | |
| | | | **L** | **T** | **P** | | **CA** | **FE** | **Total** |
| **Theory Course (s)** | | | | | | | | | |
| 20CE701 | Structural Dynamics and Earthquake Engineering | PC | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CE702 | Estimation Costing and Valuation Engineering | PC | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CE703 | Water Resource and Irrigation Engineering | PC | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEEXX | Professional Elective-III | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEEXX | Professional Elective-IV | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20YYOXX | Open Elective-III | OE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| **Practical Course (s)** | | | | | | | | | |
| 20CE704 | Computer Aided Design and Drawing Laboratory (Concrete and Steel) | PC | 0 | 0 | 4 | 2 | 50 | 50 | 100 |
| **Employment Enhancement Course (s)** | | | | | | | | | |
| 20CE705 | Design Project | EEC | 0 | 0 | 2 | 1 | 50 | 50 | 100 |
| | | **Total** | **18** | **0** | **6** | **21** | **340** | **460** | **800** |

| SEMESTER VIII | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sub Code** | **Course** | **Category** | **Periods/Week** | | | **C** | **Maximum Marks** | | |
| | | | **L** | **T** | **P** | | **CA** | **FE** | **Total** |
| **Theory Course (s)** | | | | | | | | | |
| 20CEEXX | Professional Elective-V | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEEXX | Professional Elective-VI | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| **Employment Enhancement Course (s)** | | | | | | | | | |
| 20CE801 | Major Project | EEC | 0 | 0 | 20 | 10 | 50 | 50 | 100 |
| | | **Total** | **6** | **0** | **20** | **16** | **130** | **170** | **300** |

| PROFESSIONAL ELECTIVES (PE) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **STREAM-I : ENVIRONMENTAL AND WATER RESOURCE ENGINEERING** | | | | | | | | | |
| **Sub Code** | **Course** | **Category** | **Periods/Week** | | | **C** | **Maximum Marks** | | |
| | | | **L** | **T** | **P** | | **CA** | **FE** | **Total** |
| 20CEE01 | Hydrology | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEE02 | Ground Water Engineering | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEE03 | Air Pollution and Control Engineering | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEE04 | Water Resources Systems Analysis | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEE05 | Integrated Water Resources Management | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEE06 | Environmental Impact Assessment | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEE07 | Municipal Solid Waste Management | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEE08 | Participatory Water Resources Management | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEE09 | Air Pollution Management | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEE10 | Industrial Waste Management | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEE11 | Environmental and Social Impact Assessment | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEE12 | Geo- Environmental Engineering | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |

| **STREAM-II : STRUCTURAL ENGINEERING** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sub Code** | **Course** | **Category** | **Periods/Week** | | | **C** | **Maximum Marks** | | |
| | | | **L** | **T** | **P** | | **CA** | **FE** | **Total** |
| 20CEE21 | Building Services | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEE22 | Disaster Management | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEE23 | Industrial Structures | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEE24 | Maintenance, Repair and Rehabilitation of Structures | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEE25 | Design of Prestressed Concrete Structures | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEE26 | Experimental Analysis of Stress | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEE27 | Bridge Structures | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEE28 | Storage Structures | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEE29 | Ground Improvement Techniques | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEE30 | Cost Effective Construction and Green Building | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEE31 | Tall Buildings | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEE32 | Prefabricated Structures | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |

| **STREAM-III : CONSTRUCTION ENGINEERING AND MANAGEMENT** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sub Code** | **Course** | **Category** | **Periods/Week** | | | **C** | **Maximum Marks** | | |
| | | | **L** | **T** | **P** | | **CA** | **FE** | **Total** |
| 20CEE41 | Construction Planning and Scheduling | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEE42 | Modern Construction Materials | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEE43 | Housing Planning and Management | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEE44 | Construction Project Management | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEE45 | Economic and Finance Management in Construction | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEE46 | System Integration in Construction | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEE47 | Contract Laws and Regulation | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 20CEE48 | Resource Management and Control in Construction | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEE49 | Quality Control and Assurance in Construction | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEE50 | Design of Energy Efficient Building | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEE51 | Project Formulation and Appraisal | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEE52 | Project Safety Management | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEE53 | Railway, Airport, Docks and Harbor Engineering | PE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |

**OPEN ELECTIVE COURSES (For Other Branches)**

| Sub Code | Course | Category | Periods/Week | | | C | Maximum Marks | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | L | T | P | | CA | FE | Total |
| 20CEO01 | Energy Conservation and Management | OE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEO02 | Environment and Agriculture | OE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEO03 | Renewable Energy Sources | OE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEO04 | Vibration and Noise Control | OE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEO05 | Climate Change and its Impacts | OE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEO06 | Green Building Design | OE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEO07 | Selection of Materials | OE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 20CEO08 | Testing of Materials | OE | 3 | 0 | 0 | 3 | 40 | 60 | 100 |

| ONE CREDIT COURSES | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sub Code** | **Course** | **Category** | **Periods/Week** | | | **C** | **Maximum Marks** | | |
| | | | **L** | **T** | **P** | | **CA** | **FE** | **Total** |
| 20CEA01 | Autocad | PC | 1 | 0 | 0 | 1 | 100 | 0 | 100 |
| 20CEA02 | 3D Modeling Techniques of BIM | PC | 1 | 0 | 0 | 1 | 100 | 0 | 100 |
| 20CEA03 | Sketchup | PC | 1 | 0 | 0 | 1 | 100 | 0 | 100 |
| 20CEA04 | Total Station Survey | PC | 1 | 0 | 0 | 1 | 100 | 0 | 100 |
| 20CEA05 | Tekla | PC | 1 | 0 | 0 | 1 | 100 | 0 | 100 |
| 20CEA06 | Vasthu | PC | 1 | 0 | 0 | 1 | 100 | 0 | 100 |

| VALUE ADDED COURSES | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sub Code** | **Course** | **Category** | **Periods/Week** | | | **C** | **Maximum Marks** | | |
| | | | **L** | **T** | **P** | | **CA** | **FE** | **Total** |
| 20CEB01 | Auto cad | OE | 2 | 0 | 2 | 3 | 100 | 0 | 100 |
| 20CEB02 | Revit Architecture | OE | 2 | 0 | 2 | 3 | 100 | 0 | 100 |
| 20CEB03 | E tabs | OE | 2 | 0 | 2 | 3 | 100 | 0 | 100 |
| 20CEB04 | 3 DX Max | OE | 2 | 0 | 2 | 3 | 100 | 0 | 100 |
| 20CEB05 | Stadd Pro | OE | 2 | 0 | 2 | 3 | 100 | 0 | 100 |
| 20CEB06 | Primavera | OE | 2 | 0 | 2 | 3 | 100 | 0 | 100 |
| 20CEB07 | Drone Survey | OE | 2 | 0 | 2 | 3 | 100 | 0 | 100 |

| Sl. No. | Category | Credits per Semester | | | | | | | | Total Credits | By AICTE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | I | II | III | IV | V | VI | VII | VIII | | |
| 1 | HSS | 3 | 3 | | | | | | | 6 | 10-14 |
| 2 | BS | 8 | 8 | 4 | 4 | | | | | 24 | 22-28 |
| 3 | ES | 7 | 8 | 7 | 4 | | | | | 26 | 24 |
| 4 | PC | | 2 | 11 | 15 | 16 | 14 | 11 | | 69 | 48 |
| 5 | PE | | | | | 3 | 3 | 6 | 6 | 18 | 18 |
| 6 | OE | | | | | 3 | 3 | 3 | | 9 | 9 |
| 7 | EEC | | | | | | 2 | 1 | 10 | 13 | 12-16 |
| 8 | MC | 0 | | | | | | | | 0 | |
| | **Total** | **18** | **21** | **22** | **23** | **22** | **22** | **21** | **16** | **165** | **143-157** |

HSS - Humanities and Social Sciences
BS - Basic Sciences
ES - Engineering Sciences
PC - Professional Core
PE - Professional Electives
OE - Open Electives
EEC - Employability Enhancement Courses
MC - Mandatory Courses (Non-Credit Courses)
CA - Continuous Assessment
FE - Final Examination