AIT/Dean/030/10-11 (1) III-5

# Dr. AMBEDKAR INSTITUTE OF TECHNOLOGY
BANGALORE – 56

Date: 23.08.2010

Minutes of the 1st Academic Council meeting held on 21st August 2010 at 10.30 am in the Board room of Dr. AIT

Members Present

| Sl No | Constitution | Nature | Name |
|---|---|---|---|
| 1 | The Principal of the College | Chairperson | Dr P.Martin Jebaraj |
| 2 | All the Heads of Department in the College | Members | Dr C.Nanjunda Swamy<br>Dr B.M.Nandeeshaiah<br>Dr B.V.Sumangala<br>Dr Meenakshi<br>Dr Shivakumar<br>Prof Siddaraju<br>Dr Rajendra<br>Prof Prabha<br>Prof Manjunath.A.P.<br>Dr K.L.Savitramma<br>Dr V.Bheemaraju<br>Dr Sooryanarayana Rao |
| 3 | Four teachers of the college representing different levels of teaching staff by rotation on the basis of seniority of service in the college, to be nominated by the Principal | Members | 1)Dr Manjunath Hegde<br>2)Dr T.Sreenivasulu Reddy<br>3)Prof G.Devaraju<br>4)Smt ~~Leena Giri~~ Vijayalaxmi Patil |
| 4 | Not less than four experts from outside the college representing such areas as Industry, R and D labs, Technical Education, | Members | 1) Dr S. Seetharamu<br>Additional Director<br>CPRI, Bangalore<br>2) Dr G.R.Nagabhushana<br>Former Chairman<br>HVE, IISc, Bangalore<br>3) Mr Rajendra Prasad<br>Vice President<br>Electro Systems Associates Pvt Ltd, Bangalore<br>4) Mr B.N.Satyesh<br>Senior Vice-president<br>Tejas Network Ltd<br>Bangalore |

| | | | |
|---|---|---|---|
| 5 | Three nominees of the University, | Members | 1.Dr T.V.Govindaraju<br>Principal<br>Shirdi Sai Engg College<br>2.Dr H.R.Yashavanth<br>Principal, SEACE<br>Bangalore<br>3.Dr V.R.Manjunath<br>Principal<br>Sapthagiri College of Engg<br>Bangalore |
| 6 | A faculty member, nominated by the Principal | Member Secretary | Dean (Academic)<br>Dr B.V.Sumangala |

Members Absent

1. Dr. G.R. Nagabhushana
2. Dr. Yeshovanth

Principal welcomed all the members of the committee and they were introduced. He explained about the constitution of the committee, tenure of the committee and the duties and responsibilities. He also explained about the courses of the institution going for autonomy and briefed about the various procedures followed to make the institution prepare for the implementation of academic autonomy.

Principal explained the various issues related to academic structure of autonomy at Dr. AIT with reference to the guidelines by VTU. The details of the deliberation made by experts are as follows:-

**Agenda 1 :**

**Recommendations of guidelines to all UG programmes – Autonomy structure, a) Credit system, b) Grading system, c) Eligibility criteria etc.**

The following resolutions were made by the committee and the regulations are recommended and was proposed to place in GOVERNING BODY for approval.

a. Credit System

The committee recommended the following credits structure based on VTU guidelines

- BE Degree Programme – Entry in I year
  - 200 Credits
- BE Degree Programme – Entry in II year
  - Lateral Entry
  - 150 Credits (with bridge course – Mathematics)

**b. Academic Calendar**

The major events with the corresponding period for execution are:-

Main Semester (Odd) : 19 Weeks
Recess : 2 Weeks
Main Semester (Even) : 19 Weeks
Recess : 2 Weeks
Supplementary Semester : 8 Weeks
Recess : 2 Weeks
Total : 52 Weeks.

Make-up examination after the Semester End Examinations (SEE) as per notification.

**c. Evaluation Methodology**

The evaluation consists of two components

1. Continuous Internal Evaluation – CIE for 50 Marks
2. End Semester Evaluation – SEE for 50 Marks – It is essential to obtain minimum requirement is 40 % in both CIE and SEE to qualify for appearing for examination and to get pass grade in a subject respectively.

**d. Grading Methodology**

The absolute grading system is adopted in our case. The various grades are generated based on the examination rules out of 100 and is shown in table. These grades are then converted to grade points and the SEPA is determined.

| Level | Out-standing | Excellent | Very Good | Good | Average | Poor | Fail |
|---|---|---|---|---|---|---|---|
| Grade | S | A | B | C | D | E | F |
| Grade Points | 10 | 09 | 08 | 07 | 05 | 04 | 00 |
| Score (Marks) Range (%) | 90-100 | 75-89 | 60-74 | 50-59 | 45-49 | 40-44 | <40 |

Grades
- W – Withdrawal of any course
- I – Not writing SEE for a genuine reason
- X – Scoring >80% in CIE but getting F (fail) grade in SEE

**e. Eligibility Criteria**

A student can carry 4 subjects at the end of any even semester which includes
- Failed subjects and
- 'Not Eligible' subjects to write SEE due to shortage of marks in CIE(< 20 marks) or shortage of attendance (< 85%)

**Agenda 2. Recommendation of BOS committees for various Departments**

The Board of Studies for all the 13 Departments were formed and placed in GB for approval

**Agenda 3 : Recommendations for common BOE for I year**
It was proposed to have a common Board of Examiners for I year.

**Agenda 4 : Recommendations for all rules and regulations pertaining to Examination**
After fully going through the document the examination rules and regulations are recommended by Academic Council

**Agenda 5 :** Any Other subject

Dr Govindaraju suggested to increase the minimum requirement for CIE for practicals.

DEAN (ACADEMIC)

Principal
Dr. Ambedkar Institute of Technology
Bangalore-560 056

**Dr. Ambedkar Institute of Technology, Bengaluru-560 056**

SCHEME OF TEACHING AND EXAMINATION

**B.E (Civil Engineering)**

**Batch 2017 - 2018**

**Outcome Based Education (OBE) and Choice Based Credit System (CBCS)**

**I SEMESTER**

| Sl. No | Course and Course code | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Theory Lecture | Tutorial | Practical/Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | L | T | P | | | | | |
| 1 | MA11 | Engineering Mathematics - I | Hu | 4 | -- | -- | 03 | 50 | 50 | 100 | 4 |
| 2 | PH12 | Engineering Physics | BS | 4 | -- | -- | 03 | 50 | 50 | 100 | 4 |
| 3 | CV13 | Elements of Civil Engineering & Engineering Mechanics | CV | 4 | -- | -- | 03 | 50 | 50 | 100 | 4 |
| 4 | MEL14 | Computer Aided Engineering Drawing | CV | -- | -- | 3 | 03 | 50 | 50 | 100 | 4 |
| 5 | EE15 | Basic Electrical Engineering | CV | 4 | -- | -- | 03 | 50 | 50 | 100 | 4 |
| 6 | MEL16 | Workshop Practice Lab | CV | -- | -- | 3 | 03 | 50 | 50 | 100 | 1.5 |
| 7 | PHL17 | Engineering Physics Lab | CV | -- | -- | 3 | 03 | 50 | 50 | 100 | 1.5 |
| 8 | HS02 | Constitution of India & Professional Ethics | CV | 2 | -- | -- | 03 | 50 | 50 | 100 | 2 |
| 9 | KA19 | Kannada | CV | 2 | -- | -- | 03 | 50 | 50 | 100 | PP/NP |
| | | **TOTAL** | | | | | | | | | **25** |

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UG-2017-18

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SCHEME OF TEACHING AND EXAMINATION

**Batch 2017 - 2018**

**B.E (Civil Engineering)**

**Outcome Based Education (OBE) and Choice Based Credit System (CBCS)**

**II SEMESTER**

| Sl. No | Course and Course code | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Theory Lecture | Tutorial | Practical/ Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | L | T | P | | | | | |
| 1 | MA21 | Engineering Mathematics - II | Hu | 4 | -- | -- | 03 | 50 | 50 | 100 | 4 |
| 2 | CH22 | Engineering Chemistry | BS | 4 | -- | -- | 03 | 50 | 50 | 100 | 4 |
| 3 | CS23 | Computer Concepts & C Programming | CV | 4 | -- | -- | 03 | 50 | 50 | 100 | 4 |
| 4 | ME24 | Elements of Mechanical Engineering | CV | 4 | -- | -- | 03 | 50 | 50 | 100 | 4 |
| 5 | EC25 | Basic Electronics | CV | 4 | -- | -- | 03 | 50 | 50 | 100 | 4 |
| 6 | CSL26 | Computer Concepts & C Programming Lab | CV | 3 | -- | 03 | 03 | 50 | 50 | 100 | 1.5 |
| 7 | CHL27 | Engineering Chemistry Lab | CV | 3 | -- | 03 | 03 | 50 | 50 | 100 | 1.5 |
| 8 | HS01 | Environmental Studies | CV | 2 | -- | -- | 03 | 50 | 50 | 100 | 2 |
| 9 | EN29 | English | CV | 2 | -- | -- | 03 | 50 | 50 | 100 | PP/NP |
| | | | TOTAL | | | | | | | | 25 |

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SCHEME OF TEACHING AND EXAMINATION

**Batch 2017 - 2018**

**B.E (Civil Engineering)**

**Outcome Based Education (OBE) and Choice Based Credit System (CBCS)**

**III SEMESTER**

| Sl. No | Course and Course code | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Theory Lecture | Tutorial | Practical/ Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | L | T | P | | | | | |
| 1 | MA31 | Engineering Mathematics - III | BS | 4 | -- | -- | 3 | 50 | 50 | 100 | 4 |
| 2 | CV31 | Building Materials & Construction | CV | 3 | -- | -- | 3 | 50 | 50 | 100 | 3 |
| 3 | CV32 | Strength of Materials | CV | 4 | -- | -- | 3 | 50 | 50 | 100 | 4 |
| 4 | CV33 | Surveying - I | CV | 3 | -- | -- | 3 | 50 | 50 | 100 | 3 |
| 5 | CV34 | Fluid Mechanics | CV | 4 | -- | -- | 3 | 50 | 50 | 100 | 4 |
| 6 | CV35 | Applied Engineering Geology | CV | -- | -- | 3 | 3 | 50 | 50 | 100 | 1.5 |
| 7 | CVL36 | Civil Engineering Material Testing Lab | CV | -- | -- | 3 | 3 | 50 | 50 | 100 | 1.5 |
| 8 | CVL37 | Surveying Practice – I | CV | -- | -- | 3 | 3 | 50 | 50 | 100 | 1.5 |
| 9 | EN39 | Soft Skills | CV | 2 | -- | -- | 3 | 50 | -- | 50 | PP/NP |
| | | **TOTAL** | | | | | | | | | **24** |

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**Outcome Based Education (OBE) and Choice Based Credit System (CBCS)**

**IV SEMESTER**

| Sl. No | Course and Course code | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Theory Lecture | Tutorial | Practical/ Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | L | T | P | | | | | |
| 1 | MA41 | Engineering Mathematics - IV | BS | 4 | -- | -- | 3 | 50 | 50 | 100 | 4 |
| 2 | CV41 | Concrete Technology | CV | 3 | -- | -- | 3 | 50 | 50 | 100 | 3 |
| 3 | CV42 | Structural Analysis - I | CV | 4 | -- | -- | 3 | 50 | 50 | 100 | 4 |
| 4 | CV43 | Surveying - II | CV | 3 | -- | -- | 3 | 50 | 50 | 100 | 3 |
| 5 | CV44 | Hydraulics & Hydraulic Machines | CV | 4 | -- | -- | 3 | 50 | 50 | 100 | 4 |
| 6 | CV45 | Water Supply Engineering | CV | 3 | -- | 3 | 3 | 50 | 50 | 100 | 3 |
| 7 | CV46 | Building Planning & Drawing | CV | 1 | -- | 3 | 3 | 50 | 50 | 100 | 2 |
| 8 | CVL47 | Surveying Practice - II | CV | -- | -- | 3 | 3 | 50 | 50 | 100 | 1.5 |
| 9 | CVL48 | Applied Engineering Geology | | -- | -- | 3 | 3 | 50 | 50 | 100 | 1.5 |
| 10 | EN49 | Employability Skills | CV | 2 | -- | -- | 3 | 50 | -- | 50 | PP/NP |
| | | | **TOTAL** | | | | | | | | 26 |

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**Outcome Based Education (OBE) and Choice Based Credit System (CBCS)**

**V SEMESTER**

| Sl. No | Course and Course code | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Theory Lecture | Tutorial | Practical/ Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | L | T | P | | | | | |
| 1 | CV51 | Wastewater Treatment & Disposal | BS | 4 | -- | -- | 3 | 50 | 50 | 100 | 4 |
| 2 | CV52 | Design of RCC Structural Elements | CV | 4 | -- | -- | 3 | 50 | 50 | 100 | 4 |
| 3 | CV53 | Structural Analysis - II | CV | 4 | -- | -- | 3 | 50 | 50 | 100 | 4 |
| 4 | CV54 | Geotechnical Engineering - I | CV | 3 | -- | -- | 3 | 50 | 50 | 100 | 3 |
| 5 | CV55 | Hydrology & Irrigation Engineering | CV | 3 | -- | -- | 3 | 50 | 50 | 100 | 3 |
| 6 | CV56 | Transportation Engineering - I | CV | 3 | -- | 3 | 3 | 50 | 50 | 100 | 3 |
| 7 | CVL57 | Hydraulics & Hydraulic Machinery Lab | CV | -- | -- | 3 | 3 | 50 | 50 | 100 | 1.5 |
| 8 | CVL58 | Computer Aided Design Lab | CV | -- | -- | 3 | 3 | 50 | 50 | 100 | 1.5 |
| 10 | 19HS51 | Aptitude & Verbal Ability Skills | CV | 2 | -- | -- | 3 | 50 | -- | 50 | PP/NP |
| | | **TOTAL** | | | | | | | | | **23** |

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**B.E (Civil Engineering)**

**Outcome Based Education (OBE) and Choice Based Credit System (CBCS)**

**V SEMESTER**

| Sl. No | Course and Course code | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Theory Lecture | Tutorial | Practical/ Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | L | T | P | | | | | |
| 1 | CV51 | Wastewater Treatment & Disposal | BS | 4 | -- | -- | 3 | 50 | 50 | 100 | 4 |
| 2 | CV52 | Design of RCC Structural Elements | CV | 4 | -- | -- | 3 | 50 | 50 | 100 | 4 |
| 3 | CV53 | Structural Analysis - II | CV | 4 | -- | -- | 3 | 50 | 50 | 100 | 4 |
| 4 | CV54 | Geotechnical Engineering - I | CV | 3 | -- | -- | 3 | 50 | 50 | 100 | 3 |
| 5 | CV55 | Hydrology & Irrigation Engineering | CV | 3 | -- | -- | 3 | 50 | 50 | 100 | 3 |
| 6 | CV56 | Transportation Engineering - I | CV | 3 | -- | 3 | 3 | 50 | 50 | 100 | 3 |
| 7 | CVL57 | Hydraulics & Hydraulic Machinery Lab | CV | -- | -- | 3 | 3 | 50 | 50 | 100 | 1.5 |
| 8 | CVL58 | Computer Aided Design Lab | CV | -- | -- | 3 | 3 | 50 | 50 | 100 | 1.5 |
| 10 | 19HS51 | Aptitude & Verbal Ability Skills | CV | 2 | -- | -- | 3 | 50 | -- | 50 | PP/NP |
| | | **TOTAL** | | | | | | | | | **23** |

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SCHEME OF TEACHING AND EXAMINATION

**Batch 2017 - 2018**

**B.E (Civil Engineering)**

**Outcome Based Education (OBE) and Choice Based Credit System (CBCS)**

**VI SEMESTER**

| Sl. No | Course and Course code | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Theory Lecture | Tutorial | Practical/ Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | L | T | P | | | | | |
| 1 | HS03 | Management and Entrepreneurship | BS | 4 | -- | -- | 3 | 50 | 50 | 100 | 4 |
| 2 | CV61 | Design & Computer Aided Drawing of RCC Structures | CV | 1 | -- | -- | 3 | 50 | 50 | 100 | 2 |
| 3 | CV62 | Transportation Engineering - II | CV | 3 | -- | -- | 3 | 50 | 50 | 100 | 3 |
| 4 | CV63 | Geotechnical Engineering - II | CV | 3 | -- | -- | 3 | 50 | 50 | 100 | 3 |
| 5 | CV64 | Hydraulic Structures & Irrigation Design Drawing | CV | 2 | -- | -- | 3 | 50 | 50 | 100 | 3 |
| 6 | CV65 | Advanced Concrete Technology | CV | 3 | -- | -- | 3 | 50 | 50 | 100 | 3 |
| 7 | CV66X | Professional Elective - I | CV | 3 | -- | -- | 3 | 50 | 50 | 100 | 3 |
| 8 | CVL67 | Geotechnical Engineering Laboratory | CV | -- | -- | 3 | 3 | 50 | 50 | 100 | 1.5 |
| 9 | CVL68 | Extensive Survey Project | CV | -- | -- | 3 | 3 | 50 | 50 | 100 | 1.5 |
| 10 | CVP69 | Mini Project Work | CV | -- | -- | 3 | 3 | 50 | 50 | 100 | 2 |
| 11 | 19HS61 | Analytical & Reasoning Skills | HS | 2 | -- | -- | 3 | 50 | -- | 50 | PP/NP |
| | | **TOTAL** | | | | | | | | | **26** |

**Professional Elective - I**

| Subject Code | Title of the Subject | Subject Code | Title of the Subject |
|---|---|---|---|
| CV661 | Theory of Elasticity | CV665 | Ground Water Hydrology |

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| | | | |
|---|---|---|---|
| CV662 | Alternate Building materials & Technologies | CV666 | Solid Waste Management |
| CV663 | Ground Improvement Techniques | CV667 | Traffic Engineering |
| CV664 | Advanced Surveying | CV668 | Repair & Rehabilitation of Structures |

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SCHEME OF TEACHING AND EXAMINATION

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**B.E (Civil Engineering)**

**Outcome Based Education (OBE) and Choice Based Credit System (CBCS)**

**VII SEMESTER**

| Sl. No | Course and Course code | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Theory Lecture | Tutorial | Practical/ Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | L | T | P | | | | | |
| 1 | CV71 | Design of Steel Structures | BS | 4 | -- | -- | 3 | 50 | 50 | 100 | 4 |
| 2 | CV72 | Estimation and Valuation | CV | 2 | 2 | -- | 3 | 50 | 50 | 100 | 3 |
| 3 | CV73 | Design of Prestressed Concrete Structures | CV | 3 | -- | -- | 3 | 50 | 50 | 100 | 3 |
| 4 | CV74X | Professional Elective - II | CV | 3 | -- | -- | 3 | 50 | 50 | 100 | 3 |
| 5 | CV75X | Professional Elective - III | CV | 3 | -- | -- | 3 | 50 | 50 | 100 | 3 |
| 6 | CVL76 | Environmental Engineering Lab | CV | -- | -- | 3 | 3 | 50 | 50 | 100 | 1.5 |
| 7 | CVL77 | Concrete and Highway Materials Lab | CV | -- | -- | 3 | 3 | 50 | 50 | 100 | 1.5 |
| 8 | CVEXX | Interdepartmental Elective - I | CV | 4 | -- | -- | 3 | 50 | 50 | 100 | 4 |
| 9 | CVP78 | Project work Phase - I | CV | | | | | | | | PP / NP |
| | | | TOTAL | | | | | | | | 23 |

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| Professional Elective | | | | Interdepartmental Elective | |
|---|---|---|---|---|---|
| Professional Elective - II | | Professional Elective - III | | Interdepartmental Elective - I | |
| Subject Code | Title of the Subject | Subject Code | Title of the Subject | Subject Code | Title of the Subject |
| CV741 | Matrix Method of Structural Analysis | CV751 | Numerical methods in Civil Engineering | CVE01 | Integrated Solid Waste Management |
| CV742 | Advanced Design of RC Structures | CV752 | Rock Mechanics | CVE02 | Air Pollution and Control methods |
| CV743 | Design of Masonry Structures | CV753 | Pavement Materials and Construction | | |
| CV744 | Earth and Earth Retaining Structures | CV754 | Photogrammetry and Remote Sensing | | |
| CV745 | Highway Geometric Design | CV755 | Air Pollution and Control | | |
| CV746 | Open Channel Hydraulics | CV756 | Design and Drawing of Bridges. | | |
| CV747 | Rural Water Supply and Sanitation Engineering | CV757 | Structural Dynamics | | |
| | | CV758 | Construction Project Management | | |

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SCHEME OF TEACHING AND EXAMINATION

Batch 2017 - 2018

B.E (Civil Engineering)

Outcome Based Education (OBE) and Choice Based Credit System (CBCS)

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VIII SEMESTER

| Sl. No | Course and Course code | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Theory Lecture | Tutorial | Practical/ Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | L | T | P | | | | | |
| 1 | HS04 | Intellectual Property Rights | HSS | 2 | -- | -- | 3 | 50 | 50 | 100 | 2 |
| 2 | CV81 | Design and Computer Aided Drawing of Steel Structures | CV | – | 1 | 3 | 3 | 50 | 50 | 100 | 2 |
| 3 | CV82X | Professional Elective - IV | CV | 3 | -- | -- | 3 | 50 | 50 | 100 | 3 |
| 4 | CV83X | Professional Elective - V | CV | 3 | -- | -- | 3 | 50 | 50 | 100 | 3 |
| 5 | CVEXX | Interdepartmental Elective - II | CV | 4 | -- | -- | 3 | 50 | 50 | 100 | 4 |
| 6 | CVP84 | Project work Phase - II | CV | -- | -- | 3 | 3 | 50 | 50 | 100 | 12 |
| 7 | CVS85 | Seminar | CV | -- | 4 | – | 3 | 50 | 50 | 100 | 2 |
| | | | TOTAL | | | | | | | | 28 |

| Professional Elective | | Interdepartmental Elective |
|---|---|---|
| Professional Elective - IV | Professional Elective - V | Interdepartmental Elective - II |

| Subject Code | Title of the Subject | Subject Code | Title of the Subject | Subject Code | Title of the Subject |
|---|---|---|---|---|---|
| CV821 | Advanced Pre-stressed Concrete Structures | CV831 | Finite Element Analysis | CVE03 | Ecology and Environmental Impact Assessment |
| CV822 | Advanced Foundation Design | CV832 | Reinforced Earth Structures | CVE04 | Remote Sensing and Geographic Information System |
| CV823 | Pavement Design | CV833 | Urban Transport Planning | | |
| CV824 | Earthquake Resistant Design of Structures | CV834 | Advanced Design of Steel Structures | | |
| CV825 | Industrial WasteWater Treatment | CV835 | Water Resources Engineering | | |
| CV826 | Quality Management System in Civil Engineering | CV836 | Environmental Impact Assessment | | |
| CV827 | Remote Sensing and Geographic Information System | CV837 | Infrastructure Development | | |

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**Dr.Ambedkar Institute of Technology, Bengaluru – 560 056**
**Scheme of Teaching and Examination from the Academic Year 2018-19**
**Outcome Based Education(OBE) and Choice Based Credit System (CBCS)**

**I SEMESTER B.E (PHYSICS GROUP)**

| Sl. No | Course and Course Code | | Course Title | Teaching Department | Paper Setting Board | Teaching Hours /Week | | | | Examination | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Theory Lecture | Tutorial | Practical/ Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | | | L | T | P | | | | | |
| 1 | BC | 18MA11 | Calculus and Linear Algebra | Mathematics | Science | 3 | 2 | -- | 03 | 50 | 50 | 100 | 4 |
| 2 | BC | 18PH12 | Engineering Physics | Physics | Science | 4 | -- | -- | 03 | 50 | 50 | 100 | 4 |
| 3 | ES | 18EE13 | Basic Electrical Engineering | E and E Engineering | E and E Engineering | 2 | 2 | -- | 03 | 50 | 50 | 100 | 3 |
| 4 | ES | 18CV14 | Civil Engineering and Mechanics | Civil Engineering | Civil Engineering | 2 | 2 | -- | 03 | 50 | 50 | 100 | 3 |
| 5 | ES | 18MEL15 | Engineering Graphics and Design | ME, Auto, IP, IEM, Mfg Engineering | Mechanical Engineering | 2 | -- | 2 | 03 | 50 | 50 | 100 | 3 |
| 6 | BC | 18PHL16 | Engineering Physics Laboratory | Physics | Science | -- | -- | 2 | 03 | 50 | 50 | 100 | 1 |
| 7 | ES | 18EEL17 | Basic Electrical Engineering Laboratory | E and E Engineering | E and E Engineering | -- | -- | 2 | 03 | 50 | 50 | 100 | 1 |
| 8 | Hu | 18HS11/ 18HS12 | English/ Kannada | Humanities | Humanities | 1 | -- | 2 | 02 | 50 | 50 | 100 | 1 |
| | | | | | **TOTAL** | **13** | **06** | **08** | **21** | **350** | **350** | **700** | **20** |

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UG- 2018-19

**Dr.Ambedkar Institute of Technology, Bengaluru – 560 056**
**Scheme of Teaching and Examination from the Academic Year 2018-19**
**Outcome Based Education(OBE) and Choice Based Credit System (CBCS)**

**II SEMESTER B.E (CHEMISTRY GROUP)**

| Sl. No | Course and Course Code | | Course Title | Teaching Department | Paper Setting Board | Teaching Hours /Week | | Examination | | | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Theory Lecture | Tutorial | Practical/ Drawin | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | | | L | T | P | | | | | |
| 1 | BC | 18MA21 | Advanced Calculus and Numerical Methods | Mathematics | Science | 3 | 2 | -- | 03 | 50 | 50 | 100 | 4 |
| 2 | BC | 18CH22 | Engineering Chemistry | Chemistry | Science | 4 | -- | -- | 03 | 50 | 50 | 100 | 4 |
| 3 | ES | 18CS23 | C Programming for Problem Solving | Computer Science and Engineering | Computer Science and | 2 | 2 | -- | 03 | 50 | 50 | 100 | 3 |
| 4 | ES | 18ELN24 | Basic Electronics | ECE/E and I/ TC | E and C Engineering | 2 | 2 | -- | 03 | 50 | 50 | 100 | 3 |
| 5 | ES | 18ME25 | Elements of Mechanical Engineering | ME, Auto, IP, IEM, Mfg Engineering | Mechanical Engineering | 2 | 2 | -- | 03 | 50 | 50 | 100 | 3 |
| 6 | BC | 18CHL26 | Engineering Chemistry Laboratory | Chemistry | Science | -- | -- | 2 | 03 | 50 | 50 | 100 | 1 |
| 7 | ES | 18CSL27 | Computer Programming Laboratory | Computer Science and Engineering | Computer Science and Engineering | -- | -- | 2 | 03 | 50 | 50 | 100 | 1 |
| 8 | Hu | 18HS21/ 18HS22 | English /Kannada | Humanities | Humanities | 1 | -- | 2 | 02 | 50 | 50 | 100 | 1 |
| | | | | | **TOTAL** | **13** | **08** | **06** | **23** | **400** | **400** | **800** | **20** |

**Note: BC: Science Course, ES: Engineering Science, Hu: Humanity and Social Science.**

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SCHEME OF TEACHING AND EXAMINATION from Academic Year 2018-19

**B.E (Civil Engineering)**

**Outcome Based Education (OBE) and Choice Based Credit System (CBCS)**

**III SEMESTER**

| Sl. No | Course and Course Code | | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Theory Lecture | Tutorial | Practical/ Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | | L | T | P | | | | | |
| 1 | BC | 18MA31 | Transform calculus and Special functions | Mathematics | 2 | 2 | -- | 03 | 50 | 50 | 100 | 3 |
| 2 | PC | 18CV31 | Building Materials and Construction | CV | 3 | --- | --- | 03 | 50 | 50 | 100 | 3 |
| 3 | PC | 18CV32 | Strength of Materials | CV | 4 | --- | --- | 03 | 50 | 50 | 100 | 4 |
| 4 | PC | 18CV33 | Surveying | CV | 4 | --- | --- | 03 | 50 | 50 | 100 | 4 |
| 5 | PC | 18CV34 | Fluid Mechanics | CV | 4 | --- | --- | 03 | 50 | 50 | 100 | 4 |
| 6 | PC | 18CV35 | Applied Engineering Geology | CV | 3 | --- | --- | 03 | 50 | 50 | 100 | 3 |
| 7 | PC | 18CVL36 | Civil Engg. Material Testing Laboratory | CV | --- | --- | 2 | 03 | 50 | 50 | 100 | 1 |
| 8 | PC | 18CVL37 | Surveying Practice | CV | --- | --- | 3 | 03 | 50 | 50 | 100 | 1 |
| 9 | HS | 18HS31/32 | Constitution of India Professional Ethics and Human Rights/ Environmental Science | HS/CV | 1 | -- | -- | 02 | 50 | 50 | 100 | 1 |
| 10 | MC | 18HS33 | Soft skills (MC) | Humanities | 04 | - | -- | 03 | 50 | - | 50 | 0 |
| | | | | **TOTAL** | **19** | **02** | **05** | **29** | **500** | **450** | **950** | **24** |
| **Course prescribed to lateral entry Diploma holders admitted to III semester of Engineering programs** | | | | | | | | | | | | |
| 11 | MC | 18MAD31 | Basic Engg Mathematics - I | Mathematics | 02 | 01 | -- | 03 | 50 | | 50 | 0 |

**Note: BC: Science Course, PC: Professional Core. Hu: Humanities, MC: Mandatory Course.**

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SCHEME OF TEACHING AND EXAMINATION from Academic Year 2018-19

**B.E (Civil Engineering)**

**Outcome Based Education (OBE) and Choice Based Credit System (CBCS)**

**IV SEMESTER**

| Sl. No | Course and Course code | | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Theory Lecture | Tutorial | Practical/ Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | | L | T | P | | | | | |
| 1 | BC | 18MA41 | Numerical methods and Probability | Mathematics | 2 | 2 | -- | 03 | 50 | 50 | 100 | 3 |
| 2 | PC | 18CV41 | Water Supply Engineering | CV | 3 | --- | --- | 03 | 50 | 50 | 100 | 3 |
| 3 | PC | 18CV42 | Analysis of Determinate Structures | CV | 4 | --- | --- | 03 | 50 | 50 | 100 | 4 |
| 4 | PC | 18CV43 | Hydraulics and Hydraulic Machines | CV | 4 | --- | --- | 03 | 50 | 50 | 100 | 4 |
| 5 | PC | 18CV44 | Hydrology and Irrigation Engineering | CV | 3 | --- | --- | 03 | 50 | 50 | 100 | 3 |
| 6 | PC | 18CV45 | Concrete Technology | CV | 4 | --- | --- | 03 | 50 | 50 | 100 | 4 |
| 7 | PC | 18CVL46 | Computer Aided Building Planning and Drawing | CV | --- | 1 | 3 | 03 | 50 | 50 | 100 | 1 |
| 8 | PC | 18CVL47 | Concrete & Highway materials Lab | CV | --- | --- | 2 | 03 | 50 | 50 | 100 | 1 |
| 9 | HS | 18HS41/42 | Constitution of India Professional Ethics and Human Rights/ Environmental Science | HS/CV | 1 | -- | -- | 02 | 50 | 50 | 100 | 1 |
| 10 | MC | 18HS43 | Employability skills (MC) | Humanities | 04 | - | -- | 03 | 50 | - | 50 | 0 |
| | | | | **TOTAL** | **25** | **03** | **05** | **29** | **500** | **450** | **950** | **24** |
| | | | | | | | | | | | | |
| **Course prescribed to lateral entry Diploma holders admitted to III semester of Engineering programs** | | | | | | | | | | | | |
| | MC | 18MAD41 | Basic Engg Mathematics - II | Mathematics | 02 | 01 | -- | 03 | 50 | | 50 | 0 |

**Note: BC: Science Course, PC: Professional Core. Hu: Humanities, NCMC: Non-Credit Mandatory Course.**
**ENV: Environmental Studies, CIP: Constitution of India Professional Ethics and Human Rights**

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**B.E (Civil Engineering)**

**Outcome Based Education (OBE) and Choice Based Credit System (CBCS)**

**V SEMESTER**

| Sl. No. | Course and | | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Theory Lecture | Tutorial | Practical / Drawing | Duration in Hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | | L | T | P | | | | | |
| 1 | HS | 18HS51/52 | M&E / IPR (title as per BOS decision) | Hu | 3 | -- | -- | 03 | 50 | 50 | 100 | 3 |
| 2 | PC | 18CV51 | Wastewater Treatment and Disposal | CV | 3 | -- | -- | 03 | 50 | 50 | 100 | 3 |
| 3 | PC | 18CV52 | Design of RCC Structural Elements | CV | 4 | -- | -- | 03 | 50 | 50 | 100 | 4 |
| 4 | PC | 18CV53 | Analysis of Indeterminate Structures | CV | 4 | -- | -- | 03 | 50 | 50 | 100 | 4 |
| 5 | PC | 18CV54 | Geotechnical Engineering | CV | 2 | 2 | -- | 03 | 50 | 50 | 100 | 3 |
| 6 | PE | 18CV55X | Professional Elective - 1 | CV | 3 | -- | -- | 03 | 50 | 50 | 100 | 3 |
| 7 | OE | 18CV56X | Open Elective - A | CV | 3 | -- | -- | 03 | 50 | 50 | 100 | 3 |
| 8 | PC | 18CVL57 | Hydraulics and Hydraulic Machinery Laboratory | CV | -- | -- | 2 | 03 | 50 | 50 | 100 | 1 |
| 9 | PC | 18CVL58 | Computer Aided Design Laboratory | CV | -- | -- | 2 | 03 | 50 | 50 | 100 | 1 |
| 10 | HS | 18HS55 | Placement Training | Hu | 2 | -- | -- | 03 | 50 | -- | 50 | PP/NP |
| | | | | **TOTAL** | **25** | -- | **4** | **30** | **500** | **450** | **950** | **25** |

**Electives**

| Course code | Professional Electives - 1 |
|---|---|
| 18CV551 | Transportation Engineering |
| 18CV552 | Theory of Elasticity |
| 18CV553 | Ground Improvement Techniques |
| 18CV554 | Advanced Surveying |
| 18CV555 | Ground Water Hydrology |
| | **OPEN ELECTIVE - A** |
| 18CV561 | Air Pollution and Control |
| 18CV562 | Integrated Solid Waste Management |

Students can select any one of the open electives (Please refer to consolidated list of Dr. AIT for open electives) offered by any Department.

Selection of an open elective is not allowed provided:

- The candidate has studied the same course during the previous semesters of the programme.
- The syllabus content of open elective is similar to that of Departmental core courses or professional electives.
- A similar course, under any category, is prescribed in the higher semesters of the programme.

Registration to electives shall be documented under the guidance of Programme Coordinator/ Mentor.

**Dr. Ambedkar Institute of Technology, Bengaluru-560 056**

SCHEME OF TEACHING AND EXAMINATION from Academic Year 2018-19

**B.E (Civil Engineering)**

**Outcome Based Education (OBE) and Choice Based Credit System (CBCS)**

Professor and Head
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Dr. Ambedkar Institute of Technology
Bangalore - 560 0..

**VI SEMESTER**

| Sl. No. | Course and | | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Theory Lecture | Tutorial | Practical/ Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | | L | T | P | | | | | |
| 1 | HS | 18HS61/62 | M&E/IPR | Hu | 3 | -- | -- | 03 | 50 | 50 | 100 | 3 |
| 2 | PC | 18CV61 | Design of Steel Structures | CV | 3 | 2 | -- | 03 | 50 | 50 | 100 | 4 |
| 3 | PC | 18CV62 | Railways, Airport, Tunnel and Harbour Engineering | CV | 3 | -- | -- | 03 | 50 | 50 | 100 | 3 |
| 4 | PC | 18CV63 | Foundation Engineering | CV | 2 | 2 | -- | 03 | 50 | 50 | 100 | 3 |
| 5 | PE | 18CV64X | Professional Elective - 2 | CV | 3 | -- | -- | 03 | 50 | 50 | 100 | 3 |
| 6 | OE | 18CV65X | Open Elective – B | CV | 3 | -- | -- | 03 | 50 | 50 | 100 | 3 |
| 7 | PC | 18CVL66 | Computer Aided Drawing of RC and Steel structures | CV | -- | -- | 2 | 03 | 50 | 50 | 100 | 1 |
| 8 | PC | 18CVL67 | Geotechnical Engineering Laboratory | CV | -- | -- | 2 | 03 | 50 | 50 | 100 | 1 |
| 9 | M | 18CVM68 | Mini-Project | | | | | 03 | 50 | 50 | 100 | 2 |
| 10 | PC | 18CVL69 | Extensive Survey Project | CV | -- | -- | 2 | 03 | 50 | 50 | 100 | 1 |
| 11 | HS | 18HS66 | Placement Training | Hu | 2 | -- | -- | 03 | 50 | -- | 50 | PP/NP |
| | | | **TOTAL** | | **20** | **2** | **6** | **33** | **550** | **500** | **1050** | **24** |

**Note: PC: Professional Core, PE: Professional Elective, OE: Open Elective, MP: Mini-Project, INT: Internship.**

**Internship:** All the students admitted to III year of BE have to undergo mandatory internship of 4 weeks during the vacations of VI and VII semesters and /or VII and VIII semesters.

A University examination will be conducted during VIII semester and prescribed credit are added to VIII semester.

Internship is considered as a head of passing and is considered for the award of degree. Those, who do not take-up/complete the internship will be declared as failed and have to complete during subsequent University examination after satisfy the internship requirements.

**Electives**

| Course code | Professional Electives - 2 | Open Elective - B |
|---|---|---|
| 18CV641 | Pre-Stressed Concrete | Students can select any one of the open electives (Please refer to consolidated list of Dr. AIT for open electives) offered by any Department.<br>Selection of an open elective is not allowed provided, |
| 18CV642 | Alternate Building Materials and Technologies | |
| 18CV643 | Traffic Engineering | |

| | | |
|---|---|---|
| 18CV644 | Open Channel Hydraulics | • The candidate has studied the same course during the previous semesters of the programme.<br>• The syllabus content of open elective is similar to that of Departmental core courses or professional electives.<br>• A similar course, under any category, is prescribed in the higher semesters of the programme.<br>Registration to electives shall be documented under the guidance of Programme Coordinator/ Mentor. |
| 18CV645 | Earth and Earth Retaining Structures | |
| | **Open Elective - B** | |
| 18CV651 | Integrated Solid Waste Management | |
| 18CV652 | Photogrammetry and Remote Sensing | |

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SCHEME OF TEACHING AND EXAMINATION from Academic Year 2018-19
**B.E (Civil Engineering)**
**Outcome Based Education (OBE) and Choice Based Credit System (CBCS)**

**VII SEMESTER**

| Sl. No | Course and Course code | | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Theory Lecture | Tutorial | Practical/ Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | | L | T | P | | | | | |
| 1 | MC | 18HS71/72 | CMEP / OSHA | IM/CV | 2 | -- | -- | 03 | 50 | 50 | 100 | 2 |
| 2 | PC | 18CV71 | Design of RC & Steel Structures | CV | 4 | --- | --- | 03 | 50 | 50 | 100 | 4 |
| 3 | PC | 18CV72 | Estimation and Valuation | CV | 4 | --- | --- | 03 | 50 | 50 | 100 | 4 |
| 4 | PE | 18CV73X | Professional Elective - 3 | CV | 3 | --- | --- | 03 | 50 | 50 | 100 | 3 |
| 5 | PE | 18CV74X | Professional Elective - 4 | CV | 3 | -- | -- | 03 | 50 | 50 | 100 | 3 |
| 6 | OE | 18CV75X | Open Elective - C | CV | 3 | -- | -- | 03 | 50 | 50 | 100 | 3 |
| 7 | PC | 18CVL76 | Environmental Engg. Laboratory | CV | --- | --- | 2 | 03 | 50 | 50 | 100 | 1 |
| 8 | PC | 18CVL77 | Advanced Civil Engg. Laboratory | CV | --- | --- | 2 | 03 | 50 | 50 | 100 | 1 |
| 8 | Project | 18CVP78 | Project Work Phase - I | CV | -- | -- | 2 | 03 | 50 | 50 | 100 | 2 |
| 9 | INT | 18CVI79 | Internship | (If not completed after VI semester examinations, it has to be carried out during the intervening vacations of VII and VIII semesters ) | | | | | | | | -- |
| **TOTAL** | | | | | **19** | **--** | **6** | **27** | **450** | **450** | **900** | **23** |

**Note:**
PC: Professional Core, PE: Professional Elective, OE: Open Elective, INT: Internship, MC: Mandatory Course
CMEP: Cost Management of Engineering Projects, OSHA: Occupational Safety and Health Administration

**Internship:**
All the students admitted to III year of BE have to undergo mandatory internship of 4 weeks during the vacations of VI and VII semesters and /or VII and VIII semesters.
A SEE examination will be conducted during VIII semester and prescribed credits shall be added to VIII semester.
Internship is considered as a head of passing and is considered for the award of degree. Those, who do not take-up/complete the internship will be declared as failed and have to complete during subsequent SEE examination after satisfy the internship requirements.

**Electives**

| Course code | Professional Electives - 3 | Open Elective - B |
|---|---|---|
| 18CV731 | Pavement Materials and Construction | |

| | | |
|---|---|---|
| 18CV732 | Photogrammetry and Remote Sensing | Students can select any one of the open electives (Please refer to consolidated list of Dr. AIT for open electives) offered by any Department.<br>Selection of an open elective is not allowed provided,<br>✓ The candidate has studied the same course during the previous semesters of the programme.<br>✓ The syllabus content of open elective is similar to that of Departmental core courses or professional electives.<br>✓ A similar course, under any category, is prescribed in the higher semesters of the programme.<br>✓ Registration to electives shall be documented under the guidance of Programme Coordinator/ Mentor. |
| 18CV733 | Environmental Impact Assessment | |
| 18CV734 | Design of Bridges | |
| 18CV735 | Structural Dynamics | |
| 18CV736 | Construction Project Management | |
| 18CV737 | Reinforced Earth Structures | |

**Electives : 4**

| Course code | Professional Elective |
|---|---|
| 18CV741 | Water Resources Engineering |
| 18CV742 | Advanced Foundation Design |
| 18CV743 | Pavement Design |
| 18CV744 | Earthquake Resistant Design of Structures |
| 18CV745 | Solid Waste Management |
| 18CV746 | Quality Management System in Civil Engineering |
| 18CV747 | Hydraulic Structures & Irrigation drawing |

**Electives : B**

| Course code | Open Elective - C |
|---|---|
| 18CV751 | Ecology and Environmental Impact Assessment |
| 18CV752 | Urban Transport Planning |
| 18CV753 | Photo Geology and Remote Sensing |

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SCHEME OF TEACHING AND EXAMINATION from Academic Year 2018-19

**B.E (Civil Engineering)**

**Outcome Based Education (OBE) and Choice Based Credit System (CBCS)**

**VIII SEMESTER**

| Sl. No | Course and Course code | | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Theory Lecture | Tutorial | Practical / Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | | L | T | P | | | | | |
| 1 | MC | 18HS81/82 | CMEP / OSHA | IM /CV | 2 | -- | -- | 03 | 50 | 50 | 100 | 2 |
| 2 | Project | 18CVP81 | Project Work Phase - II | CV | -- | -- | 2 | 03 | 50 | 50 | 100 | 10 |
| 3 | Seminar | 18CVS82 | Technical Seminar | CV | -- | -- | 2 | 03 | 50 | 50 | 100 | 1 |
| 4 | INT | 18CVI83 | Internship | (Completed during the intervening vacations of VI and VII semesters and /or VII and VIII semesters.) | | | | 03 | 50 | 50 | 100 | 2 |
| **TOTAL** | | | | | **02** | -- | **4** | **12** | **200** | **200** | **400** | **15** |

**Note:**

PC: Professional Core, PE: Professional Elective, OE: Open Elective, INT: Internship, MC: Mandatory Course

CMEP: Cost Management of Engineering Projects, OSHA: Occupational Safety and Health Administration

**Internship:**

Those, who have not pursued /completed the internship will be declared as failed and have to complete during subsequent SEE examination after they satisfy the internship requirements.

Total 175 Credit Distributions for all semester B.E. (Civil Engineering) Programme.

| Semester | I | II | III | IV | V | VI | VII | VIII | Total Credits |
|---|---|---|---|---|---|---|---|---|---|
| Credits | 20 | 20 | 24 | 24 | 25 | 24 | 23 | 15 | 175 |

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**Scheme of Teaching and Examination from the Academic Year 2019-20**
**Outcome Based Education(OBE) and Choice Based Credit System (CBCS)**

**I SEMESTER B.E (PHYSICS GROUP)**

| Sl. No | Course and Course Code | | Course Title | Teaching Department | Paper Setting Board | Teaching Hours /Week | | | Duration in hours | Examination | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Theory Lecture | Tutorial | Practical/ Drawing | | CIE Marks | SEE Marks | Total Marks | |
| | | | | | | L | T | P | | | | | |
| 1 | BC | 18MA11 | Calculus and Linear Algebra | Mathematics | Science | 3 | 2 | -- | 03 | 50 | 50 | 100 | 4 |
| 2 | BC | 18PH12 | Engineering Physics | Physics | Science | 4 | -- | -- | 03 | 50 | 50 | 100 | 4 |
| 3 | ES | 18EE13 | Basic Electrical Engineering | E and E Engineering | E and E Engineering | 2 | 2 | -- | 03 | 50 | 50 | 100 | 3 |
| 4 | ES | 18CV14 | Civil Engineering and Mechanics | Civil Engineering | Civil Engineering | 2 | 2 | -- | 03 | 50 | 50 | 100 | 3 |
| 5 | ES | 18MEL15 | Engineering Graphics and Design | ME, Auto, IP, IEM, Mfg Engineering | Mechanical Engineering | 2 | -- | 2 | 03 | 50 | 50 | 100 | 3 |
| 6 | BC | 18PHL16 | Engineering Physics Laboratory | Physics | Science | -- | -- | 2 | 03 | 50 | 50 | 100 | 1 |
| 7 | ES | 18EEL17 | Basic Electrical Engineering Laboratory | E and E Engineering | E and E Engineering | -- | -- | 2 | 03 | 50 | 50 | 100 | 1 |
| 8 | Hu | 18HS11/ 18HS12 | English/ Kannada | Humanities | Humanities | 1 | -- | 2 | 02 | 50 | 50 | 100 | 1 |
| | | | | | **TOTAL** | **13** | **06** | **08** | **21** | **350** | **350** | **700** | **20** |

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**Scheme of Teaching and Examination from the Academic Year 2019-20**
**Outcome Based Education(OBE) and Choice Based Credit System (CBCS)**

**II SEMESTER B.E (CHEMISTRY GROUP)**

| Sl. No | Course and Course Code | | Course Title | Teaching Department | Paper Setting Board | Teaching Hours /Week | | Examination | | | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Theory Lecture | Tutorial | Practical/ Drawin | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | | | L | T | P | | | | | |
| 1 | BC | 18MA21 | Advanced Calculus and Numerical Methods | Mathematics | Science | 3 | 2 | -- | 03 | 50 | 50 | 100 | 4 |
| 2 | BC | 18CH22 | Engineering Chemistry | Chemistry | Science | 4 | -- | -- | 03 | 50 | 50 | 100 | 4 |
| 3 | ES | 18CS23 | C Programming for Problem Solving | Computer Science and Engineering | Computer Science and | 2 | 2 | -- | 03 | 50 | 50 | 100 | 3 |
| 4 | ES | 18ELN24 | Basic Electronics | ECE/E and I/ TC | E and C Engineering | 2 | 2 | -- | 03 | 50 | 50 | 100 | 3 |
| 5 | ES | 18ME25 | Elements of Mechanical Engineering | ME, Auto, IP, IEM, Mfg Engineering | Mechanical Engineering | 2 | 2 | -- | 03 | 50 | 50 | 100 | 3 |
| 6 | BC | 18CHL26 | Engineering Chemistry Laboratory | Chemistry | Science | -- | -- | 2 | 03 | 50 | 50 | 100 | 1 |
| 7 | ES | 18CSL27 | Computer Programming Laboratory | Computer Science and Engineering | Computer Science and Engineering | -- | -- | 2 | 03 | 50 | 50 | 100 | 1 |
| 8 | Hu | 18HS21/ 18HS22 | English /Kannada | Humanities | Humanities | 1 | -- | 2 | 02 | 50 | 50 | 100 | 1 |
| | | | | | **TOTAL** | **13** | **08** | **06** | **23** | **400** | **400** | **800** | **20** |

**Note: BC: Science Course, ES: Engineering Science, Hu: Humanity and Social Science.**

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SCHEME OF TEACHING AND EXAMINATION from Academic Year 2019-20

**B.E (Civil Engineering)**

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**III SEMESTER**

| Sl. No | Course and Course Code | | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Theory Lecture | Tutorial | Practical/ Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | | L | T | P | | | | | |
| 1 | BC | 18MA31 | Transform calculus and Special functions | Mathematics | 2 | 2 | -- | 03 | 50 | 50 | 100 | 3 |
| 2 | PC | 18CV31 | Building Materials and Construction | CV | 3 | --- | --- | 03 | 50 | 50 | 100 | 3 |
| 3 | PC | 18CV32 | Strength of Materials | CV | 4 | --- | --- | 03 | 50 | 50 | 100 | 4 |
| 4 | PC | 18CV33 | Surveying | CV | 4 | --- | --- | 03 | 50 | 50 | 100 | 4 |
| 5 | PC | 18CV34 | Fluid Mechanics | CV | 4 | --- | --- | 03 | 50 | 50 | 100 | 4 |
| 6 | PC | 18CV35 | Applied Engineering Geology | CV | 3 | --- | --- | 03 | 50 | 50 | 100 | 3 |
| 7 | PC | 18CVL36 | Civil Engg. Material Testing Laboratory | CV | --- | --- | 2 | 03 | 50 | 50 | 100 | 1 |
| 8 | PC | 18CVL37 | Surveying Practice | CV | --- | --- | 3 | 03 | 50 | 50 | 100 | 1 |
| 9 | HS | 18HS31/32 | Constitution of India Professional Ethics and Human Rights/ Environmental Science | HS/CV | 1 | -- | -- | 02 | 50 | 50 | 100 | 1 |
| 10 | MC | 18HS33 | Soft skills (MC) | Humanities | 04 | - | -- | 03 | 50 | - | 50 | 0 |
| | | | | **TOTAL** | **19** | **02** | **05** | **29** | **500** | **450** | **950** | **24** |
| | | | | | | | | | | | | |
| **Course prescribed to lateral entry Diploma holders admitted to III semester of Engineering programs** | | | | | | | | | | | | |
| 11 | MC | 18MAD31 | Basic Engg Mathematics - I | Mathematics | 02 | 01 | -- | 03 | 50 | | 50 | 0 |

**Note: BC: Science Course, PC: Professional Core. Hu: Humanities, MC: Mandatory Course.**

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**IV SEMESTER**

| Sl. No | Course and Course code | | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Theory Lecture | Tutorial | Practical/ Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | | L | T | P | | | | | |
| 1 | BC | 18MA41 | Numerical methods and Probability | Mathematics | 2 | 2 | -- | 03 | 50 | 50 | 100 | 3 |
| 2 | PC | 18CV41 | Water Supply Engineering | CV | 3 | --- | --- | 03 | 50 | 50 | 100 | 3 |
| 3 | PC | 18CV42 | Analysis of Determinate Structures | CV | 4 | --- | --- | 03 | 50 | 50 | 100 | 4 |
| 4 | PC | 18CV43 | Hydraulics and Hydraulic Machines | CV | 4 | --- | --- | 03 | 50 | 50 | 100 | 4 |
| 5 | PC | 18CV44 | Hydrology and Irrigation Engineering | CV | 3 | --- | --- | 03 | 50 | 50 | 100 | 3 |
| 6 | PC | 18CV45 | Concrete Technology | CV | 4 | --- | --- | 03 | 50 | 50 | 100 | 4 |
| 7 | PC | 18CVL46 | Computer Aided Building Planning and Drawing | CV | --- | 1 | 3 | 03 | 50 | 50 | 100 | 1 |
| 8 | PC | 18CVL47 | Concrete & Highway materials Lab | CV | --- | --- | 2 | 03 | 50 | 50 | 100 | 1 |
| 9 | HS | 18HS41/42 | Constitution of India Professional Ethics and Human Rights/ Environmental Science | HS/CV | 1 | -- | -- | 02 | 50 | 50 | 100 | 1 |
| 10 | MC | 18HS43 | Employability skills (MC) | Humanities | 04 | - | -- | 03 | 50 | - | 50 | 0 |
| | | | | **TOTAL** | **25** | **03** | **05** | **29** | **500** | **450** | **950** | **24** |
| | | | | | | | | | | | | |
| **Course prescribed to lateral entry Diploma holders admitted to III semester of Engineering programs** | | | | | | | | | | | | |
| | MC | 18MAD41 | Basic Engg Mathematics - II | Mathematics | 02 | 01 | -- | 03 | 50 | | 50 | 0 |

**Note: BC: Science Course, PC: Professional Core. Hu: Humanities, NCMC: Non-Credit Mandatory Course.**
**ENV: Environmental Studies, CIP: Constitution of India Professional Ethics and Human Rights**

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SCHEME OF TEACHING AND EXAMINATION from Academic Year 2019-20

**B.E (Civil Engineering)**

**Outcome Based Education (OBE) and Choice Based Credit System (CBCS)**

**V SEMESTER**

| Sl. No | Course and Course code | | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Theory Lecture | Tutorial | Practical/ Drawi | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | | L | T | P | | | | | |
| 1 | HS | 18HS51/52 | M&E / IPR (title as per BOS decision) | Hu | 3 | -- | -- | 03 | 50 | 50 | 100 | 3 |
| 2 | PC | 18CV51 | Wastewater Treatment and Disposal | CV | 3 | -- | -- | 03 | 50 | 50 | 100 | 3 |
| 3 | PC | 18CV52 | Design of RCC Structural Elements | CV | 4 | -- | -- | 03 | 50 | 50 | 100 | 4 |
| 4 | PC | 18CV53 | Analysis of Indeterminate Structures | CV | 4 | -- | -- | 03 | 50 | 50 | 100 | 4 |
| 5 | PC | 18CV54 | Geotechnical Engineering | CV | 2 | 2 | -- | 03 | 50 | 50 | 100 | 3 |
| 6 | PE | 18CV55X | Professional Elective - 1 | CV | 3 | -- | -- | 03 | 50 | 50 | 100 | 3 |
| 7 | OE | 18CV56X | Open Elective - A | CV | 3 | -- | -- | 03 | 50 | 50 | 100 | 3 |
| 8 | PC | 18CVL57 | Hydraulics and Hydraulic Machinery Laboratory | CV | -- | -- | 2 | 03 | 50 | 50 | 100 | 1 |
| 9 | PC | 18CVL58 | Computer Aided Design Laboratory | CV | -- | -- | 2 | 03 | 50 | 50 | 100 | 1 |
| 10 | HS | 18HS55 | Placement Training | Hu | 2 | -- | -- | 03 | 50 | -- | 50 | PP/NP |
| | | | | **TOTAL** | **25** | **--** | **4** | **30** | **500** | **450** | **950** | **25** |

**Electives**

| Course code | Professional Electives - 1 |
|---|---|
| 18CV551 | Transportation Engineering |
| 18CV552 | Theory of Elasticity |
| 18CV553 | Ground Improvement Techniques |
| 18CV554 | Advanced Surveying |
| 18CV555 | Ground Water Hydrology |
| | **OPEN ELECTIVE - A** |
| 18CV561 | Air Pollution and Control |
| 18CV562 | Integrated Solid Waste Management |

Students can select any one of the open electives (Please refer to consolidated list of Dr. AIT for open electives) offered by any Department.

Selection of an open elective is not allowed provided:

- The candidate has studied the same course during the previous semesters of the programme.
- The syllabus content of open elective is similar to that of Departmental core courses or professional electives.
- A similar course, under any category, is prescribed in the higher semesters of the programme.

Registration to electives shall be documented under the guidance of Programme Coordinator/ Mentor.

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SCHEME OF TEACHING AND EXAMINATION from Academic Year 2019-20

**B.E (Civil Engineering)**

**Outcome Based Education (OBE) and Choice Based Credit System (CBCS)**

**VI SEMESTER**

| Sl. No | Course and Course code | | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Theory Lecture | Tutorial | Practical/ Drawi | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | | L | T | P | | | | | |
| 1 | HS | 18HS61/62 | M&E/IPR | Hu | 3 | -- | -- | 03 | 50 | 50 | 100 | 3 |
| 2 | PC | 18CV61 | Design of Steel Structures | CV | 3 | 2 | -- | 03 | 50 | 50 | 100 | 4 |
| 3 | PC | 18CV62 | Railways, Airport, Tunnel and Harbour Engineering | CV | 3 | -- | -- | 03 | 50 | 50 | 100 | 3 |
| 4 | PC | 18CV63 | Foundation Engineering | CV | 2 | 2 | -- | 03 | 50 | 50 | 100 | 3 |
| 5 | PE | 18CV64X | Professional Elective - 2 | CV | 3 | -- | -- | 03 | 50 | 50 | 100 | 3 |
| 6 | OE | 18CV65X | Open Elective – B | CV | 3 | -- | -- | 03 | 50 | 50 | 100 | 3 |
| 7 | PC | 18CVL66 | Computer Aided Drawing of RC and Steel structures | CV | -- | -- | 2 | 03 | 50 | 50 | 100 | 1 |
| 8 | PC | 18CVL67 | Geotechnical Engineering Laboratory | CV | -- | -- | 2 | 03 | 50 | 50 | 100 | 1 |
| 9 | M | 18CVM68 | Mini-Project | | | | | 03 | 50 | 50 | 100 | 2 |
| 10 | PC | 18CVL69 | Extensive Survey Project | CV | -- | -- | 2 | 03 | 50 | 50 | 100 | 1 |
| 11 | HS | 18HS66 | Placement Training | Hu | 2 | -- | -- | 03 | 50 | -- | 50 | PP/NP |
| | | | **TOTAL** | | **20** | **2** | **6** | **33** | **550** | **500** | **1050** | **24** |

**Note: PC: Professional Core, PE: Professional Elective, OE: Open Elective, MP: Mini-Project, INT: Internship.**

**Internship:** All the students admitted to III year of BE have to undergo mandatory internship of 4 weeks during the vacations of VI and VII semesters and /or VII and VIII semesters.

A University examination will be conducted during VIII semester and prescribed credit are added to VIII semester.

Internship is considered as a head of passing and is considered for the award of degree. Those, who do not take-up/complete the internship will be declared as failed and have to complete during subsequent University examination after satisfy the internship requirements.

**Electives**

| Course code | Professional Electives - 2 | Open Elective - B |
|---|---|---|
| 18CV641 | Pre-Stressed Concrete | Students can select any one of the open electives (Please refer to consolidated list of Dr. AIT for open electives) offered by any Department. Selection of an open elective is not allowed provided, |
| 18CV642 | Alternate Building Materials and Technologies | |
| 18CV643 | Traffic Engineering | |

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SCHEME OF TEACHING AND EXAMINATION from Academic Year 2019-20

**B.E (Civil Engineering)**

**Outcome Based Education (OBE) and Choice Based Credit System (CBCS)**

**VIII SEMESTER**

| Sl. No | Course and Course code | | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Theory Lecture | Tutorial | Practical / Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | | L | T | P | | | | | |
| 1 | MC | 18HS81/82 | CMEP / OSHA | IM /CV | 2 | -- | -- | 03 | 50 | 50 | 100 | 2 |
| 2 | Project | 18CVP81 | Project Work Phase - II | CV | -- | -- | 2 | 03 | 50 | 50 | 100 | 10 |
| 3 | Seminar | 18CVS82 | Technical Seminar | CV | -- | -- | 2 | 03 | 50 | 50 | 100 | 1 |
| 4 | INT | 18CVI83 | Internship | (Completed during the intervening vacations of VI and VII semesters and /or VII and VIII semesters.) | | | | 03 | 50 | 50 | 100 | 2 |
| **TOTAL** | | | | | **02** | -- | **4** | **12** | **200** | **200** | **400** | **15** |

**Note:**

PC: Professional Core, PE: Professional Elective, OE: Open Elective, INT: Internship, MC: Mandatory Course

CMEP: Cost Management of Engineering Projects, OSHA: Occupational Safety and Health Administration

**Internship:**

Those, who have not pursued /completed the internship will be declared as failed and have to complete during subsequent SEE examination after they satisfy the internship requirements.

Total 175 Credit Distributions for all semester B.E. (Civil Engineering) Programme.

| Semester | I | II | III | IV | V | VI | VII | VIII | Total Credits |
|---|---|---|---|---|---|---|---|---|---|
| Credits | 20 | 20 | 24 | 24 | 25 | 24 | 23 | 15 | 175 |

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SCHEME OF TEACHING AND EXAMINATION from Academic Year 2019-20

**B.E (Civil Engineering)**

**Outcome Based Education (OBE) and Choice Based Credit System (CBCS)**

**VII SEMESTER**

| Sl. No | Course and Course code | | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Theory Lecture | Tutorial | Practical/ Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | | L | T | P | | | | | |
| 1 | MC | 18HS71/72 | CMEP / OSHA | IM/CV | 2 | -- | -- | 03 | 50 | 50 | 100 | 2 |
| 2 | PC | 18CV71 | Design of RC & Steel Structures | CV | 4 | --- | --- | 03 | 50 | 50 | 100. | 4 |
| 3 | PC | 18CV72 | Estimation and Valuation | CV | 4 | --- | --- | 03 | 50 | 50 | 100 | 4 |
| 4 | PE | 18CV73X | Professional Elective - 3 | CV | 3 | --- | --- | 03 | 50 | 50 | 100 | 3 |
| 5 | PE | 18CV74X | Professional Elective - 4 | CV | 3 | -- | -- | 03 | 50 | 50 | 100 | 3 |
| 6 | OE | 18CV75X | Open Elective - C | CV | 3 | -- | -- | 03 | 50 | 50 | 100 | 3 |
| 7 | PC | 18CVL76 | Environmental Engg. Laboratory | CV | --- | --- | 2 | 03 | 50 | 50 | 100 | 1 |
| 8 | PC | 18CVL77 | Advanced Civil Engg. Laboratory | CV | --- | --- | 2 | 03 | 50 | 50 | 100 | 1 |
| 8 | Project | 18CVP78 | Project Work Phase - I | CV | -- | -- | 2 | 03 | 50 | 50 | 100 | 2 |
| 9 | INT | 18CVI79 | Internship | (If not completed after VI semester examinations, it has to be carried out during the intervening vacations of VII and VIII semesters ) | | | | | | | | -- |
| **TOTAL** | | | | | **19** | **--** | **6** | **27** | **450** | **450** | **900** | **23** |

**Note:**
PC: Professional Core, PE: Professional Elective, OE: Open Elective, INT: Internship, MC: Mandatory Course
CMEP: Cost Management of Engineering Projects, OSHA: Occupational Safety and Health Administration

**Internship:**
All the students admitted to III year of BE have to undergo mandatory internship of 4 weeks during the vacations of VI and VII semesters and /or VII and VIII semesters.
A SEE examination will be conducted during VIII semester and prescribed credits shall be added to VIII semester.
Internship is considered as a head of passing and is considered for the award of degree. Those, who do not take-up/complete the internship will be declared as failed and have to complete during subsequent SEE examination after satisfy the internship requirements.

**Electives**

| Course code | Professional Electives - 3 | Open Elective - B |
|---|---|---|
| 18CV731 | Pavement Materials and Construction | |

| | | |
|---|---|---|
| 18CV732 | Photogrammetry and Remote Sensing | Students can select any one of the open electives (Please refer to consolidated list of Dr. AIT for open electives) offered by any Department.<br>Selection of an open elective is not allowed provided,<br>✓ The candidate has studied the same course during the previous semesters of the programme.<br>✓ The syllabus content of open elective is similar to that of Departmental core courses or professional electives.<br>✓ A similar course, under any category, is prescribed in the higher semesters of the programme.<br>✓ Registration to electives shall be documented under the guidance of Programme Coordinator/ Mentor. |
| 18CV733 | Environmental Impact Assessment | |
| 18CV734 | Design of Bridges | |
| 18CV735 | Structural Dynamics | |
| 18CV736 | Construction Project Management | |
| 18CV737 | Reinforced Earth Structures | |

**Electives : 4**

| Course code | Professional Elective |
|---|---|
| 18CV741 | Water Resources Engineering |
| 18CV742 | Advanced Foundation Design |
| 18CV743 | Pavement Design |
| 18CV744 | Earthquake Resistant Design of Structures |
| 18CV745 | Solid Waste Management |
| 18CV746 | Quality Management System in Civil Engineering |
| 18CV747 | Hydraulic Structures & Irrigation drawing |

**Electives : B**

| Course code | Open Elective - C |
|---|---|
| 18CV751 | Ecology and Environmental Impact Assessment |
| 18CV752 | Urban Transport Planning |
| 18CV753 | Photo Geology and Remote Sensing |

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Scheme of Teaching and Examination from the Academic Year 2020-21
Outcome Based Education(OBE) and Choice Based Credit System (CBCS) UG-2020-21

## I SEMESTER B.E (PHYSICS GROUP)

| Sl. No | Course and Course Code | | Course Title | Teaching Department | Paper Setting Board | Teaching Hours /Week | | Examination | | | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Theory Lecture | Tutorial | Practical/ Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | | | L | T | P | | | | | |
| 1 | BC | 18MA11 | Calculus and Linear Algebra | Mathematics | Science | 3 | 2 | -- | 03 | 50 | 50 | 100 | 4 |
| 2 | BC | 18PH12 | Engineering Physics | Physics | Science | 4 | -- | -- | 03 | 50 | 50 | 100 | 4 |
| 3 | ES | 18EE13 | Basic Electrical Engineering | E and E Engineering | E and E Engineering | 2 | 2 | -- | 03 | 50 | 50 | 100 | 3 |
| 4 | ES | 18CV14 | Civil Engineering and Mechanics | Civil Engineering | Civil Engineering | 2 | 2 | -- | 03 | 50 | 50 | 100 | 3 |
| 5 | ES | 18MEL15 | Engineering Graphics and Design | ME, Auto, IP, IEM, Mfg Engineering | Mechanical Engineering | 2 | -- | 2 | 03 | 50 | 50 | 100 | 3 |
| 6 | BC | 18PHL16 | Engineering Physics Laboratory | Physics | Science | -- | -- | 2 | 03 | 50 | 50 | 100 | 1 |
| 7 | ES | 18EEL17 | Basic Electrical Engineering Laboratory | E and E Engineering | E and E Engineering | -- | -- | 2 | 03 | 50 | 50 | 100 | 1 |
| 8 | Hu | 18HS11/ 18HS12 | English/ Kannada | Humanities | Humanities | 1 | -- | 2 | 02 | 50 | 50 | 100 | 1 |
| | | | | | TOTAL | 13 | 06 | 08 | 21 | 350 | 350 | 700 | 20 |

## II SEMESTER B.E (CHEMISTRY GROUP)

| Sl. No | Course and Course Code | | Course Title | Teaching Department | Paper Setting Board | Teaching Hours /Week | | Examination | | | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Theory Lecture | Tutorial | Practical/ Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | | | L | T | P | | | | | |
| 1 | BC | 18MA21 | Advanced Calculus and Numerical Methods | Mathematics | Science | 3 | 2 | -- | 03 | 50 | 50 | 100 | 4 |
| 2 | BC | 18CH22 | Engineering Chemistry | Chemistry | Science | 4 | -- | -- | 03 | 50 | 50 | 100 | 4 |
| 3 | ES | 18CS23 | C Programming for Problem Solving | Computer Science and Engineering | Computer Science and Engineering | 2 | 2 | -- | 03 | 50 | 50 | 100 | 3 |
| 4 | ES | 18ELN24 | Basic Electronics | ECE/E and I/ TC | E and C Engineering | 2 | 2 | -- | 03 | 50 | 50 | 100 | 3 |
| 5 | ES | 18ME25 | Elements of Mechanical Engineering | ME, Auto, IP, IEM, Mfg Engineering | Mechanical Engineering | 2 | 2 | -- | 03 | 50 | 50 | 100 | 3 |
| 6 | BC | 18CHL26 | Engineering Chemistry Laboratory | Chemistry | Science | -- | -- | 2 | 03 | 50 | 50 | 100 | 1 |
| 7 | ES | 18CSL27 | Computer Programming Laboratory | Computer Science and Engineering | Computer Science and Engineering | -- | -- | 2 | 03 | 50 | 50 | 100 | 1 |
| 8 | Hu | 18HS21/ 18HS22 | English /Kannada | Humanities | Humanities | 1 | -- | 2 | 02 | 50 | 50 | 100 | 1 |
| | | | | | TOTAL | 13 | 08 | 06 | 23 | 400 | 400 | 800 | 20 |

**Note: BC: Science Course, ES: Engineering Science, Hu: Humanity and Social Science.**

**Definition of Credit:**
1 hour Lecture (L) per week per semester =1 Credit
2 hour Tutorial (T) per week per semester =1 Credit
2 hour Practical/Laboratory/Drawing (P) per week per semester =1 Credit.

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Scheme of Teaching and Examination from the Academic Year 2020-21
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

## I SEMESTER B.E (CHEMISTRY GROUP)

| Sl. No | Course and Course Code | | Course Title | Teaching Department | Paper Setting Board | Teaching Hours /Week | | Examination | | | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Theory Lecture | Tutorial | Practical/ Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | | | L | T | P | | | | | |
| 1 | BC | 18MA11 | Calculus and Linear Algebra | Mathematics | Science | 3 | 2 | -- | 03 | 50 | 50 | 100 | 4 |
| 2 | BC | 18CH12 | Engineering Chemistry | Chemistry | Science | 4 | -- | -- | 03 | 50 | 50 | 100 | 4 |
| 3 | ES | 18CS13 | C Programming for Problem Solving | Computer Science and Engineering | Computer Science and Engineering | 2 | 2 | -- | 03 | 50 | 50 | 100 | 3 |
| 4 | ES | 18EC14 | Basic Electronics | ECE/E and I/ TC | E and C Engineering | 2 | 2 | -- | 03 | 50 | 50 | 100 | 3 |
| 5 | ES | 18ME15 | Elements of Mechanical Engineering | ME, Auto, IP, IEM, Mfg Engineering | Mechanical Engineering | 2 | 2 | | 03 | 50 | 50 | 100 | 3 |
| 6 | BC | 18CHL16 | Engineering Chemistry Laboratory | Chemistry | Science | -- | -- | 2 | 03 | 50 | 50 | 100 | 1 |
| 7 | ES | 18CSL17 | Computer Programming Laboratory | Computer Science and Engineering | Computer Science and Engineering | -- | -- | 2 | 03 | 50 | 50 | 100 | 1 |
| 8 | HS | 18HS11/ 18HS12 | English/ Kannada | Humanities | Humanities | 1 | -- | 2 | 02 | 50 | 50 | 100 | 1 |
| | | | | | TOTAL | 13 | 08 | 06 | 23 | 350 | 350 | 700 | 20 |

## II SEMESTER B.E (PHYSICS GROUP)

| Sl. No | Course and Course Code | | Course Title | Teaching Department | Paper Setting Board | Teaching Hours /Week | | Examination | | | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Theory Lecture | Tutorial | Practical/ Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | | | L | T | P | | | | | |
| 1 | BC | 18MA21 | Advanced Calculus and Numerical Methods | Mathematics | Science | 3 | 2 | -- | 03 | 50 | 50 | 100 | 4 |
| 2 | BC | 18PH22 | Engineering Physics | Physics | Science | 4 | -- | -- | 03 | 50 | 50 | 100 | 4 |
| 3 | ES | 18EE23 | Basic Electrical Engineering | E and E Engineering | E and E Engineering | 2 | 2 | -- | 03 | 50 | 50 | 100 | 3 |
| 4 | ES | 18CV24 | Civil Engineering and Mechanics | Civil Engineering | Civil Engineering | 2 | 2 | -- | 03 | 50 | 50 | 100 | 3 |
| 5 | ES | 18MEL25 | Engineering Graphics and Design | ME, Auto, IP, IEM, Mfg Engineering | Mechanical Engineering | 2 | -- | 2 | 03 | 50 | 50 | 100 | 3 |
| 6 | BC | 18PHL26 | Engineering Physics Laboratory | Physics | Science | -- | -- | 2 | 03 | 50 | 50 | 100 | 1 |
| 7 | ES | 18EEL27 | Basic Electrical Engineering Laboratory | E and E Engineering | E and E Engineering | -- | | 2 | 03 | 50 | 50 | 100 | 1 |
| 8 | HS | 18HS21/ 18HS22 | English/ Kannada | Humanities | Humanities | 1 | | 2 | 02 | 50 | 50 | 100 | 1 |
| | | | | | TOTAL | 13 | 06 | 08 | 23 | 400 | 400 | 800 | 20 |

Note: BS: Science Course, ES: Engineering Science, Hu: Humanity and Social Science.

**Definition of Credit:**
1 hour Lecture (L) per week per semester =1 Credit
2 hour Tutorial (T) per week per semester =1 Credit
2 hour Practical/Laboratory/Drawing (P) per week per semester =1 Credit.

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SCHEME OF TEACHING AND EXAMINATION from Academic Year 2020-21

B.E (Civil Engineering)

Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

III SEMESTER

| Sl. No | Course and Course Code | | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Theory Lecture | Tutorial | Practical / Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | | L | T | P | | | | | |
| 1 | BC | 18MA31 | Mathematics (Title as per the decision of BoS in Sciences) | Mathematics | 2 | 2 | -- | 03 | 50 | 50 | 100 | 3 |
| 2 | PC | 18CV31 | Building Materials and Construction | Civil | 3 | -- | -- | 03 | 50 | 50 | 100 | 3 |
| 3 | PC | 18CV32 | Strength of Materials | Civil | 4 | -- | -- | 03 | 50 | 50 | 100 | 4 |
| 4 | PC | 18CV33 | Surveying | Civil | 4 | -- | -- | 03 | 50 | 50 | 100 | 4 |
| 5 | PC | 18CV34 | Fluid Mechanics | Civil | 4 | -- | -- | 03 | 50 | 50 | 100 | 4 |
| 6 | PC | 18CV35 | Applied Engineering Geology | Civil | 3 | -- | -- | 03 | 50 | 50 | 100 | 3 |
| 7 | PC | 18CVL36 | Civil Engineering Material Testing Laboratory | Civil | -- | --- | 2 | 03 | 50 | 50 | 100 | 1 |
| 8 | PC | 18CVL37 | Surveying Practice | Civil | -- | --- | 2 | 03 | 50 | 50 | 100 | 1 |
| 9 | HS | 18HS31/32 | Constitution of India Professional Ethics and Human Rights / Environmental Science | Humanities /Civil | 1 | -- | -- | 02 | 50 | 50 | 100 | 1 |
| 10 | MC | 18HS33 | Soft skills | Humanities | 4 | -- | -- | 03 | 50 | -- | 50 | PP/NP |
| | | | | TOTAL | 25 | 02 | 04 | 29 | 500 | 450 | 950 | 24 |
| | | | **Course prescribed to lateral entry Diploma holders admitted to III semester of Engineering programs** | | | | | | | | | |
| 11 | MC | 18MAD31 | Advance Mathematics - I | Mathematics | 02 | 01 | -- | 03 | 50 | | 50 | PP/NP |

**Note:**

HODs are informed to accommodate one more laboratory in addition to the above courses if needed, without altering the total number of credits (TOTAL: 24).

(a)**The mandatory non – credit courses** Advance Mathematics I and II prescribed at III and IV semesters respectively, to lateral entry Diploma holders admitted to III semester of BE programs shall compulsorily be registered during respective semesters to complete all the formalities of the course and appear for SEE examination.

(b) **The mandatory non – credit courses** Advance Mathematics I and II, prescribed to lateral entrant Diploma holders admitted to III semester of BE programs, are to be completed to secure eligibility to VII semester. However, they are not considered for vertical progression from II year to III year of the programme but considered as head of passing along with credit courses of the programme to eligibility to VII semester.

**Note: BC: Science Course, PC: Professional Core. Hu: Humanities, MC: Mandatory Course.**

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IV SEMESTER

| Sl. No | Course and Course code | | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Theory Lecture | Tutorial | Practical/ Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | | L | T | P | | | | | |
| 1 | BC | 18MA41 | Mathematics (Title as per the decision of BoS in Sciences) | Mathematics | 2 | 2 | -- | 03 | 50 | 50 | 100 | 3 |
| 2 | PC | 18CV41 | Water Supply Engineering | Civil | 3 | -- | -- | 03 | 50 | 50 | 100 | 3 |
| 3 | PC | 18CV42 | Analysis of Determinate Structures | Civil | 4 | -- | -- | 03 | 50 | 50 | 100 | 4 |
| 4 | PC | 18CV43 | Hydraulics and Hydraulic Machines | Civil | 4 | -- | -- | 03 | 50 | 50 | 100 | 4 |
| 5 | PC | 18CV44 | Hydrology and Irrigation Engineering | Civil | 3 | -- | -- | 03 | 50 | 50 | 100 | 3 |
| 6 | PC | 18CV45 | Concrete Technology | Civil | 4 | -- | -- | 03 | 50 | 50 | 100 | 4 |
| 7 | PC | 18CVL46 | Computer Aided Building Planning and Drawing | Civil | -- | 1 | 3 | 03 | 50 | 50 | 100 | 1 |
| 8 | PC | 18CVL47 | Concrete and Highway materials Laboratory | Civil | -- | -- | 2 | 03 | 50 | 50 | 100 | 1 |
| 9 | HS | 18HS41/42 | Constitution of India Professional Ethics and Human Rights/ Environmental Science | Humanities / Civil | 1 | -- | -- | 02 | 50 | 50 | 100 | 1 |
| 10 | MC | 18HS43 | Employability skills | Humanities | 4 | -- | -- | 03 | 50 | - | 50 | PP/NP |
| | | | | TOTAL | 24 | 03 | 05 | 29 | 500 | 450 | 950 | 24 |
| | | | Course prescribed to lateral entry Diploma holders admitted to III semester of Engineering programs | | | | | | | | | |
| 11 | MC | 18MAD41 | Advance Mathematics - II | Mathematics | 02 | 01 | -- | 03 | 50 | -- | 50 | PP/NP |

Note: HODs are informed to accommodate one more laboratory in addition to the above courses if needed, without altering the total number of credits (TOTAL: 24).

(a) The mandatory non – credit courses Advance Mathematics I and II prescribed at III and IV semesters respectively, to lateral entrant Diploma holders admitted to III semester of BE programs shall compulsorily be registered during respective semesters to complete all the formalities of the course and appear for SEE examination.

(b) The mandatory non – credit courses Advance Mathematics I and II, prescribed to lateral entrant Diploma holders admitted to III semester of BE programs, are to be completed to secure eligibility to VII semester. However, they are not considered for vertical progression from II year to III year of the programme but considered as head of passing along with credit courses of the programme to eligibility to VII semester.

**Note: BC: Science Course, PC: Professional Core. Hu: Humanities, NCMC: Non-Credit Mandatory Course.**
**ENV: Environmental Studies, CIP: Constitution of India Professional Ethics and Human Rights**

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SCHEME OF TEACHING AND EXAMINATION from Academic Year 2020-21

**B.E (Civil Engineering)**

**Outcome Based Education(OBE) and Choice Based Credit System (CBCS)**

**V SEMESTER**

| Course and Course code | | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Theory Lecture | Tutorial | Practical / Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | L | T | P | | | | | |
| S | 18HS51/52 | M&E / IPR (title as per BOS decision) | Hu | 3 | -- | -- | 03 | 50 | 50 | 100 | 3 |
| C | 18CV51 | Wastewater Treatment and Disposal | Civil | 3 | -- | -- | 03 | 50 | 50 | 100 | 3 |
| C | 18CV52 | Design of RCC Structural Elements | Civil | 4 | -- | -- | 03 | 50 | 50 | 100 | 4 |
| C | 18CV53 | Analysis of Indeterminate Structures | Civil | 4 | -- | -- | 03 | 50 | 50 | 100 | 4 |
| C | 18CV54 | Geotechnical Engineering | Civil | 2 | 2 | -- | 03 | 50 | 50 | 100 | 3 |
| E | 18CV55X | Professional Elective -1 | Civil | 3 | -- | -- | 03 | 50 | 50 | 100 | 3 |
| E | 18CVEXX | Open Elective -A | Civil | 3 | -- | -- | 03 | 50 | 50 | 100 | 3 |
| C | 18CVL56 | Hydraulics and Hydraulic Machinery Laboratory | Civil | -- | -- | 2 | 03 | 50 | 50 | 100 | 1 |
| PC | 18CVL57 | Computer Aided Design Laboratory | Civil | -- | -- | 2 | 03 | 50 | 50 | 100 | 1 |
| | | **TOTAL** | | **22** | **2** | **4** | **27** | **450** | **450** | **900** | **25** |

**Note: Hu: Humanities, PC: Professional Core, MC: Mandatory Course,**

**Electives**

| urse ode | Professional Electives -1 |
|---|---|
| V551 | Transportation Engineering |
| V552 | Theory of Elasticity |
| V553 | Ground Improvement Techniques |
| V554 | Advanced Surveying |
| V555 | Ground Water Hydrology |
| | **OPEN ELECTIVE-A** |
| VE01 | Air Pollution and Control |
| CVE02 | Solid Waste Management |

**Open Elective -A**

Students can select any one of the open electives (Please refer to consolidated list of Dr. AIT for open electives) offered by any Department.

Selection of an open elective is not allowed provided:

- The candidate has studied the same course during the previous semesters of the programme.
- The syllabus content of open elective is similar to that of Departmental core courses or professional electives.
- A similar course, under any category, is prescribed in the higher semesters of the programme.

Registration to electives shall be documented under the guidance of Programme Coordinator/ Mentor.

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**Dr. Ambedkar Institute of Technology, Bengaluru-560 056**

SCHEME OF TEACHING AND EXAMINATION from Academic Year 2020-21

**B.E (Civil Engineering)**

**Outcome Based Education (OBE) and Choice Based Credit System (CBCS)**

**VI SEMESTER**

| Course and Course code | | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Theory Lecture | Tutorial | Practical/ Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | L | T | P | | | | | |
| HS | 18HS61/62 | M&E/IPR | Hu | 3 | -- | -- | 03 | 50 | 50 | 100 | 3 |
| PC | 18CV61 | Design of Steel Structures | Civil | 3 | 2 | -- | 03 | 50 | 50 | 100 | 4 |
| PC | 18CV62 | Railways, Airport, Tunnel and Harbour Engineering | Civil | 3 | -- | -- | 03 | 50 | 50 | 100 | 3 |
| PC | 18CV63 | Foundation Engineering | Civil | 3 | -- | -- | 03 | 50 | 50 | 100 | 3 |
| PE | 18CV64X | Professional Elective - 2 | Civil | 3 | -- | -- | 03 | 50 | 50 | 100 | 3 |
| OE | 18CVEXX | Open Elective – B | Civil | 3 | -- | -- | 03 | 50 | 50 | 100 | 3 |
| PC | 18CVL66 | Computer Aided Drawing of RC and Steel structures | Civil | -- | -- | 2 | 03 | 50 | 50 | 100 | 1 |
| PC | 18CVL67 | Geotechnical Engineering Laboratory | Civil | -- | -- | 2 | 03 | 50 | 50 | 100 | 1 |
| MP | 18CVP68 | Mini-Project | | | | | 03 | 50 | 50 | 100 | 2 |
| PC | 18CVL68 | Extensive Survey Project | Civil | -- | -- | 2 | 03 | 50 | 50 | 100 | 1 |
| INT | 18CVI69 | Industry Internship | (To be carried out during the intervening vacations of VI and VII semesters) | | | | -- | -- | -- | -- | -- |
| | | | TOTAL | 18 | 2 | 6 | 30 | 500 | 500 | 1000 | 24 |

**Professional Core, PE: Professional Elective, OE: Open Elective, MP: Mini-Project, INT: Internship.**

**nship:**

ıe students admitted to III year of B.E. have to undergo mandatory internship of 4 weeks during the vacations of VI and VII sters and / or VII and VIII semesters. A University examination will be conducted during VIII semester and prescribed credit are d to VIII semester. Internship is considered as a head of passing and is considered for the award of degree. Those, who do not take- ɔmplete the internship will be declared as failed and have to complete during subsequent University examination after satisfy the nship requirements.

**Electives**

| urse ode | Professional Electives - 2 |
|---|---|
| V641 | Pre-Stressed Concrete |
| V642 | Alternate Building Materials and Technologies |
| V643 | Traffic Engineering |
| V644 | Open Channel Hydraulics |
| V645 | Earth and Earth Retaining Structures |
| | **Open Elective - B** |
| VE03 | Integrated Solid Waste Management |
| VE04 | Photogrammetry and Remote Sensing |

**Open Elective - B**

Students can select any one of the open electives (Please refer to consolidated list of Dr. AIT for open electives) offered by any Department.

Selection of an open elective is not allowed provided,

- The candidate has studied the same course during the previous semesters of the programme.
- The syllabus content of open elective is similar to that of Departmental core courses or professional electives.
- A similar course, under any category, is prescribed in the higher semesters of the programme.

Registration to electives shall be documented under the guidance of Programme Coordinator/ Mentor.

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# SCHEME AND CREDITS FOR V TO VIII SEMESTER BE CIVIL ENGINEERING OF DR. A I T, B'LORE

## SCHEME OF TEACHING AND CREDITS

## B.E. CIVIL EINGINEERING

## VII SEMESTER (2015-16 Batch)

| Sl. No. | Subject Code | Title of the Subject | Teaching Dept. | Teaching Hrs / Week | | | Credits |
|---|---|---|---|---|---|---|---|
| | | | | L | T | P | |
| 1 | CV 71 | Design of Steel Structures | Civil | 04 | --- | --- | 4 |
| 2 | CV 72 | Estimation and Valuation | Civil | 02 | 02 | --- | 3 |
| 3 | CV 73 | Design of Pre Stressed Concrete Structures | Civil | 03 | --- | --- | 3 |
| 4 | CV 74X | Elective-II (Group B) | Civil | 03 | --- | --- | 3 |
| 5 | CV 75X | Elective-III (Group C) | Civil | 03 | --- | --- | 3 |
| 6 | CVL 76 | Environmental Engineering. Lab | Civil | --- | --- | 03 | 1.5 |
| 7 | CVL 77 | Concrete and Highway Materials lab. | Civil | --- | --- | 03 | 1.5 |
| 8 | | Interdepartmental Elective | | 04 | | | 04 |
| 9 | CVP84 | Project work Phase I | Civil | --- | --- | --- | --- |
| TOTAL | | | | **20** | **04** | **06** | **23** |

| Elective-II (Group B) | | Elective-III (Group C) | |
|---|---|---|---|
| **Subject Code** | **Title of the Subject** | **Subject Code** | **Title of the Subject** |
| CV 741 | Matrix Method of Structural Analysis | CV 751 | Numerical methods in Civil Engineering |
| CV 742 | Advanced Design of RC Structures | CV 752 | Rock Mechanics |
| CV 743 | . Design of Masonry Structures | CV 753 | Pavement Materials and Construction |
| CV 744 | Earth and Earth Retaining Structures | CV 754 | Photogrammetry and Remote Sensing |
| CV 745 | Highway Geometric Design | CV 755 | Air Pollution and Control |
| CV 746 | Open Channel Hydraulics | CV 756 | Design and Drawing of Bridges.: * (2 Hrs of Theory + 3 Hrs of Drawing) * (Exam Duration : 4 Hrs) |
| CV 747 | Rural Water Supply and Sanitation Engineering | CV 757 | Structural Dynamics |
| | | CV758 | Construction Project Management |
| **CVE01** | **Integrated Solid Waste Management (IDE)** | **CVE02** | **Air Pollution and Control methods (IDE)** |

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SCHEME OF TEACHING AND EXAMINATION from Academic Year 2020-21

**B.E (Civil Engineering)**

**Outcome Based Education (OBE) and Choice Based Credit System (CBCS)**

**VIII SEMESTER**

| Sl. No | Course and Course code | | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Theory Lecture | Tutorial | Practical / Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | | L | T | P | | | | | |
| 1 | MC | 18HS81/82 | CMEP / OSHA | IM /CV | 2 | -- | -- | 03 | 50 | 50 | 100 | 2 |
| 2 | Project | 18CVP81 | Project Work Phase - II | CV | -- | -- | 2 | 03 | 50 | 50 | 100 | 10 |
| 3 | Seminar | 18CVS82 | Technical Seminar | CV | -- | -- | 2 | 03 | 50 | 50 | 100 | 1 |
| 4 | INT | 18CVI83 | Internship | (Completed during the intervening vacations of VI and VII semesters and /or VII and VIII semesters.) | | | | 03 | 50 | 50 | 100 | 2 |
| **TOTAL** | | | | | **02** | **--** | **4** | **12** | **200** | **200** | **400** | **15** |

**Note:**

PC: Professional Core, PE: Professional Elective, OE: Open Elective, INT: Internship, MC: Mandatory Course

CMEP: Cost Management of Engineering Projects, OSHA: Occupational Safety and Health Administration

**Internship:**

Those, who have not pursued /completed the internship will be declared as failed and have to complete during subsequent SEE examination after they satisfy the internship requirements.

Total 175 Credit Distributions for all semester B.E. (Civil Engineering) Programme.

| Semester | I | II | III | IV | V | VI | VII | VIII | Total Credits |
|---|---|---|---|---|---|---|---|---|---|
| Credits | 20 | 20 | 24 | 24 | 25 | 24 | 23 | 15 | 175 |

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# SCHEME AND CREDITS FOR V TO VIII SEMESTER BE CIVIL ENGINEERING OF DR. A I T, B'LORE

## SCHEME OF TEACHING AND CREDITS

## B.E. CIVIL EINGINEERING

## VIII SEMESTER (2015-16 Batch)

| Sl. No. | Subject Code | Title of the Subject | Teaching Dept. | Teaching Hrs / Week | | | Credits |
|---|---|---|---|---|---|---|---|
| | | | | L | T | P | |
| 2 | CV 81 | Design and Computer Aided Drawing of Steel Structures | Civil | ---- | 01 | 03 | 02 |
| 3 | CV 82X | Elective - IV (Group D) | Civil | 03 | --- | --- | 3 |
| 4 | CV 83X | Elective - V (Group E) | Civil | 03 | --- | --- | 3 |
| 5 | CVP 84 | Project work Phase II | Civil | --- | --- | 24 | 12 |
| 6 | CVS 85 | Seminar | Civil | --- | 04 | --- | 2 |
| 7 | HS 04 | Intellectual Property Rights | Humanities | 02 | --- | --- | 02 |
| 8 | CVE XX | Interdepartmental Elective | | 04 | --- | --- | 04 |
| | | **TOTAL** | | **12** | **05** | **27** | **28** |

| Elective-IV (Group D) | | Elective-V (Group E) | |
|---|---|---|---|
| **Subject Code** | **Title of the Subject** | **Subject Code** | **Title of the Subject** |
| CV 821 | Advanced Pre-stressed Concrete Structures | CV 831 | Finite Element Analysis |
| CV 822 | Advanced Foundation Design | CV 832 | Reinforced Earth Structures |
| CV 823 | Pavement Design | CV 833 | Urban Transport Planning |
| CV 824 | Earthquake Resistant Design of Structures | CV 834 | Advanced Design of Steel Structures |
| CV 825 | Industrial Waste Water Treatment | CV 835 | Water Resources Engineering |
| CV 826 | Quality Management System in Civil Engineering | CV 836 | Environmental Impact Assessment |
| CV 827 | Remote Sensing and Geographic Information System | CV 837 | Infrastructure Development |
| CVE 03 | Ecology and Environmental Impact Assessment (IDE) | CVE 04 | Remote Sensing and Geographic Information System (IDE) |

**Note:** Project Work shall be 12 Credits in VIII Sem. BE

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## Dr. Ambedkar Institute of Technology, Bengaluru-560056

Outcome Based Education(OBE) and Choice Based Credit System (CBCS) (As per NEP2020)

Scheme of Teaching and Examination for I /II Semester B.E., (Common to all B.E. Programmes) Academic Year:2021-22

### Chemistry Cycle: I/II Semester

| Sl. No. | Course Category | Course Code | Course Title | Teaching Department | Teaching Hrs/ Week | | | | | Examination | | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | L | T | P | S | Total | Duration (Hrs) | CIE Marks | SEE Marks | Total Marks | |
| 1 | BS | 21MAT101 | Calculus and Linear Algebra | Mathematics | 3 | 2 | 0 | 0 | 5 | 3 | 50 | 50 | 100 | 4 |
| | | 21MAT201 | Advanced Calculus and Numerical methods | | | | | | | | | | | |
| 2 | BS | 21CHT102/ 21CHT202 | Engineering Chemistry | Chemistry | 3 | 0 | 0 | 0 | 3 | 3 | 50 | 50 | 100 | 3 |
| 3 | ES | 21CST103/ 21CST203 | Problem solving through Programming | Computer Science | 2 | 2 | 0 | 0 | 4 | 3 | 50 | 50 | 100 | 3 |
| 4 | ES | 21ECT104/ 21ECT204 | Basic Electronics and Communication Engineering | Electronics | 2 | 2 | 0 | 0 | 4 | 3 | 50 | 50 | 100 | 3 |
| 5 | ES | 21MET105/ 21MET205 | Elements of Mechanical Engineering | Mechanical | 2 | 2 | 0 | 0 | 4 | 3 | 50 | 50 | 100 | 3 |
| 6 | BS | 21CHL106/ 21CHL206 | Engineering Chemistry Laboratory | Chemistry | 0 | 0 | 2 | 0 | 2 | 3 | 50 | 50 | 100 | 1 |
| 7 | ES | 21CSL107/ 21CSL207 | Computer Programming Laboratory | Computer Science | 0 | 0 | 2 | 0 | 2 | 3 | 50 | 50 | 100 | 1 |
| 8 | HS | 21HST108 | Communicative English | Humanities | 1 | 0 | 1* | 0 | 2 | 2 | 50 | 50 | 100 | 1 |
| | | 21HST208 | Professional writing skills in English | | | | | | | | | | | |
| 9 | AE | 21CVT109 | Rural Development | Civil | 1 | 0 | 1* | 0 | 2 | 2 | 50 | 50 | 100 | 1 |
| | | 21HST209 | Health and Wellness | Humanities | | | | | | | | | | |
| 10 | MC | 21HSN110 | Career Development skill-I | Humanities | 1 | 0 | 1* | 0 | 2 | ---- | 50 | -- | PP/NP | 0 |
| | | 21HSN210 | Career Development skill-II | | | | | | | | | | | |
| | | | | | | | | Total | 30 | | 500 | 450 | 900 | 20 |

Note: BS: Basic Science Course, ES: Engineering Science Course, HS: Humanities & Social Science Course, AE: Ability Enhancement Course, MC: Mandatory Course, * No practical evaluation,
L: Lecture, T:Titorial, P:Practical/drawing, S:Self study, CIE: Continuous Internal Evaluation, SEE: Semester End Examination

**Note** –At the end of the second-semester summer internship shall be carried out – based on inter/intra institutional activities credited in the third semester. University /Institutions may swap few courses between a FIRST and SECOND semester to balance the workload teaching and laboratory schedule

**Summer Internship - I:** All the students admitted shall have to undergo a mandatory summer internship of 03 weeks during the vacation of II semesters. Summer Internship shall include Inter / Intra Institutional activities. Internship A University Viva-voce examination shall be conducted during III semesters and the prescribed credit shall be included in III semesters. The internship shall be considered as a head of passing and shall be considered for the award of degree. Those, who do not take up / complete the internship shall be declared fail and shall have to complete during subsequent University examination after satisfying the internship requirements

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UG - 2021 - 2022

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Outcome Based Education(OBE) and Choice Based Credit System (CBCS) (As per NEP2020)

## Scheme of Teaching and Examination for I /II Semester B.E., (Common to all B.E. Programmes) Academic Year:2021-22

## Physics Cycle : I/II Semester

| Sl. No. | Course Category | Course Code | Course Title | Teaching Department | Teaching Hours/ Week | | | | | Examination | | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | L | T | P | S | Total | Duration (Hrs) | CIE Marks | SEE Marks | Total Marks | |
| 1 | BS | 21MAT101 / 21MAT201 | Calculus and Linear Algebra / Advanced Calculus and Numerical methods | Mathematics | 3 | 2 | 0 | 0 | 5 | 3 | 50 | 50 | 100 | 4 |
| 2 | BS | 21PHT102/ 21PHT202 | Engineering Physics | Physics | 3 | 0 | 0 | 0 | 3 | 3 | 50 | 50 | 100 | 3 |
| 3 | ES | 21EET103/ 21EET203 | Basic Electrical Engineering | Electrical | 2 | 2 | 0 | 0 | 4 | 3 | 50 | 50 | 100 | 3 |
| 4 | ES | 21CVT104/ 21CVT204 | Elements of Civil Engineering & Mechanics | Civil | 3 | 0 | 0 | 0 | 3 | 3 | 50 | 50 | 100 | 3 |
| 5 | ES | 21MED105/ 21MED205 | Computer aided Engineering Drawing | Mechanical | 2 | 0 | 2 | 0 | 4 | 3 | 50 | 50 | 100 | 3 |
| 6 | BS | 21PHL106/ 21PHL206 | Engineering Physics Lab | Physics | 0 | 0 | 2 | 0 | 2 | 3 | 50 | 50 | 100 | 1 |
| 7 | ES | 21EEL107/ 21EEL207 | Basic Electrical lab | Electrical | 0 | 0 | 2 | 0 | 2 | 3 | 50 | 50 | 100 | 1 |
| 8 | HS | 21HST108 / 21HST208 | Communicative English / Professional writing skills in English | Humanities | 1 | 0 | 1* | 0 | 2 | 2 | 50 | 50 | 100 | 1 |
| 9 | AE | 21HST109 / 21CVT209 | Health and Wellness / Rural Development | Humanities / Civil | 1 | 0 | 1* | 0 | 2 | 2 | 50 | 50 | 100 | 1 |
| 10 | MC | 21HSN110 / 21HSN210 | Career Development skill-I / Career Development skill-II | Humanities | 1 | 0 | 1* | 0 | 2 | -- | 50 | - | PP/NP | 0 |
| | | | | Total | | | | | 29 | | 500 | 450 | 900 | 20 |

Note: BS: Basic Science Course, ES: Engineering Science Course, HS: Humanities & Social Science Course,
AE: Ability Enhancement Course, MC: Mandatory Course, * No practical evaluation,
L: Lecture, T:Titorial, P:Practical/drawing, S:Self study, CIE: Continuous Internal Evaluation, SEE: Semester End Examination

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**Dr. Ambedkar Institute of Technology, Bangalore - 560056**

Outcome Based Education (OBE) and Choice Based Credit System (CBCS) (As per NEP 2020)

Name of the Programme: **B. E. (CIVIL ENGINEERING)**

**Scheme of Teaching and Examination Effective from the Academic Year: 2021 – 2022**

**III Semester**

| Sl No. | Course Category | Course Code | Course Title | Teaching Department | Teaching Hours / Week | | | | | Examinations | | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | L | T | P | S | Total | Duration (Hrs) | CIE Marks | SEE Marks | Total Marks | |
| 1 | BSC | 21MAT301CV | Mathematics - III | Maths | 3 | 0 | 0 | 0 | 3 | 03 | 50 | 50 | 100 | 3 |
| 2 | IPCC | 21CVT302 | Strength of Materials | Civil | 3 | 0 | 2 | 0 | 5 | 03 | 50 | 50 | 100 | 4 |
| 3 | IPCC | 21CVT303 | Surveying | Civil | 3 | 0 | 2 | 0 | 5 | 03 | 50 | 50 | 100 | 4 |
| 4 | PCC | 21CVT304 | Geology and Construction Materials | Civil | 3 | 0 | 0 | 0 | 3 | 03 | 50 | 50 | 100 | 3 |
| 5 | PCC | 21CVL305 | Construction Materials Lab | Civil | 0 | 0 | 2 | 0 | 2 | 03 | 50 | 50 | 100 | 1 |
| 6 | UHV | 21HST306 | Social Connect and Responsibility | Civil | 0 | 0 | 1 | 0 | 1 | 01 | 50 | 50 | 100 | 1 |
| 7 | HSSC | 21HST3S07 / 21HST3B07 | Samskrutika Kannada / Balake Kannada | HSS | 1 | 0 | 0 | 1 | 2 | 01 | 50 | 50 | 100 | 1 |
| | | OR | | | | | | | | | | | | |
| | | 21HST307 | Constitution of India & Professional Ethics (CIP) | | | | | | | | | | | |
| 8 | AEC | 21CVT308X | Ability Enhancement Course – III | Civil | If offered as Theory Course: 1 | 0 | 0 | 0 | 1 | 01 | 50 | 50 | 100 | 1 |
| | | | | | If offered as Lab Course: 0 | 0 | 2 | 0 | 2 | 02 | | | | |
| 9 | HSSC | 21HSN309 | Professional Skills | HSS | 1 | 0 | 1 | 0 | | 02 | 50 | | PP/NP | 0 |
| | | | | | | | | | | **Total** | **400** | **400** | **800** | **18** |



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| | | | | | |
|---|---|---|---|---|---|
| 10 | Scheduled activities for III to VIII Semester | 21HSNS803 | National Service Scheme (NSS) | NSS | All students have to register for any one of the courses namely National Service Scheme, Physical Education (PE) (Sports and Athletics), and Yoga with the concerned coordinator of the course during the first week of III semester. The activities shall be carried out between III semesters to VIII semester (for 5 semesters). SEE in the above courses shall be conducted during VIII semester examinations and the accumulated CIE marks shall be added to the SEE marks. Successful completion of the registered course is mandatory for the award of the degree. The events shall be appropriately scheduled by the colleges and the same shall be reflected in the calendar prepared for the NSS, PE, and Yoga activities. |
| | | 21HSN803 | Physical Education (PE) (Sports and Athletics) | PE | |
| | | 21HSN803 | Yoga | Yoga | |

**Course prescribed to lateral entry Diploma holders admitted to III semester B.E. programs**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **11** | **21MAD310** | **Additional Mathematics - I** | **Mathematics** | **02** | **02** | **---** | **---** | **---** | **50** | **---** | **50** | **PP/NP** |

**Note:**
**BSC:** Basic Science Course, **IPCC:** Integrated Professional Core Course, **PCC:** Professional Core Course, **INT**: Internship, **HSSC:** Humanity and Social Science Courses, **AEC**: Ability Enhancement Courses, **UHV:** Universal Human Value Course.
**L**–Lecture, **T**–Tutorial, **P**-Practical/Drawing, **S**–Self Study Component, **CIE:** Continuous Internal Evaluation, **SEE:** Semester End Examination.
**TD**-Teaching Department, **PSB**: Paper Setting department.

21HST3S07/4S07 Samskrutika Kannada is for students who speak, read and write Kannada and 21HST3B07/21HST4B07 Balake Kannada is for non-Kannada speaking, reading, and writing students.

**Integrated Professional Core Course (IPCC):**
Refers to Professional Theory Core Course Integrated with practical of the same course. Credit for IPCC can be 04 and its Teaching–Learning hours (L: T: P) can be considered as (3:0:2) or (2:2:2).The theory part of the IPCC shall be evaluated both by CIE and SEE. The practical part shall be evaluated by only CIE (no SEE). However, questions from the practical part of IPCC shall be Inciuded in these question paper.

**21CVI410 Inter/Intra Institutional Internship**:
All the students admitted to engineering programs under the lateral entry category shall have to undergo a mandatory **21CVI410** Inter/Intra Institutional Internship of **03 weeks** during the intervening period of III and IV semesters. The internship shall be slated for CIE only and will not have SEE. The letter grade earned through CIE shall be included in the IV semester grade card. The internship shall be considered as a head of passing and shall be considered for vertical progression and for the award of degree. Those, who do not take up /complete the internship shall be declared fail and shall have to complete subsequently after satisfying the internship requirements. The faculty coordinator or mentor shall monitor the students 'internship progress and interact with them for the successful completion of the internship.

**Non–credit mandatory courses (NCMC):**
**(A) Additional Mathematics I and II:**
**(1)** These courses are prescribed for III and IV semesters respectively to lateral entry Diploma holders admitted to III semester of B.E./B.Tech. Programs. They shall attend the classes during the respective semesters to complete all the formalities of the course and appear for the Continuous Internal

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deemed to have secured an F grade. In such a case, the student has to fulfill the course requirements during subsequent semester/s to earn the qualifying CIE marks. These courses are slated for CIE only and have no SEE.

(2) Additional Mathematics I and II shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the courses shall be mandatory for the award of degree.

(3) Successful completion of the courses Additional Mathematics I and II shall be indicated as **NP/PP** in the grade card. Non-completion of the courses Additional Mathematics I and II shall be indicated as unsatisfactory.

**(B)Placement Training:** These courses are prescribed for I and VI semesters respectively to the students of B.E. programs. They shall attend the classes during the respective semesters to complete all the formalities of the course and appear for the Continuous Internal Evaluation (CIE). In case, any student fails to register for the said course/fails to secure the minimum 40 % of the prescribed CIE marks, he/she shall be deemed to have secured an **NP (not pass)** grade. In such a case, the student has to fulfill the course requirements during subsequent semester/s to earn the qualifying CIE marks. These courses are slated for CIE only and have no SEE.

**National Service Scheme / Physical Education (Sport and Athletics) / Yoga:**

(1) Securing 40% or more in CIE, 35% or more marks in SEE and 40% or more in the sum total of CIE + SEE leads to successful completion of the registered course.

(2) In case, students fail to secure35%marks in SEE, they have to appear for SEE during the subsequent examinations conducted by the University.

(3) In case, any student fails to register for NSS, PE or Yoga/fails to secure the minimum 40 % of the prescribed CIE marks, he/she shall be deemed to have not completed the requirements of the course. In such a case, the student has to fulfill the course requirements during subsequent semester/s to earn the qualifying CIE marks.

(4) Successful completion of the course shall be indicated as satisfactory in the grade card. Non-completion of the course shall be indicated as Unsatisfactory.

(5) These courses shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the courses shall be mandatory for the award of a degree.

| Ability Enhancement Course - III | |
|---|---|
| 21CVT3081 | Photogrammetry and Remote Sensing |
| 21CVT3082 | Sustainable Materials and Green Buildings |
| 21CVT3083 | Fire safety in Buildings |
| 21CVT3084 | Pavement Materials and Construction |

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Outcome Based Education (OBE) and Choice Based Credit System (CBCS) (Asper NEP 2020)

Name of the Programme: **B. E. (CIVIL ENGINEERING)**

**Scheme of Teaching and Examination Effective from the Academic Year: 2021 – 2022**

**IV Semester**

| Sl No. | Course Category | Course Code | Course Title | Teaching Department | Teaching Hours / Week | | | | | Examinations | | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | L | T | P | S | Total | Duration (Hrs) | CIE Marks | SEE Marks | Total Marks | |
| 1 | BSC | 21MAT401CV | Mathematics - IV | Mathematics | 3 | 0 | 0 | 0 | 3 | 03 | 50 | 50 | 100 | 3 |
| 2 | IPCC | 21CVT402 | Water Supply and Sanitary Engineering | Civil | 3 | 0 | 2 | 0 | 5 | 03 | 50 | 50 | 100 | 4 |
| 3 | IPCC | 21CVT403 | Fluid Mechanics and Machinery | Civil | 3 | 0 | 2 | 0 | 5 | 03 | 50 | 50 | 100 | 4 |
| 4 | PCC | 21CVT404 | Structural Analysis | Civil | 3 | 0 | 0 | 0 | 3 | 03 | 50 | 50 | 100 | 3 |
| 5 | PCC | 21CVL405 | Computer Aided Building Planning and Drawing | Civil | 0 | 0 | 2 | 0 | 2 | 03 | 50 | 50 | 100 | 1 |
| 6 | AEC | 21HST406 | Biology for Engineers | ML | 2 | 0 | 0 | 0 | 2 | 02 | 50 | 50 | 100 | 2 |
| 7 | HSSC | 21HST4S07 / 21HST4B07 | Samskrutika Kannada / Balake Kannada | HSS | 1 | 0 | 0 | 0 | 2 | 01 | 50 | 50 | 100 | 1 |
| | | OR | | | | | | | | | | | | |
| | | 21HST407 | Constitution of India & Professional Ethics (CIP) | | | | | | | | | | | |
| 8 | AEC | 21CVT408X | Ability Enhancement Course - IV | Civil | If offered as Theory Course: 1 0 0 0 | | | | 1 | 01 | 50 | 50 | 100 | 1 |
| | | | | | If offered as Lab Course: 0 0 2 0 | | | | 2 | 02 | | | | |
| 9 | HSSC | 21HSN411 | Professional Skills | HSS | 1 | 0 | 1 | 0 | 2 | 02 | 50 | --- | PP/NP | 0 |
| 10 | UHV | 21HST409 | Universal Human Values | Civil | 1 | 0 | 0 | 0 | 1 | 01 | 50 | 50 | 100 | 1 |
| 11 | INT | 21CVI410 | Inter / Intra Institutional Internship | Evaluation by the | Completed during the intervening period of II and III semesters by students | | | | | 03 | 50 | | 100 | 2 |

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| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | appropriate authorities | admitted to first year of B.E. and during the intervening period III and IV semesters by Lateral entry students admitted to III Semester. | | | | | | | | |
| | | | | | | | | | Total | 550 | 450 | 1000 | 22 |
| **Course prescribed to lateral entry Diploma holders admitted to III semester B.E programs** | | | | | | | | | | | | | |
| 12 | | 21MAD411 | **Additional Mathematics - I** | **Maths** | **2** | **2** | **---** | **----** | **----** | **100** | **PP/NP** | **100** | **0** |

**Note:**
**BSC:** Basic Science Course, **IPCC:** Integrated Professional Core Course, **PCC:** Professional Core Course, **AEC**: Ability Enhancement Courses
**HSSC:** Humanity and Social Science Courses, **UHV**: Universal Human Value Courses.
**L**–Lecture, **T**–Tutorial, **P** - Practical/Drawing, **S**–Self Study Component, **CIE:** Continuous Internal Evaluation, **SEE:** Semester End Examination.

**21HST3S07/4S07** Samskrutika Kannada is for students who speak, read and write Kannada and
**21HST3B07/4B07** Balake Kannada is for non-Kannada speaking, reading, and writing students.

**Integrated Professional Core Course (IPCC):**
Refers to Professional Theory Core Course Integrated with Practical of the same course.
Credit for IPCC can be 04 and its Teaching–Learning hours (L: T: P) can be considered as (3:0:2) or (2:2:2).
The theory part of the IPCC shall be evaluated both by CIE and SEE.
The practical part shall be evaluated by only CIE (no SEE).
However, questions from the practical part of IPCC shall be included in the SEE question paper.

**Non–credit mandatory course(NCMC):**
**(A)Additional Mathematics –II:**
(1) Lateral entry Diploma holders admitted to III semester of B.E./B.Tech.., shall attend the classes during the IV semester to complete all the formalities of the course and appear for the Continuous Internal Evaluation (CIE). In case, any student fails to register for the said course/fails to secure the minimum 40% of the prescribed CIE marks, he/she shall be deemed to have secured an F grade. In such a case, the student has to fulfill the course requirements during subsequent semester/s to earn the qualifying CIE marks. These courses are slated for CIE only and have no SEE.
(2) Additional Mathematics I and II shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the courses shall be mandatory for the award of degree.
(3) Successful completion of the course Additional Mathematics-II shall be indicated as satisfactory in the grade card. Non-completion of the courses Additional Mathematics-II shall be indicated as Unsatisfactory.
**(B)Placement Training:** These courses are prescribed for I and VI semesters respectively to the students of all B.E. programs. They shall attend the classes during the respective semesters to complete all the formalities of the course and appear for the Continuous Internal Evaluation (CIE). In case, any student fails to register for the said course/fails to secure the minimum 40 % of the prescribed CIE marks, he/she shall be deemed to have secured



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an 'NA' (not pass) grade. In such a case, the student has to fulfill the course requirements during subsequent semester/s to earn the qualifying CIE marks. These courses are slated for CIE only and have no SEE.

**Internship of 04 weeks during the intervening period of IV and V semesters;**
**21CVI410 Innovation/Entrepreneurship/Societal based Internship.**

(1) All the students shall have to undergo a mandatory internship of **04 weeks** during the intervening period of IV and V semesters. The internship shall be slated for CIE only and will not have SEE. The letter grade earned through CIE shall be included in the VI semester grade card. The internship shall be considered as a head of passing and shall be considered for vertical progression and for the award of degree. Those, who do not take up /complete the internship shall be considered under F (fail) grade and shall have to complete during subsequently after satisfying the internship requirements

(2) Innovation/ Entrepreneurship Internship shall be carried out at industry, State and Central Government /Non-government organizations (NGOs), micro, small and medium enterprises (MSME), Innovation centers, or Incubation centers. Innovation need not be a single major breakthrough; it can also be a series of small or incremental changes. Innovation of any kind can also happen outside of the business world.

Entrepreneurship internships offer a chance to gain hands-on experience in the world of entrepreneurship and help to learn what it takes to run a small entrepreneurial business by performing intern duties with an established company. This experience can then be applied to future business endeavors. Start-ups and small companies are a preferred place to learn the business tactics for future entrepreneurs as learning how a small business operates will serve the intern well when he/she manages his/her own company. Entrepreneurship acts as a catalyst to open the minds to creativity and innovation. Entrepreneurship internships can be from several sectors, including technology, small and medium-sized, and the service sector.

(3) **Societal or social internship:** Urbanization is increasing on a global scale; and yet, half the world's population still resides in rural areas and is devoid of many things that urban population enjoys. The rural internship is a work-based activity in which students will have a chance to solve/reduce the problems of the rural place for better living.

| Ability Enhancement Course – IV | |
|---|---|
| 21CVT4081 | Construction Methods and Equipment |
| 21CVT4082 | Soil and Water Conservation Engineering |
| 21CVT4083 | Ecology and Environment |
| 21CVT4084 | Cartography and GIS Concepts |

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Outcome Based Education (OBE) and Choice Based Credit System (CBCS) (Asper NIP 2020)

Name of the Programme: **B E (CIVIL ENGINEERING)**

Tentative Scheme of Teaching and Examination Effective from the Academic Year 2021-22

**V Semester**

| Sl No. | Course Category | Course Code | Course Title | Teaching Department | Teaching Hours / Week | | | | | Examinations | | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | L | T | P | S | Total | Duration (Hrs) | CIE Marks | SEE Marks | Total Marks | |
| 1 | PCC | 21CVT501 | Design of RCC Structural Elements | Civil | 3 | 0 | 0 | 0 | 3 | 3 | 50 | 50 | 100 | 3 |
| 2 | IPCC | 21CVT502 | Concrete Technology | Civil | 3 | 0 | 2 | 0 | 5 | 3 | 50 | 50 | 100 | 4 |
| 3 | PCC | 21CVT503 | Highway Engineering | Civil | 3 | 0 | 0 | 0 | 3 | 3 | 50 | 50 | 100 | 3 |
| 4 | PCC | 21CVT504 | Hydrology and Irrigation Engineering | Civil | 3 | 0 | 0 | 0 | 3 | 3 | 50 | 50 | 100 | 3 |
| 5 | PCC | 21CVL505 | Computer Aided Analysis and Design Laboratory | Civil | 0 | 0 | 2 | 0 | 2 | 3 | 50 | 50 | 100 | 1 |
| 6 | AEC | 21HST506 | Research Methodology & Intellectual property rights | TD: Any Department. PSB: As identified by the institute | 2 | 0 | 0 | 0 | 2 | 2 | 50 | 50 | 100 | 2 |
| 7 | HSSC | 21CV507 | Environmental Studies | TD: Civil / Chemistry PSB: Civil | 1 | 0 | 0 | 0 | 1 | 1 | 50 | 50 | 100 | 1 |
| 8 | AEC | 21CVT508X | Ability Enhancement Course - V | Civil | If offered as Theory Course: 1 | 0 | 0 | 0 | 1 | 1 | 50 | 50 | 100 | 1 |
| | | | | | If offered as Lab Course: 1 | 0 | 2 | 0 | 2 | 2 | | | | |
| 9 | HSSC | 21HSN509 | Aptitude and Verbal ability skills | | 1 | 0 | 1 | 0 | | 2 | 50 | | PP/NP | 0 |

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| | | | | |
|---|---|---|---|---|
| **Total** | **450** | **400** | **800** | **18** |

**Note:**
**BSC:** Basic Science Course, **PCC:** Professional Core Course, **IPCC:** Integrated Professional Core Course, **AEC**: Ability Enhancement Course
**INT**: Internship, **HSSC:** Humanity and Social Science Courses.
**L**–Lecture, **T** –Tutorial, **P**-Practical/Drawing, **S**–Self Study Component, **CIE:** Continuous Internal Evaluation, **SEE:** Semester End Examination.

**Integrated Professional Core Course (IPCC):**
Refers to Professional Theory Core Course Integrated with Practical of the same course. Credit for IPCC can be 04 and its Teaching – Learning hours (L: T: P) can be considered as (3:0:2) or (2:2:2). The theory part of the IPCC shall be evaluated both by CIE and SEE. The practical part shall be evaluated by CIE only and there shall be no SEE.

| **Ability Enhancement Course - V** | |
|---|---|
| 21CVT5081 | Advanced analysis and Design of RC Building Using STAAD-PRO |
| 21CVT5082 | Extensive Survey Project |
| 21CVT5083 | Geotechnical Investigation |
| 21CVT5084 | Hazardous Waste Management |
| 21CVT5085 | Highway Geometric Design |

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Outcome Based Education (OBE) and Choice Based Credit System (CBCS) (Asper NIP 2020)

Name of the Programme: **B E (CIVIL ENGINEERING)**

Tentative Scheme of Teaching and Examination Effective from the Academic Year 2021-22

**VI Semester**

| Sl No. | Course Category | Course Code | Course Title | Teaching Department (TD)/ Paper setting Board(PSB) | Teaching Hours / Week | | | | | Examinations | | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | L | T | P | S | Total | Duration (Hrs) | CIE Marks | SEE Marks | Total Marks | |
| 1 | HSSC | 21XXT601 | This course is to be as per the requirement of the concerned program. However, the title of the course should have the word Management and the syllabus has to have management topic/s | Any Department | | | | | | 3 | 50 | 50 | 100 | 3 |
| 2 | IPCC | 21CVT602 | Geotechnical Engineering | Civil | 3 | 0 | 2 | 0 | 5 | 3 | 50 | 50 | 100 | 4 |
| 3 | PCC | 21CVT603 | Design of Steel Structures | Civil | 3 | 0 | 0 | 0 | 3 | 3 | 50 | 50 | 100 | 3 |
| 4 | PEC | 21CVT604X | Professional Elective Course - I | Civil | 3 | 0 | 0 | 0 | 3 | 3 | 50 | 50 | 100 | 3 |
| 5 | OEC | 21CVT605X | Open Elective Course – I | Civil | 3 | 0 | 0 | 0 | 3 | 3 | 50 | 50 | 100 | 3 |
| 6 | PCC | 21CVL606 | CAD - RC and Steel Structures | Civil | 0 | 0 | 2 | 0 | 2 | 1 | 50 | 50 | 100 | 1 |
| 7 | MP | 21CVM607 | Mini Project | 2 Contact Hours / Week interaction between faculty and students | | | | | | - | 100 | - | 100 | 2 |
| 8 | INT | 21CVI608 | Innovation/ Entrepreneurship/ Societal internship | Completed during the intervening period of IV & V Semesters | | | | | | - | 100 | - | 100 | 3 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9 | HSSC | 21HSN609 | Analytical and Reasoning Skills | Placement Cell | 2 | 0 | 0 | 0 | 2 | - | 50 | - | PP/NP | 0 |
| | | | | | | | | | | **Total** | **550** | **300** | **800** | **22** |

**Note:**
**BSC:** Basic Science Course, **PCC:** Professional Core Course, **IPCC:** Integrated Professional Core Course, **AEC**: Ability Enhancement Course
**INT**: Internship, **HSSC:** Humanity and Social Science Courses.
**L**–Lecture, **T** –Tutorial, **P**-Practical/Drawing, **S**–Self Study Component, **CIE:** Continuous Internal Evaluation, **SEE:** Semester End Examination.

**Integrated Professional Core Course (IPCC):**
Refers to Professional Theory Core Course Integrated with Practical of the same course. Credit for IPCC can be 04 and its Teaching – Learning hours (L: T: P) can be considered as (3:0:2) or (2:2:2). The theory part of the IPCC shall be evaluated both by CIE and SEE. The practical part shall be evaluated by CIE only and there shall be no SEE.

**Professional Elective Courses(PEC):**
A professional elective (PEC) course is intended to enhance the depth and breadth of educational experience in the Engineering and Technology curriculum. Multidisciplinary courses that are added supplement the latest trend and advanced technology in the selected stream of engineering. Each group will provide an option to select one course out of five courses. The minimum student's strength for offering professional electives is 10. However, this conditional shall not be applicable to cases where the admission to the programme is less than10.

**Open Elective Courses:**
Students belonging to a particular stream of Engineering and Technology are noted. Title for the open electives offered by their parent Department. However, they can opt an elective offered by other Departments, provided they satisfy the prerequisite condition if any. Registration to open electives shall be documented under the guidance of the Program Coordinator/Advisor/Mentor.
Selection of an open elective shall **not be allowed** if,
(i) The candidate has studied the same course during the previous semesters of the program.
(ii) The syllabus content of open electives is similar to that of the Departmental core courses or professional electives.
(iii) A similar course under any category, is prescribed in the higher semester of the program.
In case, any college is desirous of offering a course (not included in the Open Elective List of the University) from streams such as Law, Business (MBA), Medicine, Arts, Commerce, etc., can seek permission, at least one month before the commencement of the semester, from the University by submitting a copy of the syllabus along with the details of expertise available to teach the same in the college.
The minimum students' strength for offering open electives is10.However, this conditional shall not be applicable to cases where the admission to The programme is less than 10.

**Mini-project work:**
Mini Project is a laboratory-oriented course which will provide a platform to students to enhance the practical knowledge and skills by the development of small systems/applications.
Based on the ability/abilities of the student/s and recommendations of the mentor, a single discipline or a multidisciplinary Mini-project can be assigned to an individual student or to a group having not morethan4 students.
**CIE procedure for Mini-project:**

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(i) **Single discipline:** The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two faculty members of the Department, one of them being the Guide. The CIE marks awarded for the Mini-project work shall be based on the evaluation of project report, project presentation skill, and question and answer session in the ratio of 50:25:25. The marks awarded for the project report shall be the same for all the batch mates.

(ii) **Interdisciplinary:** Continuous Internal Evaluation shall be group-wiseatthecollegelevelwiththeparticipationofalltheguidesoftheproject. The CIE marks awarded for the Mini-project, shall be based on the evaluation of project report, project presentation skill, and question and answer session in the ratio 50:25:25.The marks awarded for the project report shall be the same for all the batch mates.

**No SEE component for Mini-Project.**

| Professional Elective Courses - I | |
|---|---|
| **Course Code** | **Course Title** |
| 21CVTE6041 | Matrix Method of Structural Analysis |
| 21CVTE6042 | Solid Waste Management |
| 21CVTE6043 | Alternate Building Materials and Technology |
| 21CVTE6044 | Traffic Engineering |

| Open Elective Courses - I | |
|---|---|
| **Course Code** | **Course Title** |
| 21CVTE6051 | Remote sensing and Geographic Information System |
| 21CVTE6052 | Air Pollution and Control Methods |
| 21CVTE6053 | Integrated Solid Waste Management |

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Outcome Based Education (OBE) and Choice Based Credit System (CBCS) (Asper NIP 2020)
Name of the Programme: **B E (CIVIL ENGINEERING)**
Tentative Scheme of Teaching and Examination Effective from the Academic Year 2021-22

**VII Semester**

| Sl No. | Course Category | Course Code | Course Title | Teaching Department | Teaching Hours / Week | | | | | Examinations | | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | L | T | P | S | Total | Duration (Hrs) | CIE Marks | SEE Marks | Total Marks | |
| 1 | PCC | 21CVT701 | Estimation and Valuation | Civil | 3 | 0 | 0 | 0 | 3 | 3 | 50 | 50 | 100 | 3 |
| 2 | PCC | 21CVT702 | Prestressed Concrete | Civil | 3 | 0 | 0 | 0 | 3 | 3 | 50 | 50 | 100 | 3 |
| 3 | PEC | 21CVT703X | Professional Elective Course - II | Civil | 3 | 0 | 0 | 0 | 3 | 3 | 50 | 50 | 100 | 3 |
| 4 | PEC | 21CVT704X | Professional Elective Course – III | Civil | 3 | 0 | 0 | 0 | 3 | 3 | 50 | 50 | 100 | 3 |
| 5 | OEC | 21CVT705X | Open Elective - II | Concern Department | 3 | 0 | 0 | 0 | 3 | 3 | 50 | 50 | 100 | 3 |
| 6 | PROJECT | 21CVP706 | Project Work | Civil | 2 Contact Hours / Week interaction between faculty and students | | | | | 3 | 100 | 100 | 200 | 10 |
| | | | | | | | | | **Total** | - | **350** | **350** | **700** | **25** |

**Note:**

**PCC:** Professional Core Course, **PEC:** Professional Elective Courses, **OEC**: Open Elective Course, **AEC:** Ability Enhancement Courses.

**L** – Lecture, **T** – Tutorial, **P** - Practical / Drawing, **S** – Self Study Component, **CIE:** Continuous Internal Evaluation, **SEE:** Semester End Examination.

**PROJECT WORK (21XXP706):** The objective of the Project work is

1) To encourage independent learning and the innovative attitude of the students.
2) To develop interactive attitude, communication skills, organization, time management, and presentation skills.
3) To impart flexibility and adaptability.
4) To inspire team working.
5) To expand intellectual capacity, credibility, judgment and intuition.

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6) To adhere to punctuality, setting and meeting deadlines.

7) To install responsibilities to oneself and others.

8) To train students to present the topic of project work in a seminar without any fear, face the audience confidently, enhance communication skills, involve in group discussion to present and exchange ideas.

**CIE procedure for Project Work:**

1) Single discipline: The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the Guide.
2) The CIE marks awarded for the project work shall be based on the evaluation of project work Report, project presentation skill, and question and answer session in the ratio 50:25:25. The marks awarded for the project report shall be the same for all the batch mates.
3) Interdisciplinary: Continuous Internal Evaluation shall be group-wise at the college level with the participation of all guides of the college. Participation of external guide/s, if any, is desirable. The CIE marks awarded for the project work shall be based on the evaluation of project work Report, project presentation skill, and question and answer session in the ratio 50:25:25. The marks awarded for the project report shall be the same for all the batch mates.
4) SEE procedure for Project Work: SEE for project work will be conducted by the two examiners appointed by the University. The SEE marks awarded for the project work shall be based on the evaluation of project work Report, project presentation skill, and question and answer session in the ratio 50:25:25.

**Note:**

VII and VIII semesters of IV year of the programme

(1) Institutions can swap VII and VIII Semester Scheme of Teaching and Examinations to accommodate research internship/ industry internship after the VI semester.

(2) Credits earned for the courses of VII and VIII Semester Scheme of Teaching and Examinations shall be counted against the corresponding semesters whether VII or VIII semester is completed during the beginning of IV year or later part of IV year of the program.

| Professional Elective Courses - II | |
|---|---|
| **Course Code** | **Course Title** |
| 21CVTE7031 | Applied Geotechnical Engineering |
| 21CVTE7032 | Earthquake Resistant Design of Structures |
| 21CVTE7033 | Environmental Impact Assessment |
| 21CVTE7034 | Watershed Management |

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| Professional Elective Courses - III | |
|---|---|
| **Course Code** | **Course Title** |
| 21CVTE7041 | Pavement Design |
| 21CVTE7042 | Design of Concrete bridge Structures |
| 21CVTE7043 | Air Pollution and Control Technologies |
| 21CVTE7044 | Construction Project Management |

| Open Elective Courses - II | |
|---|---|
| **Course Code** | **Course Title** |
| 21CVTE7051 | Urban Transport Planning |
| 21CVTE7052 | Occupational Safety and Health |
| 21CVTE7053 | Ecology and Environmental Impact Assessment |

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Name of the Programme: **B E (CIVIL ENGINEERING)**
Tentative Scheme of Teaching and Examination Effective from the Academic Year 2021-22

**VIII Semester**

| Sl No. | Course Category | Course Code | Course Title | Teaching Department (TD)/ Paper setting Board(PSB) | Teaching Hours / Week | | | | | Examinations | | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | L | T | P | S | Total | Duration (Hrs) | CIE Marks | SEE Marks | Total Marks | |
| 1 | SEMINAR | 21CVS801 | Technical Seminar | Civil | One Contact hour/ week for interaction between the faculty and students | | | | | - | 100 | - | 100 | 1 |
| 2 | INTERNSHIP | 21CVI802 | Research Internship/ Industry Internship | | Two contact hours /week for interaction between the faculty and students. | | | | | 03 (Batchwise) | 100 | 100 | 200 | 15 |
| 3 | NCMC | 21XX803 | National Service Scheme (NSS) | NSS | Completed during the intervening period of III semester to VIII semester. | | | | | | 50 | 50 | 100 | - |
| | | 21XX803 | Physical Education (PE) (Sports And Athletics) | PE | | | | | | | | | | |
| | | 21XX803 | Yoga | Yoga | | | | | | | | | | |
| | | | | | | | | | **Total** | - | 250 | 150 | 400 | 16 |

**TECHNICAL SEMINAR (21CVS801):**

The objective of the seminar is to inculcate self-learning, present the seminar topic confidently, enhance communication skill, involve in group discussion for exchange of ideas. Each student, under the guidance of a Faculty, shall choose, preferably, a recent topic of his/her interest relevant to the programme of Specialization.

(i) Carry out literature surveys, systematically organize the content.
(ii) Prepare the report with your own sentences, avoiding a cut and paste act.
(iii) Type the matter to acquaint yourself with the use of Microsoft equation and drawing tools or any such facilities.
(iv) Present the seminar topic orally and/or through PowerPoint slides.
(v) Answer the queries and involve in debate/discussion.

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(vi) Submit a typed report with a list of references.

(vii) The participants shall take part in the discussion to foster a friendly and stimulating environment in which the students are motivated to reach high standards and become self-confident.

**Evaluation Procedure:**

The CIE marks for the seminar shall be awarded (based on the relevance of the topic, presentation skill, participation in the question and answer session, and quality of report) by the committee constituted for the purpose by the Head of the Department. The committee shall consist of three teachers from the department with the senior-most acting as the Chairman.

**Marks distribution for CIE of the course:**

Seminar Report: 50 marks Presentation skill: 25 marks

Question and Answer: 25 marks. No SEE component for Technical Seminar

**Non – credit mandatory courses (NCMC):**

**National Service Scheme/Physical Education (Sport and Athletics) / Yoga:**

1) Securing 40% or more in CIE, 35 % or more marks in SEE and 40 % or more in the sum total of CIE + SEE leads to successful completion of the registered course.
2) In case, students fail to secure 35 % marks in SEE, they have to appear for SEE during the subsequent examinations conducted by the University.
3) In case, any student fails to register for NSS, PE or Yoga/fails to secure the minimum 40 % of the prescribed CIE marks, he/she shall be deemed to have not completed the requirements of the course. In such a case, the student has to fulfill the course requirements subsequently to earn the qualifying CIE marks subject to the maximum program period.
4) Successful completion of the course shall be indicated as pass (PP) in the grade card. Non-completion of the course (NP) shall be indicated as Unsatisfactory.
5) These courses shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the courses shall be mandatory for the award of degree.

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