# Sanjay Ghodawat University Kolhapur




## School of Engineering and Technology
## Department of Civil Engineering

### B. Tech. Civil Engineering

# Curriculum Structure (R25)

**Semester: I-VIII**

# Programme Structure for B Tech.: First Year Civil Engineering (R25) Semester I: Teaching Scheme

| Course Code | Course Name | Teaching Scheme (Hrs/week) | | | Credits Assigned | | | |
|---|---|---|---|---|---|---|---|---|
| | | Theory | Practical | Tutorial | Theory | Practical | Tutorial | Total credits |
| USTBS101 | Linear Algebra | 3 | - | 1 | 3 | - | 1 | 4 |
| USTBS102 | Engineering Physics | 3 | - | - | 3 | - | - | 3 |
| USTES101 | Engineering Graphics | 3 | - | - | 3 | - | - | 3 |
| USTES105 | Basic Electrical and Electronics for Civil Engineers | 2 | - | - | 2 | - | - | 2 |
| USTES003 | Design Thinking | 2 | - | - | 2 | - | - | 2 |
| USTBS103 | Engineering Physics Lab | - | 2 | - | - | 1 | - | 1 |
| USTES102 | Engineering Graphics Lab | - | 2 | - | - | 1 | - | 1 |
| USTES106 | Basic Electrical and Electronics for Civil Engineers Lab | - | 2 | - | - | 1 | - | 1 |
| USTES004 | Design Thinking Lab | - | 2 | - | - | 1 | - | 1 |
| USTIK001 | Indian Science, Engineering and Technology (Past, Present and Future) | 2 | - | - | 2 | - | - | 2 |
| UHSVE001 | Constitution of India | 2 | - | - | 2 | - | - | 2 |
| UISCC0XX | Co-curricular courses I | - | 4 | - | - | 2 | - | 2 |
| UHSVE005 | Universal Human Values | - | - | - | | | | **Audit Course** |
| | **Total** | **17** | **12** | **1** | **17** | **6** | **1** | **24** |

- During the Induction Program, students would get an initial exposure to human values through Universal Human Values-I

## Semester I: Evaluation Scheme

| Course Code | Course Name | Theory Marks | | | | | Practical Marks | | Total |
|---|---|---|---|---|---|---|---|---|---|
| | | Internal Assessment | | | | SEE | Term work / Tutorial | Practical Oral/ POE | |
| | | T1 | T2 | FET | Total | | | | |
| USTBS101 | Linear Algebra | 10 | 10 | 5 | 25 | 50 | 25 | - | 100 |
| USTBS102 | Engineering Physics | 10 | 10 | 5 | 25 | 50 | - | - | 75 |
| USTES101 | Engineering Graphics | 10 | 10 | 5 | 25 | 50 | - | - | 75 |
| USTES105 | Basic Electrical and Electronics for Civil Engineers | - | 10 | 5 | 15 | 35 | - | - | 50 |
| USTES003 | Design Thinking | - | 10 | 5 | 15 | 35 | - | - | 50 |
| USTBS103 | Engineering Physics Lab | - | - | - | - | - | 25 | - | 25 |
| USTES102 | Engineering Graphics Lab | - | - | - | - | - | 25 | - | 25 |
| USTES106 | Basic Electrical and Electronics Engineering Lab | - | - | - | - | - | 25 | - | 25 |
| USTES004 | Design Thinking Lab | - | - | - | - | - | 25 | - | 25 |
| USTIK001 | Indian Science, Engineering and Technology (Past, Present and Future) | - | 10 | 5 | 15 | 35 | - | - | 50 |
| UHSVE001 | Constitution of India | - | 10 | 5 | 15 | 35 | - | - | 50 |
| UISCC0XX | Co-curricular courses I | - | - | - | - | - | 50 | - | 50 |
| UHSVE005 | Universal Human Values | - | - | - | - | - | - | - | **Audit Course** |
| | | | | | | | | **Total** | **600** |

## Semester II: Teaching Scheme

| Course Code | Course Name | Teaching Scheme (Hrs/week) | | | Credits Assigned | | | |
|---|---|---|---|---|---|---|---|---|
| | | Theory | Practical | Tutorial | Theory | Practical | Tutorial | Total Credits |
| USTBS201 | Calculus and Statistics | 3 | - | 1 | 3 | - | 1 | 4 |
| USTBS204 | Engineering Chemistry | 3 | - | - | 3 | - | - | 3 |
| USTES201 | Engineering Mechanics | 3 | - | - | 3 | - | - | 3 |
| UCVPC201 | Elements of Civil Engineering | 2 | - | - | 2 | - | - | 2 |
| USTVS204 | Basic Construction Practices | 3 | - | - | 3 | - | - | 3 |
| USTBS205 | Engineering Chemistry Lab | - | 2 | - | - | 1 | - | 1 |
| USTES202 | Engineering Mechanics Lab | - | 2 | - | - | 1 | - | 1 |
| UCVPC202 | Elements of Civil Engineering Lab | - | 2 | - | - | 1 | - | 1 |
| UHSAE001 | Professional Communication | 1 | 2 | - | 2 | - | - | 2 |
| UISCC0XX | Co-curricular Courses II | - | 4 | - | - | 2 | - | 2 |
| **Total** | | **15** | **12** | **01** | **16** | **05** | **01** | **22** |

## Semester II: Evaluation Scheme

| Course Code | Course Name | Theory Marks | | | | | Practical Marks | | Total |
|---|---|---|---|---|---|---|---|---|---|
| | | Internal Assessment | | | | SEE | Term work/ Tutorial | Practical Oral/POE | |
| | | T1 | T2 | FET | Total | | | | |
| USTBS201 | Calculus and Statistics | 10 | 10 | 5 | 25 | 50 | 25 | - | 100 |
| USTBS204 | Engineering Chemistry | 10 | 10 | 5 | 25 | 50 | - | - | 75 |
| USTES201 | Engineering Mechanics | 10 | 10 | 5 | 25 | 50 | - | - | 75 |
| UCVPC201 | Elements of Civil Engineering | - | 10 | 5 | 15 | 35 | - | - | 50 |
| USTVS204 | Basic Construction Practices | 10 | 10 | 5 | 25 | 50 | - | - | 75 |
| USTBS205 | Engineering Chemistry Lab | - | - | - | - | - | 25 | - | 25 |
| USTES202 | Engineering Mechanics Lab | - | - | - | - | - | 25 | - | 25 |
| UCVPC202 | Elements of Civil Engineering Lab | - | - | - | - | - | 25 | - | 25 |
| UHSAE001 | Professional Communication | - | 10 | 5 | 15 | 35 | - | - | 50 |
| UISCC0XX | Co-curricular Courses II | - | - | - | - | - | 50 | - | 50 |
| | | | | | | | | **Total** | **550** |

**Exit Option:**

- Students will have the flexibility to enter the programme in odd semesters and exit the programme after the successful completion of even semesters as per their future career needs. Students exiting the First-Year program after securing minimum 40 credits will be awarded UG Certificate in the relevant Discipline /Subject provided they secure 4-8 credits in work-based vocational courses or internship / Apprenticeship offered during summer vacation in addition to 8 credits from skill-based courses earned during the first and second semester.

## Programme Structure for B Tech.: Second Year Civil Engineering (R25)

### Semester III: Teaching Scheme

| Course code | Course name | Teaching scheme (Hrs/week) | | | Credits assigned | | | Total credits |
|---|---|---|---|---|---|---|---|---|
| | | Theory | Practical | Tutorial | Theory | Practical | Tutorial | |
| UCVPC301 | Structural Mechanics | 3 | - | - | 3 | - | - | 3 |
| UCVPC302 | Building Design and Drawing | 3 | - | - | 3 | - | - | 3 |
| UCVPC303 | Engineering Surveying | 3 | - | - | 3 | - | - | 3 |
| UXXMM0XX | Multidisciplinary Minor I | 2 | - | - | 2 | - | - | 2 |
| UCMEM001 | Engineering Economics | 2 | - | - | 2 | - | - | 2 |
| USTVE004 | Environmental Science & Sustainability | 2 | - | - | 2 | - | - | 2 |
| UCVPC305 | Structural Mechanics Lab | - | 2 | - | - | 1 | - | 1 |
| UCVPC306 | Building Design and Drawing Lab | - | 4 | - | - | 2 | - | 2 |
| UCVVS301 | Software Proficiency I | - | 4 | - | - | 2 | - | 2 |
| UCVFP301 | Field Project | | 4 | - | - | 2 | - | 2 |
| **Total** | | 15 | 14 | | 15 | 7 | | 22 |

### Semester III: Evaluation Scheme

| Course code | Course Name | Theory Marks | | | | | Practical Marks | | Total |
|---|---|---|---|---|---|---|---|---|---|
| | | Internal Assessment | | | | SEE | Term work | Practical Oral/POE | |
| | | T1 | T2 | FET | Total | | | | |
| UCVPC301 | Structural Mechanics | 10 | 10 | 5 | 25 | 50 | - | - | 75 |
| UCVPC302 | Building Design and Drawing | 10 | 10 | 5 | 25 | 50 | - | - | 75 |
| UCVPC303 | Engineering Surveying | 10 | 10 | 5 | 25 | 50 | - | - | 75 |
| UXXMM0XX | Multidisciplinary Minor I | - | 10 | 5 | 15 | 35 | - | - | 50 |
| UCMEM001 | Engineering Economics | - | 10 | 5 | 15 | 35 | - | - | 50 |
| USTVE004 | Environmental Science & Sustainability | - | 10 | 5 | 15 | 35 | - | - | 50 |
| UCVPC305 | Structural Mechanics Lab | - | - | - | - | - | 25 | - | 25 |
| UCVPC306 | Building Design and Drawing Lab | - | - | - | - | - | 25 | 25 | 50 |
| UCVVS301 | Software Proficiency I | | | | | | 50 | - | 50 |
| UCVFP301 | Field Project | - | - | - | - | - | 25 | 25 | 50 |
| | | | | | | | | **Total** | **550** |

## Programme Structure for B Tech.: Second Year Civil Engineering Semester

## IV: Teaching Scheme

| Course code | Course Name | Teaching scheme (Hrs/week) | | | Credits assigned | | | Total credits |
|---|---|---|---|---|---|---|---|---|
| | | Theory | Practical | Tutorial | Theory | Practical | Tutorial | |
| UCVPC401 | Fluid Mechanics | 3 | - | - | 3 | - | - | 3 |
| UCVPC402 | Concrete Technology | 3 | - | - | 3 | - | - | 3 |
| UCVPC403 | Theory of Structure | 3 | - | - | 3 | - | - | 3 |
| UXXMM0XX | Multidisciplinary Minor II | 2 | - | - | 2 | - | - | 2 |
| UCMEM002 | Project Management | 2 | - | - | 2 | - | - | 2 |
| UCVVS401 | Software Proficiency II | - | 4 | - | - | 2 | - | 2 |
| UCVPC405 | Fluid Mechanics Lab | - | 2 | - | - | 1 | - | 1 |
| UCVPC406 | Concrete Technology Lab | - | 4 | - | - | 2 | - | 2 |
| UCMEM004 | Strategic Management and Leadership | 2 | - | - | 2 | - | - | 2 |
| USTVE006 | AI in Civil Engineering | 2 | - | - | 2 | | - | 2 |
| **Total** | | **17** | **10** | | **17** | **5** | | **22** |

## Semester IV: Evaluation Scheme

| Course code | Course Name | Theory Marks | | | | | Practical Marks | | Total |
|---|---|---|---|---|---|---|---|---|---|
| | | Internal Assessment | | | | SEE | Term work | Practical Oral /POE | |
| | | T1 | T2 | FET | Total | | | | |
| UCVPC401 | Fluid Mechanics | 10 | 10 | 5 | 25 | 50 | - | - | 75 |
| UCVPC402 | Concrete Technology | 10 | 10 | 5 | 25 | 50 | - | - | 75 |
| UCVPC403 | Theory of Structure | 10 | 10 | 5 | 25 | 50 | - | - | 75 |
| UXXMM0XX | Multidisciplinary Minor II | - | 10 | 5 | 15 | 35 | - | - | 50 |
| UCMEM002 | Project Management | - | 10 | 5 | 15 | 35 | - | - | 50 |
| UCVVS401 | Software Proficiency II | - | - | - | - | - | 25 | 25 | 50 |
| UCVPC405 | Fluid Mechanics Lab | - | - | - | - | - | 25 | - | 25 |
| UCVPC406 | Concrete Technology Lab | - | - | - | - | - | 25 | 25 | 50 |
| UCMEM004 | Strategic Management and Leadership | - | - | - | - | - | 50 | - | 50 |
| USTVE006 | AI in Civil Engineering | - | - | - | - | - | 50 | - | 50 |
| | | | | | | | | **Total** | **550** |

**Exit Option:**

- Students will have the flexibility to enter a programme in odd semesters and exit a programme after the successful completion of even semesters as per their future career needs.
- Students exiting the Second Year Programme after securing minimum 80credits will be awarded UG Diploma in the relevant Discipline /Subject provided they secure additional 4-8 credits in skill-based vocational courses (skill-based courses, internship, mini projects etc) offered during summer vacation after the second year.

## Programme Structure for B Tech.: Third Year Civil Engineering

### Semester V: Teaching Scheme

| Course code | Course name | Teaching scheme (Hrs/week) | | | Credits assigned | | | |
|---|---|---|---|---|---|---|---|---|
| | | Theory | Practical | Tutorial | Theory | Practical | Tutorial | Total Credits |
| UCVPC501 | Environmental Engineering | 3 | - | - | 3 | - | - | 3 |
| UCVPC502 | Transportation Engineering | 3 | - | - | 3 | - | - | 3 |
| UCVPC503 | Geotechnical Engineering | 3 | - | - | 3 | - | - | 3 |
| UCVPE5XX | Program Elective I | 3 | - | - | 3 | - | - | 3 |
| UXXMM0XX | Multidisciplinary Minor III | 2 | - | - | 2 | - | - | 2 |
| UXXOE03X | Open Elective III | 2 | - | - | 2 | - | - | 2 |
| UCVPC504 | Environmental Engineering Lab | - | 2 | - | - | 1 | - | 1 |
| UCVPC505 | Transportation Engineering Lab | - | 4 | - | - | 2 | - | 2 |
| UCVPC506 | Geotechnical Engineering Lab | - | 2 | - | - | 1 | - | 1 |
| UCVAE501 | Seminar | | 2 | | | 1 | | 1 |
| **Total** | | **16** | **10** | | **16** | **5** | | **21** |

### Semester V: Evaluation Scheme

| Course code | Course name | Theory Marks | | | | | Practical Marks | | Total |
|---|---|---|---|---|---|---|---|---|---|
| | | Internal Assessment | | | | SEE | | | |
| | | T1 | T2 | FET | Total | | Term work | Practical Oral/POE | |
| UCVPC501 | Environmental Engineering | 10 | 10 | 5 | 25 | 50 | - | - | 75 |
| UCVPC502 | Transportation Engineering | 10 | 10 | 5 | 25 | 50 | - | - | 75 |
| UCVPC503 | Geotechnical Engineering | 10 | 10 | 5 | 25 | 50 | - | - | 75 |
| UCVPE5XX | Program Elective I | 10 | 10 | 5 | 25 | 50 | - | - | 75 |
| UXXMM0XX | Multidisciplinary Minor III | - | 10 | 5 | 15 | 35 | - | - | 50 |
| UXXOE03X | Open Elective III | - | 10 | 5 | 15 | 35 | - | - | 50 |
| UCVPC504 | Environmental Engineering Lab | - | - | - | - | - | 25 | - | 25 |
| UCVPC505 | Transportation Engineering Lab | - | - | - | - | - | 25 | 25 | 50 |
| UCVPC506 | Geotechnical Engineering Lab | - | - | - | - | - | 25 | | 25 |
| UCVAE501 | Seminar | | - | - | - | - | 25 | - | 25 |
| | | | | | | | | **Total** | **525** |

## Semester VI: Teaching Scheme

| Course code | Course name | Teaching scheme (Hrs/week) | | | Credits assigned | | | |
|---|---|---|---|---|---|---|---|---|
| | | Theory | Practical | Tutorial | Theory | Practical | Tutorial | Total credits |
| UCVPC601 | Design of Steel Structures | 3 | - | - | 3 | - | - | 3 |
| UCVPC602 | Water Resources Engineering | 3 | - | - | 3 | - | - | 3 |
| UCVPC603 | Construction Management | 3 | - | - | 3 | - | - | 3 |
| UCVPE6XX | Program Elective II | 3 | - | - | 3 | - | - | 3 |
| UCVPE6XX | Program Elective III | 2 | - | - | 2 | - | - | 2 |
| UXXMM0XX | Multidisciplinary Minor IV | 2 | - | - | 2 | - | - | 2 |
| UCVVS601 | Software Proficiency III | - | 2 | - | - | 1 | - | 1 |
| UCVPC604 | Design of Steel Structure Lab | - | 4 | - | - | 2 | - | 2 |
| UCVPC605 | Construction Management Lab | - | 4 | - | - | 2 | - | 2 |
| UCVPC606 | Water Resources Engineering Lab | - | 2 | - | - | 1 | - | 1 |
| **Total** | | 16 | 12 | - | 16 | 6 | - | 22 |

## Semester VI: Evaluation Scheme

| Course code | Course Name | Theory Marks | | | | | Practical Marks | | Total |
|---|---|---|---|---|---|---|---|---|---|
| | | Evaluation (Theory) | | | | SEE | Evaluation (Lab) | | |
| | | T1 | T2 | FET | Total | | Term work | Practical Oral/POE | |
| UCVPC601 | Design of Steel Structures | 10 | 10 | 5 | 25 | 50 | - | - | 75 |
| UCVPC602 | Water Resources Engineering | 10 | 10 | 5 | 25 | 50 | - | - | 75 |
| UCVPC603 | Construction Management | 10 | 10 | 5 | 25 | 50 | - | - | 75 |
| UCVPE6XX | Program Elective II | 10 | 10 | 5 | 25 | 50 | - | - | 75 |
| UCVPE6XX | Program Elective III | - | 10 | 5 | 15 | 35 | - | - | 50 |
| UXXMM0XX | Multidisciplinary Minor IV | - | 10 | 5 | 15 | 35 | - | - | 50 |
| UCVVS601 | Software Proficiency III | - | - | - | - | - | 50 | - | 50 |
| UCVPC604 | Design of Steel Structure Lab | - | - | - | - | - | 25 | 25 | 50 |
| UCVPC605 | Construction Management Lab | - | - | - | - | - | 25 | 25 | 25 |
| UCVPC606 | Water Resources Engineering Lab | - | - | - | - | - | 25 | - | 25 |
| | | | | | | | | **Total** | **550** |

**Exit Option:**

- Students will have the flexibility to enter a programme in odd semesters and exit a programme after the successful completion of even semesters as per their future career needs.
- Students exiting the 3-year UG program will be awarded B.Voc. in the relevant Discipline /Subject upon securing minimum 120 credits with additional 4-8 credits in skill-based vocational courses (skill-based courses, internship, mini projects etc.) offered during summer vacation after the sixth semester.

## Programme structure for B. Tech: Final Year Civil Engineering (R25)

### Semester VII: Teaching Scheme

| Course code | Course name | Teaching scheme (Hrs/week) | | | Credits assigned | | | |
|---|---|---|---|---|---|---|---|---|
| | | Theory | Practical | Tutorial | Theory | Practical | Tutorial | Total Credits |
| UCVPC701 | Design of Concrete Structures | 3 | - | - | 3 | - | - | 3 |
| UCVPC702 | Quantity Survey and Valuation | 3 | - | - | 3 | - | - | 3 |
| UCVPE7XX | Program Elective IV | 3 | - | - | 3 | - | - | 3 |
| USTRM701 | Research Methodology | 3 | - | - | 3 | - | - | 3 |
| UXXMM0XX | Multidisciplinary Minor V | 2 | - | - | 2 | - | - | 2 |
| UCVPC703 | Design of Concrete Structure Lab | - | 4 | - | - | 2 | - | 2 |
| UCVPC704 | Quantity Survey and Valuation Lab | - | 4 | - | - | 2 | - | 2 |
| UCVPE7XX | Program Elective IV Lab | - | 2 | - | - | 1 | - | 1 |
| UCVPR701<br>**OR**<br>UCVEP701<br>**OR**<br>UCVRE701 | Project Phase I<br>(Industry Internship with Capstone Project Track)<br>**OR**<br>Entrepreneurship Project Phase I<br>(Entrepreneurship Venture Track)<br>**OR**<br>Research Project Phase I<br>(Higher Opportunity Track) | - | 4 | - | - | 2 | - | 2 |
| **Total** | | 14 | 14 | | 14 | 7 | | 21 |

### Semester VII :Evaluation Scheme

| Course code | Course name | Theory Marks | | | | | Practical Marks | | Total |
|---|---|---|---|---|---|---|---|---|---|
| | | Evaluation (Theory) | | | | ESE | Term work | Practical Oral/POE | |
| | | T1 | T2 | FET | Total | | | | |
| UCVPC701 | Design of Concrete Structures | 10 | 10 | 5 | 25 | 50 | - | - | 75 |
| UCVPC702 | Quantity Survey and Valuation | 10 | 10 | 5 | 25 | 50 | - | - | 75 |
| UCVPE7XX | Program Elective IV | 10 | 10 | 5 | 25 | 50 | - | - | 75 |
| USTRM701 | Research Methodology | 10 | 10 | 5 | 25 | 50 | - | - | 75 |
| UXXMM0XX | Multidisciplinary Minor V | - | 10 | 5 | 15 | 35 | - | - | 50 |
| UCVPC703 | Design of Concrete Structure Lab | - | - | - | - | - | 25 | 25 | 50 |
| UCVPC704 | Quantity Survey and Valuation Lab | - | - | - | - | - | 25 | 25 | 50 |
| UCVPE7XX | Program Elective IV Lab | - | - | - | - | - | 25 | - | 25 |
| UCVPR701<br>**OR**<br>UCVEP701<br>**OR**<br>UCVRE701 | Project Phase I<br>(Industry Internship with Capstone Project Track)<br>**OR**<br>Entrepreneurship Project Phase I<br>(Entrepreneurship Venture Track)<br>**OR**<br>Research Project Phase I<br>(Higher Opportunity Track) | - | - | - | - | - | 50 | - | 50 |
| **Total** | | | | | | | | | **525** |

**Note:** The Evaluation of Project Phase I is divided into two parts (Internal Assessment)

a) Preparation and presentation of the proposal of the Project (Motivation/ Relevance, Problem Statement, Literature Survey, Objectives, Methodology and design of the project) for 25marks.

b) Student shall present a seminar on the topic relevant to the Project work for 25 marks.

## Programme structure for B. Tech: Final Year Civil Engineering (R23)
### Track I: Industry Internship with Capstone Project Track
### Semester VIII: Teaching Scheme

| Course code | Course name | Teaching scheme | | | Credits assigned | | | |
|---|---|---|---|---|---|---|---|---|
| | | Theory | Practical | Tutorial | Theory | Practical | Tutorial | Total credits |
| UCVPE8XX | Program Elective V (Online Mode / MOOCs) | 3 | - | - | 3 | - | - | 3 |
| UXXMM0XX | Multidisciplinary Minor VI (Online Mode / MOOCs) | 2 | - | - | 2 | - | - | 2 |
| UCVPR802 | Project Phase II | - | 8 | - | - | 4 | - | 4 |
| UCVOT801 | Internship/On job Training | - | 24 | - | - | 12 | - | 12 |
| **Total** | | **5** | **32** | **-** | **5** | **16** | **-** | **21** |

### Semester VIII: Evaluation Scheme

| Course code | Course name | Theory Marks | | | | | Practical Marks | | Total |
|---|---|---|---|---|---|---|---|---|---|
| | | Evaluation (Theory) | | | | ESE | Evaluation (Lab) | | |
| | | T1 | T2 | FET | Total | | Term work | Practical Oral/POE | |
| UCVPE8XX | Program Elective V (Online Mode / MOOCs) | 10 | 10 | 5 | 25 | 50 | - | - | 75 |
| UXXMM0XX | Multidisciplinary Minor VI (Online Mode / MOOCs) | - | 10 | 5 | 15 | 35 | - | - | 50 |
| UCVPR802 | Project Phase II | - | - | - | - | - | 50 | 50 | 100 |
| UCVOT801 | Internship/On job Training | - | - | - | - | - | 200 | 100 | 300 |
| **Total** | | | | | | | | | **525** |

**Note:**

- Minimum passing is 40% for all courses and evaluation head mentioned above. FET – Faculty evaluation for Theory, T1, T2, Continuous Assessment Test, Term Work , SEE - Semester End Examination, P/F – Pass/ Fail Course, AU – Audit Course
- The Program Elective V and Multidisciplinary Minor VI shall be conducted in online mode, by faculty of SGU or other institute/ University. Students can also opt a course from MOOCs platforms such as SWAYAM, NPTEL, Coursera etc. In case there is no assessment and examination conducted by the MOOCs platforms then the assessment and examination will be conducted by SGU.
- Additional Credits for Bachelor's Degree- with Double Minor :12 Credits.
  These are additional credits to be offered from the second year to the final year and will be offered as an option to students.
- Additional Credits for Bachelor's Degree- with Honors: 16-20 Credits.
  These are additional credits from same domain to be offered from the second year to the final year and will be offered as an option to students.
- Additional Credits for Bachelor's Degree- Honors with Research: Minimum 16-20 Credits.
  These are additional credits to be offered in the final year and will be offered as an option to students.

## Programme structure for B. Tech: Final Year Civil Engineering (R25) Track

## II: Entrepreneurship Venture Track

### Semester VIII: Teaching Scheme

| Course code | Course name | Teaching scheme | | | Credits assigned | | | |
|---|---|---|---|---|---|---|---|---|
| | | Theory | Practical | Tutorial | Theory | Practical | Tutorial | Total credits |
| UCVPE8XX | Program Elective V (Online Mode / MOOCs) | 3 | - | - | 3 | - | - | 3 |
| UXXMM0XX | Multidisciplinary Minor VI (Online Mode / MOOCs) | 2 | - | - | 2 | - | - | 2 |
| UCVEP801 | Entrepreneurship project Phase II | - | 30 | - | - | 16 | - | 16 |
| **Total** | | 5 | 30 | - | 5 | 16 | - | 21 |

### Semester VIII: Evaluation Scheme

| Course code | Course name | Theory Marks | | | | | Practical Marks | | Total |
|---|---|---|---|---|---|---|---|---|---|
| | | Evaluation (Theory) | | | | ESE | Evaluation (Lab) | | |
| | | T1 | T2 | FET | Total | | Term work | Practical Oral/POE | |
| UCVPE8XX | Program Elective V (Online Mode / MOOCs) | 10 | 10 | 5 | 25 | 50 | - | - | 75 |
| UXXMM0XX | Multidisciplinary Minor VI (Online Mode / MOOCs) | - | 10 | 5 | 15 | 35 | - | - | 50 |
| UCVEP801 | Entrepreneurship project Phase II | - | - | - | - | - | 300 | 100 | 400 |
| | | | | | | | | **Total** | **525** |

**Note:**

- Minimum passing is 40% for all courses and evaluation head mentioned above. FET – Faculty evaluation for Theory, T1, T2, Continuous Assessment Test, Term Work , SEE - Semester End Examination, P/F – Pass/ Fail Course, AU – Audit Course
- The Program Elective V and Multidisciplinary Minor VI shall be conducted in online mode, by faculty of SGU or other institute/ University. Students can also opt a course from MOOCs platforms such as SWAYAM, NPTEL, Coursera etc. In case there is no assessment and examination conducted by the MOOCs platforms then the assessment and examination will be conducted by SGU.
- Additional Credits for Bachelor's Degree- with Double Minor :12 Credits.
  These are additional credits to be offered from the second year to the final year and will be offered as an option to students.
- Additional Credits for Bachelor's Degree- with Honors: 16-20 Credits.
  These are additional credits from same domain to be offered from the second year to the final year and will be offered as an option to students.
- Additional Credits for Bachelor's Degree- Honors with Research: Minimum 16-20 Credits.
  These are additional credits to be offered in the final year and will be offered as an option to students.

## Programme structure for B. Tech: Final Year Civil Engineering (R25) Track
## III: Higher Opportunity Track
## Semester VIII: Teaching Scheme

| Course code | Course name | Teaching scheme | | | Credits assigned | | | |
|---|---|---|---|---|---|---|---|---|
| | | Theory | Practical | Tutorial | Theory | Practical | Tutorial | Total credits |
| UCVPE8XX | Program Elective V (Online Mode / MOOCs) | 3 | - | - | 3 | - | - | 3 |
| UXXMM0XX | Multidisciplinary Minor VI (Online Mode / MOOCs) | 2 | - | - | 2 | - | - | 2 |
| UCVRE801 | Research Project Phase II | - | 30 | - | - | 16 | - | 16 |
| **Total** | | - | 30 | - | 5 | 16 | - | 21 |

## Semester VIII: Evaluation Scheme

| Course code | Course name | Theory Marks | | | | | Practical Marks | | Total |
|---|---|---|---|---|---|---|---|---|---|
| | | Evaluation (Theory) | | | | ESE | Evaluation (Lab) | | |
| | | T1 | T2 | FET | Total | | Term work | Practical Oral/POE | |
| UCVPE8XX | Program Elective V (Online Mode / MOOCs) | 10 | 10 | 5 | 25 | 50 | - | - | 75 |
| UXXMM0XX | Multidisciplinary Minor VI (Online Mode / MOOCs) | - | 10 | 5 | 15 | 35 | - | - | 50 |
| UCVRER801 | Research Project Phase II | - | - | - | - | - | 300 | 100 | 400 |
| **Total** | | | | | | | | | **525** |
| | | | | | | | | | |

**Note:**

- Minimum passing is 40% for all courses and evaluation head mentioned above. FET – Faculty evaluation for Theory, T1, T2, Continuous Assessment Test, Term Work, SEE - Semester End Examination, P/F – Pass/ Fail Course, AU – Audit Course
- The Program Elective V and Multidisciplinary Minor VI shall be conducted in online mode, by faculty of SGU or other institute/ University. Students can also opt a course from MOOCs platforms such as SWAYAM, NPTEL, Coursera etc. In case there is no assessment and examination conducted by the MOOCs platforms then the assessment and examination will be conducted by SGU.
- Additional Credits for Bachelor's Degree- with Double Minor :12 Credits.
  These are additional credits to be offered from the second year to the final year and will be offered as an option to students.
- Additional Credits for Bachelor's Degree- with Honors: 16-20 Credits.
  These are additional credits from same domain to be offered from the second year to the final year and will be offered as an option to students.
- Additional Credits for Bachelor's Degree- Honors with Research: Minimum 16-20 Credits.
  These are additional credits to be offered in the final year and will be offered as an option to students.

| List of Co-curricular courses I & II | |
|---|---|
| **Course Code** | **Course Name** |
| UISCC011 | National Service Scheme |
| UISCC012 | Regular and Special NSS Camp Activity |
| UISCC021 | Indian Music |
| UISCC022 | Fine Arts |
| UISCC023 | Indian Dance |
| UISCC031 | Physical Fitness |
| UISCC032 | Yoga & Meditation |

| Program Electives | | | | | | |
|---|---|---|---|---|---|---|
| **Program Elective** | **Vertical I Structural Engineering)** | | **Vertical II (Construction Engineering and Management)** | | **Vertical III (Environmental and Water Resources Engineering)** | |
| | **Code** | **Course** | **Code** | **Course** | **Code** | **Course Name** |
| **I** | UCVPE511 | Advanced Concrete Technology | UCVPE521 | Quality and Safety Management | UCVPE531 | Remote Sensing, GIS and GPS |
| | UCVPE512 | Non-destructive Testing of Structures | UCVPE522 | Building Services | UCVPE532 | Environmental Impact Assessment |
| **II** | UCVPE611 | Site Investigation Methods and Practices | UCVPE621 | Human Resource Management | UCVPE631 | Solid and Hazardous Waste Management |
| | UCVPE612 | Advanced Foundation Engineering | UCVPE622 | Project Appraisal | UCVPE632 | Watershed Management |
| **III** | UCVPE613 | Condition Assessment & Rehabilitation of Structures | UCVPE623 | Construction Equipment and Methods | UCVPE633 | Water Power Engineering |
| | UCVPE614 | Earthquake Engineering | UCVPE624 | Legal Aspects in Construction | UCVPE634 | Advanced Surveying |
| **IV** | UCVPE711 | Design of R.C.C. Bridges | UCVPE721 | Entrepreneurship Development | UCVPE731 | Computational Fluid Dynamics |
| | UCVPE712 | Pre-stressed Concrete Design | UCVPE722 | Advanced Construction Techniques | UCVPE732 | Environmental Geotechnics |
| **IV Lab** | UCVPE713 | Design of R.C.C. Bridges Lab | UCVPE723 | Entrepreneurship Development Lab | UCVPE733 | Computational Fluid Dynamics Lab |
| | UCVPE714 | Pre-stressed Concrete Design Lab | UCVPE724 | Advanced Construction Techniques Lab | UCVPE734 | Environmental Geotechnics Lab |
| **V** | UCVPE811 | Non-Destructive Testing of Materials | UCVPE821 | Construction Economics & Finance | UCVPE831 | Environmental Geotechnics |
| | UCVPE812 | Numerical Methods in Civil Engineering | UCVPE822 | Legal Aspects in Construction | UCVPE832 | Advanced Surveying |

## Minor Tracks for School of Engineering & Technology (UG)

| No. | Minor | School/Department | Credits |
|---|---|---|---|
| 1. | Avionics Engineering | Aerospace Engineering | 12 |
| 2 | Space Technology | | 12 |
| 3 | Drone Technology | | 12 |
| 4 | Data Science | AIML | 12 |
| 5 | Intelligence system and Application | | 12 |
| 6 | Environmental Engineering | Civil Engineering | 12 |
| 7 | Networking | Computer Science and Engineering | 12 |
| 8 | Data Science | | 12 |
| 9 | Cyber Security | | 12 |
| 10 | Software Development | | 12 |
| 11 | Embedded systems & IOT | Electronics and Communication Engineering | 12 |
| 12 | Wireless Communication | | 12 |

**Note:**

- Students are advised to select the minor track from above list.
- Students are not allowed to select the minor track from the same department offering the major courses.
- For the details of the Structure, Syllabus, Teaching and Evaluation Scheme Students should refer the syllabus section of the respective department offering the minor tracks.

| Open Elective I | | | | |
|---|---|---|---|---|
| **No.** | **Course Code** | **Course** | **Faculty/School /Department** | **Credits** |
| 1 | UAEOE011 | Basic Aeronautical Engineering | Department of Aerospace Engg. | 2 |
| 2 | UAIOE011 | Software Models | Department of AIML | 2 |
| 3 | UCEOE011 | Advanced Building Materials | Department of Civil Engg. | 2 |
| 4 | UCSOE011 | Introduction to Latex | Department of Comp. Sc. & Engg. | 2 |
| 5 | UECOE011 | Semiconductor Devices | Department of Elect. & Comm. Engg. | 2 |
| 6 | UCAOE012 | Python Programming | School of Computer Applications | 2 |
| 7 | UPHOE011 | World of Nano Science | School of Physical & Chemical Sciences | 2 |
| 8 | UFSOE012 | Basics of Food Processing | Department of Food Science & Technology | 2 |
| 9 | UDCOE011 | Selling Skills | Department of Commerce | 2 |
| 10 | UBAOE011 | Basics of Marketing | Department of Management | 2 |
| 11 | UAROE011 | Introduction To GIS | Department of Social Sciences | 2 |
| 12 | UAROE012 | Applied Communicative English | Department of Social Sciences | 2 |
| 13 | UBTOE011 | Introduction to Biotechnology | Department of Bio Technology | 2 |
| **Open Elective II** | | | | |
| 1 | UAEOE021 | Aircraft Systems and Instruments | Department of Aerospace Engg. | 2 |
| 2 | UAIOE021 | Introduction to Python | Department of AIML | 2 |
| 3 | UCEOE021 | Green Building | Department of Civil Engg. | 2 |
| 4 | UCSOE021 | Advance Microsoft Office | Department of Comp. Sc. & Engg. | 2 |
| 5 | UECOE021 | Fundamentals of Communication Engineering | Department of Elect. & Comm. Engg. | 2 |
| 6 | UCAOE022 | Data Analytics Tools | School of Computer Applications | 2 |
| 7 | UPHOE021 | Wonders in Nanotechnology | School of Physical & Chemical Sciences | 2 |
| 8 | UFSOE022 | Bakery and Confectionary Skills | Department of Food Science & Technology | 2 |
| 9 | UDCOE021 | Financial Literacy | Department of Commerce | 2 |
| 10 | UBAOE021 | Export- Import Documentation and Procedures | Department of Management | 2 |
| 11 | UAROE021 | Tourism & Travel Management | Department of Social Sciences | 2 |
| 12 | UAROE022 | Language Analytics | Department of Social Sciences | 2 |
| 13 | UBTOE021 | Basics in Bioinformatics | Department of Bio Technology | 2 |
| **Open Elective III** | | | | |
| 1 | UAEOE031 | Unmanned Aerial Vehicle | Department of Aerospace Engg. | 2 |
| 2 | UAIOE031 | Introduction to Data Analytics | Department of AIML | 2 |
| 3 | UCEOE031 | Disaster Management & Mitigation | Department of Civil Engg. | 2 |
| 4 | UCSOE031 | Fundamental of C Programming | Department of Comp. Sc. & Engg. | 2 |
| 5 | UECOE031 | Automotive Electronics | Department of Elect. & Comm. Engg. | 2 |
| 6 | UCAOE032 | Data Visualization Techniques using Tableau | School of Computer Applications | 2 |
| 7 | UCHOE031 | Green Chemistry & Sustainability | School of Physical & Chemical Sciences | 2 |
| 8 | UFSOE032 | Basics of Food Adulteration | Department of Food Science & Technology | 2 |
| 9 | UDCOE031 | Personal Financial Planning | Department of Commerce | 2 |
| 10 | UBAOE031 | Event Management | Department of Management | 2 |
| 11 | UAROE031 | English for Competitive Examinations | Department of Social Sciences | 2 |
| 12 | UAIOE032 | Agentic AI | Department of AIML | 2 |
| 13 | UBTOE031 | Microbial World and Its Applications | Department of Bio Technology | 2 |

**Note: For details of Syllabus, Teaching and Evaluation scheme, please refer to the structure and syllabus of respective departments.**