No.: Dean (Acad.)/IAAC/ 1656 /2021-22 Date: 27/04/2022

# The Minutes of the 55th Meeting of the Institute Academic Advisory Committee (IAAC)

The aforesaid meeting was conducted on April 25, 2022, 04:00 pm onwards in the offline mode. The following were present in the IAAC meeting.

| Sr. No. | Name | Designation |
|---|---|---|
| 1 | Dr. R. Venkata Rao | Director, ***Chairman*** |
| 2 | Dr. P. L. Patel | Deputy Director |
| 3 | Dr. Pramod Mathur | Registrar |
| 4 | Dr. C. D. Modhera | Dean (Faculty Welfare) |
| 5 | Dr. Ravi Kant | Dean (Students' Welfare) |
| 6 | Dr. P. V. Timbadiya | Dean (Alumni and Resource Generation) |
| 7 | Dr. C. M. Patel | Head, Department of Chemical Engineering |
| 8 | Dr. G. J. Joshi | Head, Department of Civil Engineering |
| 9 | Dr. Rupa G. Mehta | Head, Department of Computer Science and Engineering |
| 10 | Dr. A. K. Panchal | Head, Department of Electrical Engineering |
| 11 | Dr. P. N. Patel | Head, Department of Electronics Engineering |
| 12 | Dr. J. Banerjee | Head, Department of Mechanical Engineering |
| 13 | Dr. J. M. Dhodiya | Head, Department of Mathematics and Humanities |
| 14 | Dr. Suresh Kumar | Head, Department of Chemistry |
| 15 | Dr. Dimple V. Shah | Head, Department of Physics |
| 16 | Dr. H. R. Jariwala | Associate Dean (Academic) |
| 17 | Dr. R. D. Shah | Associate Dean (Academic) |
| 18 | Dr. K. D. Yadav | Associate Dean (Research and Consultancy) |
| 19 | Dr. Y. D. Patil | Associate Dean (Planning and Development) |
| 20 | Dr. S. N. Sharma | Dean (Academic), ***Member-Secretary*** |
| ***Invitees*** | | |
| 21 | Shri Amit C. Patel | Dy. Registrar (Academic) |
| 22 | Mr. Heemin Ketankumar Shah | Students General Secretary |
| 23 | Ms. Bhavna Dilip Matwani | Academic Affairs Secretary |

The following could not attend the meeting.

| | | |
|---|---|---|
| 1 | Dr. D. C. Jinwala | Dean (Research and Consultancy) |
| 2 | Dr. V. L. Manekar | Dean (Planning and Development) |
| 3 | Dr. Vipul Kheraj | Associate Dean (Faculty Welfare) |
| 4 | Dr. S. S. Arkatkar | Associate Dean (Planning and Development) |
| 5 | Dr. H. B. Mehta | Associate Dean (Research and Consultancy) |
| 6 | Dr. S. R. Patel | Associate Dean (Students' Welfare) |
| ***Invitees*** | | |
| 7 | Ms. Yamini Kabra | Research Innovation Affairs Secretary |

***Items and resolutions***

| | |
|---|---|
| **Item 1** | To discuss and adopt resolution on the Academic Calendar for the Academic Year 2022-23.<br><br>The Autumn Semester of the AY 2022-23 commences from July 25, 2022. The Calendar encompasses the two semesters' activities, excluding new entrants. Here 'new entrants' means 'to be admitted in the Autumn Semester of the Academic Year 2022-23 for B.Tech. first semester, M.Sc. first semester, M. Tech. first semester and Ph.D. 1st year programmes. |
| **Res. 1** | Discussed and resolved. It was decided in the IAAC to adopt the Academic Calendar *(Annexure 1)* for the AY 2022-23, the Saturday teaching schedule *(Annexure 2)* for the second semester of B.Tech. and M.Sc. programmes for the Academic Year 2021-22 and the Saturday teaching schedule *(Annexure 3)* for the third semester of B.Tech. and M.Sc. programmes for the AY 2022-23. |
| **Item 2** | To discuss about the revision in the curricula of the B.Tech. programmes of the Institute that includes a one-semester Internship Industrial training. The revised curricula would cover the rearrangement in the Courses, including the Courses of the Minor Degree programmes. |
| **Res. 2** | Discussed and resolved. The IAAC agreed for the adoption of the revision in the curricula of the B.Tech. programmes of the Institute, including a one-semester Internship Industrial Training and the Courses of the minor Degree programmes *(Annexure 4)*. In addition to the above, the following were resolved. (i) the LTP combinations for the Courses 'Professional Ethics, Economics and Business Management' and 'Innovation, Incubation and Entrepreneurship' are 3-1-0 and 3-0-0 respectively. (ii) The first Course (Professional Ethics, Economics and Business Management) would be a Course of the fifth Semester of the B.Tech. programmes. The Second Course 'Innovation, Incubation and Entrepreneurship' would be a Course of the sixth Semester of the B. Tech. programmes. The revised curriculum will be effective from the Academic Year 2022-23. |
| **Item 3** | To decide the applicability of awarding XX grades for the Spring Semester of the Academic Year 2021-22.<br><br>Reference: Academic Calendar for the AY 2021-22.<br><br>https://svnit.ac.in/qlinks/Academic%20calendar%202021-22.pdf |
| **Res. 3** | The IAAC discussed the item in detail and resolved that 'the XX grade mentioned in the Academic Calendar for the AY 2021-22' is not applicable because of the COVID-19 situation during the Academic Year. |

**Items from the Chair**

| | |
|---|---|
| **Item 4** | About the mode of the supplementary examination of the first Semester of B.Tech. and M.Sc. programmes of the Academic Year 2021-22. |

| | |
|---|---|
| **Res. 4** | Discussed and resolved to adopt the offline mode for the aforesaid Semester. |
| **Item 5** | To scrutinize the academic-specific DAAC items and their resolutions from the DAAC minutes and then propose the scrutinized items for the IAAC agenda. |
| **Res. 5** | Resolved to submit separately 'the detailed academic-specific items and their resolutions chosen from the DAAC minutes' to the Academic Section by the Academic Departments to prepare the IAAC agenda. |

27/4/2022

**Dean (Academic)**
**Member-Secretary, IAAC**

RVRao 27.04.22

**Director**
**Chairman, IAAC**

**Annexure -I**

**(55th Meeting of the IAAC)**

# SARDAR VALLABHBHAI NATIONAL INSTITUTE OF TECHNOLOGY, SURAT

## ACADEMIC CALENDAR FOR THE ACADEMIC YEAR 2022-23

### AUTUMN SEMESTER (ODD SEMESTER)

| | Activity | (...th) Week | Duration |
|---|---|---|---|
| | Pre-registration | - | June 10 (Fri)- June25 (Sat.), 2022 |
| 1. | Payment of fee and registration | - | June 27 (Mon)-July 29 (Fri), 2022 |
| 2. | PhD comprehensive assessment of the Spring Semester of A.Y. 2021-22 | - | July 15 (Fri)-July 21 (Thu), 2022 |
| 3. | Last date of the PhD Research Progress Seminar of the Spring Semester of the A.Y. 2021-22 | | July 29 (Fri), 2022 |
| 4. | Commencement of teaching * | 1 | July 25 (Mon), 2022 |
| | | | Aug. 08 (Mon), 2022 for B.Tech.-IInd year and M.Sc.-IInd year |
| 5. | Last date of payment of fee and registration with fine | 3 | Aug. 12 (Fri), 2022 |
| 6. | Supplementary/ Backlog examinations (even and odd Semesters) of B.Tech. 1st and M.Sc. 1st programmes of the A.Y. 2021-22) | - | Aug. 29 (Mon)-Sept.10 (Sat.), 2022 |
| 7. | Mid Semester Examinations | 10 | Sept. 26 (Mon)-Oct.01 (Sat.) 2022 |
| | | 10-11 | Sept. 26 (Mon)-Oct.08 (Sat.) 2022for B.Tech.-IInd & B.Tech.-IIIrd year Students of Minor Program |
| 8. | Autumn fest | 12 | Oct. 14 (Fri)- Oct.15 (Sat), 2022 |
| 9. | Diwali break for Faculty and Students | 14 | Oct. 24 (Mon)- Oct. 28 (Fri), 2022 |
| 10. | Submission of the XX grades | 17 | Nov. 18 (Fri), 2022 |
| 11. | Makeup tests for Mid-Sem & Practical Examinations | 18 | Nov. 21 (Mon)-Nov. 26 (Sat.), 2022 |
| 12. | Last day of teaching | 18 | Nov. 25 (Fri), 2022 |
| 13. | End Semester Examinations | 19 | Nov. 28 (Mon)-Dec. 03 (Sat), 2022, |
| | | 19-20 | Nov. 28 (Mon)-Dec 10, 2022 (Sat) for B.Tech.-IInd & B.Tech.-IIIrd year Students of Minor Program |
| | Last date of conducting the credit seminar of PhD programmes (Will vary depending upon M.Tech-I year Calendar) | 19 | Dec. 03 (Sat), 2022 |
| 14. | Assessment and display of marks | 19-21 | Nov. 29 (Tue)-Dec. 16 (Fri), 2022 |
| 15. | Project (UG) / Dissertation (PG) preliminaries | 20 | Dec. 05 (Mon)-Dec. 09 (Fri), 2022 |
| 16. | Ph.D./M.Tech. (R) written test/interview | 21 | Dec. 12 (Mon)-Dec. 13 (Tue), 2022 |
| 17. | Last date of the submission of Grade Sheets to the Examination Section | 21 | Dec. 16 (Fri), 2022 |
| 18. | Educational tours (Preferably) | 21 | Dec. 12 (Mon)-Dec. 16 (Fri), 2022 |
| 19. | Declaration of results | 22-23 | Dec. 19 (Mon) 2022-Dec. 30 (Fri), 2022 |
| 20. | Vacation for UG Students | 22-23 | Dec. 19 (Mon) 2022- Dec. 30 (Fri), 2022 |
| 21. | Vacation for Faculty | 23 | Dec. 26 (Mon) 2021-Dec. 30 (Fri), 2022 |
| 22. | Commencement of the next Semester | 24 | Jan. 02 (Mon), 2023 |

**** The dates may vary for new entrants.***

### SPRING SEMESTER (EVEN SEMESTER)

| | Activity | (...th) Week | Duration |
|---|---|---|---|
| | Pre-registration | - | Nov. 14 (Mon.) 2022-Dec. 02 (Fri), 2022 |
| 1. | Payment of fee and registration | - | Dec. 19 (Mon), 2022-Jan. 16 (Mon), 2023 |
| 2. | Last date of the PhD Research Progress Seminar of the Autumn Semester of the A.Y. 2022-23 | - | Jan. 16 (Mon), 2023 |
| 3. | PhD comprehensive assessment of the Autumn Semester of A.Y. 2022-23 | - | Jan. 30 (Mon)-Feb. 03 (Fri), 2023 |
| 4. | Commencement of teaching | 1 | Jan. 02 (Mon), 2023 |
| 5. | Last date of registration with fine | 3 | Jan. 20 (Fri), 2023 |
| 6. | Supplementary Examinations (odd and even Semesters) | 6-7 | Feb. 06 (Mon)-Feb. 18 (Sat), 2023 |
| 7. | Mindbend and Sparsh | 8 | Feb 23 (Thu)-Feb 26 (Sun), 2023 |
| 8. | Mid Semester Examinations* | 10 | Mar 06 (Mon)-Mar 11 (Sat), 2023 |
| | | 10-11 | Mar 06 (Mon)-Mar 15 (Sat), 2023for B.Tech.-IInd & B.Tech.-IIIrd year Students of Minor Program |
| 9. | Submission of XX grades | 16 | April 20 (Thu), 2023 |
| 10. | Makeup tests for the Mid Semester& Practical Examinations | 17 | April 24 (Mon)-April 29 (Sat), 2023 |
| 11. | Last day of teaching | 17 | April 28(Fri), 2023 |
| 12. | End Semester Examinations | 18 | May 01 (Mon)-May 06 (Sat), 2023 |
| | | 18-19 | May 01 (Mon)-May 13 (Sat), 2023 for B.Tech.-IInd & B.Tech.-IIIrd year Students of Minor Program |
| 13. | Last date of conducting the credit seminar of PhD programmes | 18 | May 06 (Sat), 2023 |
| 14. | Assessment and display of marks | 18-20 | May 02 (Tue)-May 19 (Fri), 2023 |
| 15. | Project Examinations | 19 | May 08 (Mon)-May 12 (Fri), 2023 |
| 16. | Last date of the submission of Grade sheets to the Examination Section | 21 | May 22 (Mon), 2023 |
| 17. | Vacation for UG Students | 20-28 | May 15 (Mon)-July 14 (Fri), 2023 |
| 18. | Vacation for Faculty | 21-28 | May 22 (Mon)-July 14 (Fri), 2023 |
| 19. | Declaration of results | 21-22 | May 22 (Mon)-June 02 (Fri), 2023 |
| 20. | Ph.D./M.Tech. (R) written test/interview | 26 | June 26 (Mon)-June 27 (Tue), 2023 |
| 21. | Supplementary Examinations (even and odd Semesters) | 28-29 | July 10 (Mon)-July 22 (Sat), 2023 |
| 22. | Commencement of the next Academic Year | 30 | July 24 (Mon), 2023 |
| 23. | Last date of the submission of the M. Tech. Dissertations and M.Sc. Dissertations | - | June 16 (Fri), 2023 |
| 24. | PhD comprehensive assessment of the Spring Semester of A.Y. 2022-23 | - | July 17 (Mon)-July21 (Fri), 2023 |
| 25. | Last date of conducting the M.Tech. Dissertations and M.Sc. Dissertations viva-voce of AY 2022-23 | - | July 28 (Fri), 2023 |

**Annexure – II**
**(55th Meeting of the IAAC)**

# The Saturday Teaching Schedule for B.Tech.-Ist Year and M.Sc. –Ist Year (2nd Semester)

# (Spring Semester of AY 2021-22)

The following Saturdays will be 'working Saturdays' and teaching (classes) will be conducted as per the time table mentioned below.

| Sr. No. | Date | Time table to be followed |
|---|---|---|
| 1. | 07-05-2022 (Saturday) | Time table of Monday |
| 2. | 14-05-2022 (Saturday) | Time table of Tuesday |
| 3. | 21-05-2022 (Saturday) | Time table of Wednesday |
| 4. | 28-05-2022 (Saturday) | Time table of Thursday |
| 5. | 11-06-2022 (Saturday) | Time table of Friday |
| 6. | 18-06-2022 (Saturday) | Time table of Monday |
| 7. | 25-06-2022 (Saturday) | Time table of Tuesday |
| 8. | 02-07-2022 (Saturday) | Time table of Wednesday |
| 9. | 09-07-2022 (Saturday) | Time table of Thursday |
| 10. | 16-07-2022 (Saturday) | Time table of Friday |

**Annexure – III**
**(55th Meeting of the IAAC)**

# The Saturday Teaching Schedule for B.Tech.-IInd Year and M.Sc. –IInd Year (3rd Semester)

# (Autumn Semester of AY 2022-23 )

The following Saturdays will be 'working Saturdays' and teaching (classes) will be conducted as per the time table mentioned below.

| Sr. No. | Date | Time table to be followed |
|---|---|---|
| 1. | 13-08-2022 (Saturday) | Time table of Monday |
| 2. | 27-08-2022 (Saturday) | Time table of Tuesday |
| 3. | 03-09-2022 (Saturday) | Time table of Wednesday |
| 4. | 10-09-2022 (Saturday) | Time table of Thursday |
| 5. | 17-09-2022 (Saturday) | Time table of Friday |
| 6. | 15-10-2022 (Saturday) | Time table of Monday |
| 7. | 29-10-2022 (Saturday) | Time table of Tuesday |
| 8. | 05-11-2022 (Saturday) | Time table of Wednesday |
| 9. | 12-11-2022 (Saturday) | Time table of Thursday |
| 10. | 19-11-2022 (Saturday) | Time table of Friday |

Annexure 4

# DEPARTMENT OF CHEMICAL ENGINEERING
## REVISED SCHEME OF DEPARTMENT OF CHEMICAL ENGINEERING
**Teaching Scheme of B. Tech.-I (Semester I & II)**

**SEMESTER – I (Effective from Academic Year (AY) 2022-23)**

| Sr. No. | Subject | Code | Scheme | Credit |
|---|---|---|---|---|
| **1** | **Mathematics-I** | **MA 101 S1** | **3-1-0** | **04** |
| **2** | **Branch Specific Course-I** | **XXXX 102 S1** | **3-1-0/3-0-2** | **04** |
| 3 | Engineering Mechanics | AM 108 S1/S2 | 3-0-2 | 04 |
| 4 | Fundamentals of Computers & Programming | CS 109 S1/S2 | 3-0-2 | 04 |
| 5 | English & Professional Communication | HU 110 S1/S2 | 3-0-0 | 03 |
| 6 | Workshop Practice | ME 111 S1/S2 | 0-0-4 | 02 |
| 7 | Physics of Materials and Nuclei | PH 112 S1/S2 | 4-0-0 | 04 |
| | | **Total** | **19-2-8=29<br>19-1-10=30** | **25** |

**SEMESTER – II (Effective from Academic Year (AY) 2022-23)**

| Sr. No. | Subject | Code | Scheme | Credit |
|---|---|---|---|---|
| 1 | Mechanics, Lasers and Fiber Optics | PH 103 S2/S1 | 3-0-2 | 04 |
| 2 | Applied Chemistry | CY 104 S2/S1 | 3-0-2 | 04 |
| 3 | Engineering Drawing | CEME 105 S2/S1 | 2-0-4 | 04 |
| 4 | Energy and Environmental Engineering | CEME 106 S2/S1 | 3-0-2 | 04 |
| 5 | Holistic Empowerment and Human Values* | HU 107 S2/S1 | 3-0-0 | 00 |
| **6** | **Branch Specific Course-II** | **XXXX 113 S2** | **3-1-0/3-0-2** | **04** |
| **7** | **Mathematics-II** | **MA 114 S2** | **3-1-0** | **04** |
| | | **Total** | **20-2-10=32/<br>20-1-12=33** | **24** |

* Audit Course (attendance would be compulsory as per institute norms

S1 = Semester-1, S2 = Semester-2
AM = Applied Mechanics, CH = Chemical, CE = Civil, CS = Computer,
ME = Mechanical, EE = Electrical, EC = Electronics,
PH = Physics, CY = Chemistry, MA = Mathematics, HU = Humanities

## B.TECH.-II (CHEMICAL) 3RD SEMESTER SCHEME FOR TEACHING AND EXAMINATION

## (Effective from AY: 2022-23)

| Sr. No. | Course | Code | Credits | Teaching Scheme | | | Examination Scheme | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | L | T | P | L | T | P | |
| 1 | Mathematics – III | MA213 | 4 | 3 | 1 | 0 | 100 | 25 | 0 | 125 |
| 2 | Mechanical Operations (Core – 1) | CH201 | 5 | 3 | 1 | 2 | 100 | 25 | 50 | 175 |
| 3 | Fluid Flow Operations (Core – 2) | CH203 | 5 | 3 | 1 | 2 | 100 | 25 | 50 | 175 |
| 4 | Heat Transfer Operations (Core – 3) | CH205 | 5 | 3 | 1 | 2 | 100 | 25 | 50 | 175 |
| 5 | Engineering Chemistry | CY211 | 4 | 3 | 0 | 2 | 100 | 0 | 50 | 150 |
| | TOTAL | | 23 | 15 | 4 | 8 | 500 | 100 | 200 | 800 |
| **Total contact hours per week = 27** | | | | | | | | | | |

**B.TECH.-II (CHEMICAL) 4th SEMESTER SCHEME FOR TEACHING AND EXAMINATION**

**(Effective from AY: 2022-23)**

| Sr. No. | Course | Code | Credits | Teaching Scheme | | | Examination Scheme | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | L | T | P | L | T | P | |
| 1 | Engineering Mathematics | CH202 | 4 | 3 | 1 | 0 | 100 | 25 | 00 | 125 |
| **2** | **Chemical Reaction Engineering – I (Core – 4)** | **CH204** | **5** | **3** | **1** | **2** | **100** | **25** | **50** | **175** |
| **3** | **Mass Transfer Operations – I (Core – 5)** | **CH206** | **5** | **3** | **1** | **2** | **100** | **25** | **50** | **175** |
| 4 | Chemical Engineering Thermodynamics – I (Core – 6) | CH208 | 4 | 3 | 1 | 0 | 100 | 25 | 00 | 125 |
| 5 | Material Science and Technology (Core – 7) | CH212 | 4 | 3 | 1 | 0 | 100 | 25 | 00 | 125 |
| | TOTAL | | 22 | 15 | 5 | 4 | 500 | 125 | 100 | 725 |
| **Total contact hours per week = 24** | | | | | | | | | | |

## B.TECH.-III (CHEMICAL) 5th SEMESTER SCHEME FOR TEACHING AND EXAMINATION

## (Effective from AY: 2022-23)

| Sr. No. | Course | Code | Credits | Teaching Scheme | | | Examination Scheme | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | L | T | P | L | T | P | |
| 1 | Mass Transfer Operations – II (Core – 8) | CH301 | 5 | 3 | 1 | 2 | 100 | 25 | 50 | 175 |
| **2** | **Chemical Engineering Thermodynamics – II (Core – 9)** | **CH303** | **4** | **3** | **1** | **0** | **100** | **25** | **---** | **125** |
| 3 | Chemical Reaction Engineering – II (Core – 10) | CH305 | 4 | 3 | 1 | 0 | 100 | 25 | --- | 125 |
| 4 | Institute Elective – I | **CH3XX** | 3 | 3 | 0 | 0 | 100 | --- | --- | 100 |
| 5 | Core Elective – I | CH3AA | 3 | 3 | 0 | 0 | 100 | --- | --- | 100 |
| 6 | Professional Ethics, economics & management | HU302 | 4 | 3 | 1 | 0 | 100 | 25 | --- | 125 |
| 7 | Seminar | CH307 | 1 | 0 | 0 | 2 | --- | --- | 50 | 50 |
| | TOTAL | | 24 | 18 | 4 | 4 | 600 | 100 | 100 | 800 |
| **Total contact hours per week = 26** | | | | | | | | | | |

| **Institute Elective – I (CH3XX)** | | |
|---|---|---|
| **Sr. No** | **Code** | **Elective Course** |
| 1. | CH361 | Safety , Hazard and risk analysis |
| 2. | CH363 | Cleaner Technologies in Chemical Process Industries |
| 3. | CH365 | Fuels and Combustion |
| 4. | CH367 | Introduction to Engineering Statistics |

| **Core Elective – I (CH3AA)** | | |
|---|---|---|
| **Sr. No** | **Code** | **Elective Course** |
| 1. | CH321 | Bioprocess Engineering |
| 2. | CH323 | Computational Heat Transfer and Fluid Flow |
| 3. | CH325 | Fundamentals of Biochemical Engineering |
| 4. | CH327 | Introduction to Electrochemistry |

## B.TECH.-III (CHEMICAL) 6th SEMESTER SCHEME FOR TEACHING AND EXAMINATION
## (Effective from AY: 2022-23)

| Sr. No. | Course | Code | Credits | Teaching Scheme | | | Examination Scheme | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | L | T | P | L | T | P | |
| **1** | **Instrumentation and Process Control (Core-11)** | **CH302** | **5** | **3** | **1** | **2** | **100** | **25** | **50** | **175** |
| 2 | Process Equipment Design and Drawing (Core-12) | CH304 | 5 | 3 | 1 | 2 | 100 | 25 | 50 | 175 |
| **3** | **Process Modelling and Simulations (Core-13)** | **CH306** | **4** | **3** | **1** | **0** | **100** | **25** | **---** | **125** |
| 4 | Chemical Engineering Plant Design and Economics | CH308 | 4 | 3 | 1 | 0 | 100 | 25 | --- | 125 |
| 5 | Institute Elective – 2 | CH3YY | 3 | 3 | 0 | 0 | 100 | --- | --- | 100 |
| 6 | Core Elective -2 | CH3BB | 3 | 3 | 0 | 0 | 100 | --- | --- | 100 |
| 7 | Core Elective -3 | CH3CC | 3 | 3 | 0 | 0 | 100 | --- | --- | 100 |
| | TOTAL | | 27 | 21 | 4 | 4 | 700 | 100 | 100 | 900 |
| **Total contact hours per week = 29** | | | | | | | | | | |

| **Institute Elective – 2 (CH3YY)** | | |
|---|---|---|
| **Sr. No** | **Code** | **Elective Course** |
| 1. | CH362 | Environmental Health and Safety |
| 2. | CH364 | Petrochemical Technology |
| 3. | CH366 | Petroleum Refinery Engineering |
| 4. | CH368 | Waste to Energy Conversion |
| 5. | CH372 | Industrial Waste Management Control |

| **Core Elective – 2 (CH3BB)** | | |
|---|---|---|
| **Sr. No** | **Code** | **Elective Course** |
| 1. | CH322 | Polymer Engineering |
| 2. | CH324 | Unit Processes |
| 3. | CH326 | Chemical Product Design |
| 4. | CH328 | Fundamentals of Colloid and Interface Science |
| 5. | CH332 | Corrosion and Electrochemical Engineering |

| Core Elective – 3 (CH3CC) | | |
|---|---|---|
| **Sr. No** | **Code** | **Elective** |
| 1. | CH334 | Advanced Particle Technology |
| 2. | CH336 | Computational Fluid Dynamics |
| 3. | CH338 | Chemical Process Development and Design |
| 4. | CH342 | Advances in Chemical Engineering |
| 5. | CH344 | Enzyme science and Technology |
| 6. | CH346 | New Separation Techniques |
| **7.** | **HUXXX** | **Innovation Incubation and Entrepreneurship (Course will be taught by Department of Mathematics and Humanities )** |

## B.TECH.-IV (CHEMICAL) 7th SEMESTER SCHEME FOR TEACHING AND EXAMINATION
## (Effective from AY: 2023-24)

| Sr. No. | Course | Code | Credits | Teaching Scheme | | | Examination Scheme | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | L | T | P | L | T | P | |
| 1 | General Chemical Technology (Core-14) | CH401 | 5 | 4 | 0 | 2 | 100 | --- | 50 | 150 |
| 2 | Elements of Transport Phenomena (Core-15) | CH403 | 4 | 3 | 1 | 0 | 100 | 25 | --- | 125 |
| 3 | Core Elective – 4 | CH4AA | 3 | 3 | 0 | 0 | 100 | --- | --- | 100 |
| 4 | Core Elective – 5 | CH4BB | 3 | 3 | 0 | 0 | 100 | --- | --- | 100 |
| 5 | Core Elective – 6 | CH4CC | 3 | 3 | 0 | 0 | 100 | --- | --- | 100 |
| 6 | Core Elective - 7 | CH4DD | 3 | 3 | 0 | 0 | 100 | --- | --- | 100 |
| 7 | Project | CH407 | 4 | 0 | 0 | 8 | 100 | --- | --- | 100 |
| | TOTAL | | 25 | 19 | 1 | 10 | 700 | 25 | 50 | 775 |
| **Total contact hours per week = 28** | | | | | | | | | | |

| **Core Elective – 4, Core Elective – 5, Core Elective – 6 and Core Elective – 7 (CH4AA, CH4BB, CH4CC, CH4DD)** | | |
|---|---|---|
| **Sr. No** | **Code** | **Elective Course** |
| 1. | CH421 | Sustainability , Green Chemistry and Engineering |
| 2. | CH423 | Safety and Pollution Control in Chemical Process Industries |
| 3. | CH425 | Process Plant Safety |
| 4. | CH427 | Nanomaterials Synthesis by Chemical Methods |
| 5. | CH429 | Biomass and Fuel Cell Technology |
| 6. | CH431 | Computer Aided Design in Chemical Engineering |
| 7. | CH433 | Interfacial Science and Engineering |
| 8. | CH435 | Green Technology |
| 3. | CH437 | Fluidization Engineering |
| 10. | CH439 | Process Intensification |
| 11. | CH441 | Rheology of Complex Fluids |
| 12. | CH443 | Optimization |
| 13. | CH445 | Advanced Process Control |
| 14. | CH447 | Design of Experiments |
| 15. | CH449 | Catalysis and Reactor Design |

**B.TECH.-IV (CHEMICAL) 8th SEMESTER SCHEME FOR TEACHING AND EXAMINATION**

**(Effective from AY: 2023-24)**

| Sr. No. | Course | Code | Credits | Teaching Scheme | | | Examination Scheme | | | Total Marks |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Theory | | | |
| | | | | L | T | P | L | T | P | |
| 1 | Internship training In Industry/Research organization/Academic Institutes | CH4XX | 10 | 0 | 0 | 20 | - | - | 300 | 300 |
| | Total | | 10 | 0 | 0 | 20 | --- | --- | 300 | 300 |
| **Total contact hours per week = 20 hours** | | | | | | | | | | |

**Total Credits: 180**

## B. Tech. Minor in Chemical Engineering

## List of courses offered in minor degree for B. TECH. Chemical Engineering

**(Effective from AY: 2022-23)**

**Reso. 1 of 69th DAAC held on 27/07/2020**

| Year | Semester | Name of Subject | Subject Code | Scheme |
|---|---|---|---|---|
| II | Fourth | Chemical Reaction Engineering – I | CH204 | 3-1-2 |
| | Fourth | Mass Transfer Operations – I | CH206 | 3-1-2 |
| III | Fifth | Chemical Engineering Thermodynamics – II | CH303 | 3-1-0 |
| | Sixth | Instrumentation and Process Control | CH302 | 3-1-2 |
| | Sixth | Process Modelling and Simulations | CH306 | 3-1-0 |

Annexure 4

**Department of Civil Engineering**
**B.Tech. Civil Engineering: New Teaching Scheme**
**Batch (A.Y. 2020-21 to A.Y. 2023-24)**
***[There is no change in scheme of first and second year]***

| Summary of Teaching Scheme | | | |
|---|---|---|---|
| **Year** | **Semester** | **Credits** | **Hours per week** |
| 1 | 1 & 2 | 49 | - |
| 2 | 3 | 23 | 26 |
| | 4 | 24 | 29 |
| 3 | 5 | 26 | 31 |
| | 6 | 25 | 28 |
| 4 | 7 | 23 | 29 |
| | 8 | 10 | 40 |
| **Grand Total** | | **180** | |

**SEMESTER – III**
**(Effective for A.Y. 2021-22)**

| Sr. No. | Course | Code | Scheme | Exam Scheme | | | | Total | Credit |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Theory | | Tuto. | Pract. | | |
| | | | | Hours | Marks | Marks | Marks | | |
| 1. | Engineering Mathematics -III | MA215 | 3-1-0 | 3 | 100 | 25 | 0 | 125 | 04 |
| 2. | Hydraulic Engineering | CE201 | 4-1-2 | 4 | 100 | 25 | 50 | 175 | 06 |
| 3. | Basic Transportation Engineering | CE203 | 3-1-0 | 3 | 100 | 25 | 0 | 125 | 04 |
| 4. | Mechanics of Solids | CE205 | 3-1-2 | 3 | 100 | 25 | 50 | 175 | 05 |
| 5. | Geotechnical Engineering | CE207 | 3-0-2 | 3 | 100 | 0 | 50 | 150 | 04 |
| | | **Total** | **16-4-6** | **16** | **500** | **100** | **150** | **750** | **23** |
| | Total Teaching Hours | | **26** | | | | | | |

**Minor Course:** CE207 Geotechnical Engineering



S. V. NATIONAL INSTITUTE OF TECHNOLOGY * SURAT * DCE

## SEMESTER – IV
## (Effective for A.Y. 2021-22)

| Sr. No. | Course | Code | Scheme | Exam Scheme | | | | Total | Credit |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Theory | | Tuto. | Pract. | | |
| | | | | Hours | Marks | Marks | Marks | | |
| 1. | Environmental Engineering, I | CE202 | 3-1-2 | 3 | 100 | 25 | 50 | 175 | 05 |
| 2. | Concrete Technology | CE204 | 3-0-2 | 3 | 100 | 0 | 50 | 150 | 04 |
| 3. | Structural Analysis I | CE206 | 3-0-2 | 3 | 100 | 0 | 50 | 150 | 04 |
| 4. | Geomatic Surveying | CE208 | 3-1-2 | 3 | 100 | 25 | 50 | 175 | 05 |
| 5. | Building and Town Planning | CE212 | 4-1-2 | 4 | 100 | 25 | 50 | 175 | 06 |
| | | **Total** | **16-3-10** | **16** | **500** | **75** | **250** | **825** | **24** |
| | Total Teaching Hours | | **29** | | | | | | |

**Minor Courses:** CE204 Concrete Technology

## SEMESTER – V
## (Effective for A.Y. 2022-23)

| Sr No | Course | Code | Scheme | Exam Scheme | | | | Total | Credit |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Theory | | Tuto. | Pract. | | |
| | | | | Hours | Marks | Marks | Marks | | |
| 1. | Professional Ethics, Economics and Business Management | HU301 | 3-1-0 | 4 | 100 | 25 | 0 | 125 | 04 |
| 2. | Estimation and Cost Analysis | CE301 | 3-1-2 | 3 | 100 | 25 | 50 | 175 | 05 |
| **3.** | **Environmental Engineering II** | **CE303** | **3-1-2** | **3** | **100** | **25** | **75** | **150** | **05** |
| 4. | Core Elective 1 | CE3AA | 3-0-0 | 3 | 100 | 0 | 0 | 100 | 03 |
| 5. | Institute Elective-1 | CE3XX | 3-0-0 | 3 | 100 | 0 | 0 | 100 | 03 |
| 6. | Seminar | CE305 | 0-0-2 | 0 | 0 | 0 | 50 | 50 | 01 |
| **7.** | **Structural Analysis II** | **CE302** | **3-1-2** | **3** | **100** | **25** | **50** | **175** | **05** |
| | | **Total** | **18-4-8** | **19** | **600** | **75** | **200** | **875** | **26** |
| | Total Teaching Hours | | **31** | | | | | | |

Minor Course : Estimation and Cost Analysis ( CE 301 )

## Core Electives-1

| Sr. No. | Core Elective-1 (5th Semester) CE3AA |
|---|---|
| 1. | CE 321 Advanced Geotechnical Engineering |
| 2. | CE 323 Engineering Geology |

## Institute Electives-1

| Sr. No. | Institute Elective-1 (5th Semester) CE3XX |
|---|---|
| 1. | CE 361 Industrial safety and Environment |
| 2. | CE 363 Environmental Management |
| 3. | CE 367 Rural Planning and Management |
| 4. | CE 369 Transportation Safety and Environment |
| 5. | CE 371 Fundamentals of GIS and Remote Sensing |
| 6. | CE 373 Building Information Modelling |
| 7. | CE375 Mechanics of Solids |
| 8. | CE 377 Introduction to Earthquake Engineering |
| 9. | CE 379 Introduction to Structural Engineering |
| 10. | CE 381 Rehabilitation and Strengthening of Structures |

**SEMESTER – VI**
**(Effective for A.Y. 2022-23)**

| Sr. No. | Course | Code | Scheme | Exam Scheme | | | | Total | Credit |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Theory | | Tuto. | Pract. | | |
| | | | | Hours | Marks | Marks | Marks | | |
| **1.** | **Innovation, Incubation and Entrepreneurship** | **HU410** | **3-0-0** | **3** | **100** | **0** | **0** | **100** | **03** |
| 2. | Highway Engineering | CE304 | 3-1-2 | 3 | 100 | 0 | 50 | 150 | 05 |
| 3. | Water Resources Engineering | CE306 | 4-1-2 | 4 | 100 | 25 | 50 | 175 | 06 |
| 4. | Design of Steel Structures | CE308 | 3-1-2 | 3 | 100 | 25 | 50 | 175 | 05 |
| 5. | Core Elective 2 | CE3BB | 3-0-0 | 3 | 100 | 0 | 0 | 100 | 03 |
| 6. | Institute Elective-2 | CE3YY | 3-0-0 | 3 | 100 | 0 | 0 | 100 | 03 |
| | | **Total** | **19-3-6** | **19** | **600** | **50** | **150** | **800** | **25** |
| | Total Teaching Hours | | **28** | | | | | | |

**Minor Courses:** CE 304 Highway Engineering
CE 306 Water Resources Engineering

**Core Electives-2**

| Sr. No. | Core Elective-2 (6th Semester) CE3BB |
|---|---|
| 1. | CE322 Sustainable Building Planning |
| 2. | CE324 Housing |
| 3. | CE326 Pavement Analysis and Design |
| 4. | CE328 Transport Economics |
| 5. | CE332 Ground water hydrology |
| 6. | CE334 Channel Hydraulics |
| 7. | CE336 Advanced Surveying |
| 8. | CE338 Environmental Ethics Law and Policy |
| 9. | CE342 Construction Safety Management |

## Institute Electives-2

| Sr. No. | Institute Elective-2 (6th Semester) CE3YY |
|---|---|
| 1. | CE362 Environment Health and Risk Management |
| 2. | CE364 Air Pollution and Control |
| 3. | CE366 Smart Cities Planning and Management |
| 4. | CE368 Climate change studies |
| 5. | CE372 Intelligent Transport System |
| 6. | CE374 Water Infrastructure in Smart cities |
| 7. | CE 376 Waste to Energy Technology |
| 8. | CE 378 Disaster Management |
| 9. | CE 382 Advanced Mechanics of Solids |

## SEMESTER – VII
## (Effective for A.Y. 2023-24)

| Sr. No. | Course | Code | Scheme | Exam Scheme | | | | Total | Credit |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Theory | | Tuto. | Pract. | | |
| | | | | Hours | Marks | Marks | Marks | | |
| 1. | Heavy Construction and Project Management | CE401 | 3-1-0 | 3 | 100 | 25 | 0 | 125 | 04 |
| **2.** | **Design of Concrete Structures** | **CE403** | **3-1-2** | **3** | **100** | **25** | **50** | **175** | **05** |
| 3. | Core Elective-3 | CE4AA | 3-0-0 | 3 | 100 | 0 | 0 | 100 | 03 |
| 4. | Core Elective-4 | CE4BB | 3-0-0 | 3 | 100 | 0 | 0 | 100 | 03 |
| **5.** | **Core Elective-5** | **CE4XX** | **3-0-0** | **3** | **100** | **0** | **0** | **100** | **03** |
| **6.** | **Project** | **CE407** | **0-0-10** | **0** | **0** | **0** | **150** | **150** | **05** |
| | | **Total** | **15-2-12** | **15** | **500** | **50** | **200** | **750** | **23** |
| | Total Teaching Hours | | **29** | | | | | | |

## Core Electives-3

| Sr. No. | Core Elective-3 (7th Semester) CE4AA | Core Elective-4 (7th Semester) CE4BB |
|---|---|---|
| 1. | CE421 Urban Infrastructure Planning and Management | CE 447 Design of Industrial Structures |
| 2. | CE423 Urban Land Management | CE 449 Ground Engineering |
| 3. | CE425 Urban Transport Systems Planning | CE 451 Advanced Concrete Technology |
| 4. | CE427 Flood control and River Training works | CE 453 Geo-synthetic and Reinforced Soil Structure |
| 5. | CE429Advanced Hydrologic Analysis & Design | CE 455 Introduction to Finite Element Methods |
| 6. | CE431 Advanced Fluid Mechanics | CE 457 Rock Mechanics |
| 7. | CE433 Stochastic Hydrology | CE459 Design of Formwork |
| 8. | CE435 GPS and Applications | - |
| 9. | CE437 Industrial Waste Management | - |
| 10. | CE439 Building Maintenance | - |
| 11. | CE441 Environmental Health and Risk Management | - |
| 12. | CE443 Air Pollution and Control | - |
| 13. | CE445 Traffic Engineering and Management | - |

## Core Electives-5

| Sr. No. | Core Elective–5<br>(7th Semester) CE4XX |
|---|---|
| 1. | CE422 Regional Planning |
| 2. | CE424 Real Estate management |
| 3. | CE426 Urban Design and Landscape Planning |
| 4. | CE428 Tourism Planning and Development |
| 5. | CE432 Smart Cities Planning and Management |
| 6. | CE434 Public Transport Systems and Operations |
| 7. | CE436 Transportation Safety and Environment |
| 8. | CE438 Waterways Infrastructure Planning & Design |
| 9. | CE442 Traffic Flow Theory |
| 10. | CE444 Advanced Hydraulics Structure |
| 11. | CE446 Hydraulics of Alluvial Rivers |
| 12. | CE448 Computational Hydraulics |
| 13. | CE452 Geospatial Techniques |
| 14. | CE454 Advanced Water and Wastewater Treatment |
| 15. | CE456 Solid and Hazardous Waste Management |
| 16. | CE458 Metro Construction Technology |
| 17. | CE462 Environmental Impact Assessment |
| 18. | CE464 Construction Laws |
| 19. | CE466 Professional Practice |
| 20. | CE468 Advanced Construction Technology |
| 21. | CE472 Operation and Maintenance Management of Pavements |

**SEMESTER – VIII**
**(Effective for A.Y. 2023-24)**

| Sr. No. | Course | Code | Scheme | Exam Scheme | | Total | Credit |
|---|---|---|---|---|---|---|---|
| | | | | Continuous Assessment (Marks) | End Semester Assessment (Marks) | | |
| 1. | Industrial Internship | CEXXX | 0-0-40* | 160 | 240 | 400 | 10 |
| | Grand Total | | | | | | 180 |

- **Students are expected to work at sites / organizations for 8 hours / day for 5 days/week**

V. NATIONAL INSTITUTE OF TECHNOLOGY * SURAT * DCE

**Department of Civil Engineering**
**B.Tech. Civil Engineering: New Teaching Scheme**
**Batch (A.Y. 2021-22 to A.Y. 2024-25 Onwards)**
**Revised Curriculum from Semester III**
***[There is no change in scheme of first year]***

| Summary of Teaching Scheme | | | |
|---|---|---|---|
| **Year** | **Semester** | **Credits** | **Hours per week** |
| 1 | 1 & 2 | 49 | - |
| 2 | 3 | 26 | 30 |
| | 4 | 27 | 33 |
| 3 | 5 | 27 | 31 |
| | 6 | 23 | 25 |
| 4 | 7 | 20 | 25 |
| | 8 | 10 | 20 |
| **Grand Total** | | **182** | |

**SEMESTER – III**
**(Effective from A.Y. 2022-23)**

| **Sr. No.** | **Course** | **Code** | **Scheme** | **Exam Scheme** | | | | **Total** | **Credit** |
|---|---|---|---|---|---|---|---|---|---|
| | | | | **Theory** | | **Tuto.** | **Pract.** | | |
| | | | | **Hours** | **Marks** | **Marks** | **Marks** | | |
| 1. | Engineering Mathematics -III | MA215 | 3-1-0 | 3 | 100 | 25 | 0 | 125 | 04 |
| 2. | Hydraulic Engineering | CE201 | 4-1-2 | 4 | 100 | 25 | 50 | 175 | 06 |
| 3. | Basic Transportation Engineering | CE203 | 3-1-0 | 3 | 100 | 25 | 0 | 125 | 04 |
| **4.** | **Mechanics of Solids** | **CE205** | **3-0-2** | **3** | **100** | **0** | **50** | **150** | **04** |
| 5. | Geotechnical Engineering | CE207 | 3-0-2 | 3 | 100 | 0 | 50 | 150 | 04 |
| **6.** | **Environmental Engg. I** | **CE202** | **3-0-2** | **3** | **100** | **00** | **50** | **150** | **04** |
| | | **Total** | **19-3-8** | **19** | **600** | **75** | **200** | **875** | **26** |
| | | | **30** | | | | | | |

**Minor Course:** CE207 Geotechnical Engineering

## SEMESTER – IV
## (Effective from A.Y. 2022-23)

| Sr. No. | Course | Code | Scheme | Exam Scheme | | | | Total | Credit |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Theory | | Tuto. | Pract. | | |
| | | | | Hours | Marks | Marks | Marks | | |
| **1.** | **Environmental Engg. II** | **CE303** | **3-0-2** | **3** | **100** | **0** | **50** | **150** | **04** |
| 2. | Concrete Technology | CE204 | 3-0-2 | 3 | 100 | 0 | 50 | 150 | 04 |
| 3. | Structural Analysis I | CE206 | 3-0-2 | 3 | 100 | 0 | 50 | 150 | 04 |
| 4. | Geomatic Surveying | CE208 | 3-1-2 | 3 | 100 | 25 | 50 | 175 | 05 |
| 5. | Building and Town Planning | CE212 | 4-1-2 | 4 | 100 | 25 | 50 | 175 | 06 |
| **6.** | **Highway Engg.** | **CE304** | **3-0-2** | **3** | **100** | **0** | **50** | **150** | **04** |
| | | **Total** | **19-2-12** | **19** | **600** | **50** | **300** | **950** | **27** |
| | | | **33** | | | | | | |

**Minor Courses:** CE204 Concrete Technology
CE 304 Highway Engineering

## SEMESTER – V
## (Effective from A.Y. 2023-24)

| Sr. No. | Course | Code | Scheme | Exam Scheme | | | | Total | Credit |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Theory | | Tuto. | Pract. | | |
| | | | | Hours | Marks | Marks | Marks | | |
| 1. | Professional Ethics, Economics and Business Management | HU301 | 4-1-0 | 4 | 100 | 25 | 0 | 125 | 05 |
| 2. | Estimation and Cost Analysis | CE301 | 3-1-2 | 3 | 100 | 25 | 50 | 175 | 05 |
| **3.** | **Structural Analysis II** | **CE302** | **3-1-2** | **3** | **100** | **25** | **50** | **175** | **05** |
| 4. | Core Elective 1 | CE3AA | 3-0-0 | 3 | 100 | 0 | 0 | 100 | 03 |
| 5. | Institute Elective-1 | CE3XX | 3-0-0 | 3 | 100 | 0 | 0 | 100 | 03 |
| **6.** | **Design of Steel Structures** | **CE308** | **3-1-2** | **3** | **100** | **25** | **50** | **175** | **05** |
| 7. | Seminar | CE305 | 0-0-2 | 0 | 0 | 0 | 50 | 50 | 01 |
| | | **Total** | **19-4-8** | **19** | **600** | **100** | **200** | **900** | **27** |
| | | | **31** | | | | | | |

## Core Electives 1:

| Sr. No. | Core Elective-1 (5th Semester) CE3AA | Minor Course: |
|---|---|---|
| 1. | CE 321 Advanced Geotechnical Engineering | CE 301 Estimation & Cost Analysis |
| 2. | CE 323 Engineering Geology | |

## Institute Electives 1:

| Sr. No. | Institute Elective-1 (5th Semester) CE3XX |
|---|---|
| 1. | CE 361 Industrial safety and Environment |
| 2. | CE 363 Environmental Management |
| 3. | CE 367 Rural Planning and Management |
| 4. | CE 369 Transportation Safety and Environment |
| 5. | CE 371 Fundamentals of GI Sand Remote Sensing |
| 6. | CE 373 Building Information Modelling |
| 7. | CE375 Mechanics of Solids |
| 8. | CE 377 Introduction to Earthquake Engineering |
| 9. | CE 379 Introduction to Structural Engineering |
| 10. | CE 381 Rehabilitation and Strengthening of Structures |

## SEMESTER – VI
## (Effective from A.Y. 2023-24)

| Sr No | Course | Code | Scheme | Exam Scheme | | | | Total | Credit |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Theory | | Tuto. | Pract. | | |
| | | | | Hours | Marks | Marks | Marks | | |
| **1** | **Design of Concrete Structures** | **CE403** | **3-0-2** | **3** | **100** | **0** | **50** | **150** | **04** |
| **2** | **Heavy Construction& Project Management** | **CE401** | **3-1-0** | **3** | **100** | **25** | **0** | **125** | **04** |
| 3 | Water Resources Engineering | CE306 | 4-1-2 | 4 | 100 | 25 | 50 | 175 | 06 |
| **4** | **Innovation Incubation and Entrepreneurship** | **HU410** | **3-0-0** | **3** | **100** | **0** | **0** | **100** | **03** |
| 5 | Core Elective 2 | CE3BB | 3-0-0 | 3 | 100 | 0 | 0 | 100 | 03 |
| 6 | Institute Elective-2 | CE3YY | 3-0-0 | 3 | 100 | 0 | 0 | 100 | 03 |
| | | **Total** | **19-2-4** | **19** | **600** | **50** | **100** | **750** | **23** |
| | | | **25** | | | | | | |

**Minor Course:** CE 306 Water Resources Engineering

## Core Electives 2:

| Sr. No. | Core Elective-2 (6th Semester) CE3BB |
|---|---|
| 1. | CE322 Sustainable Building Planning |
| 2. | CE324 Housing |
| 3. | CE326 Pavement Analysis and Design |
| 4. | CE328 Transport Economics |
| 5. | CE332 Ground water hydrology |
| 6. | CE334 Channel Hydraulics |
| 7. | CE336 Advanced Surveying |
| 8. | CE338 Environmental Ethics Law and Policy |
| 9. | CE342 Construction Safety Management |

## Institute Electives 2:

| Sr. No. | Institute Elective-2 (6th Semester) CE3YY |
|---|---|
| 1. | CE362 Environment Health and Risk Management |
| 2. | CE364 Air Pollution and Control |
| 3. | CE366 Smart Cities Planning and Management |
| 4. | CE368 Climate change studies |
| 5. | CE372 Intelligent Transport System |
| 6. | CE374 Water Infrastructure in Smart cities |
| 7. | CE 376 Waste to Energy Technology |
| 8. | CE 378 Disaster Management |
| 9. | CE 382 Advanced Mechanics of Solids |

## SEMESTER – VII

## (Effective from A.Y. 2024-25)

| Sr. No. | Course | Code | Scheme | Exam Scheme | | | | Total | Credit |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Theory | | Tuto. | Pract. | | |
| | | | | Hours | Marks | Marks | Marks | | |
| 1. | Core Elective-3 | CE4AA | 3-0-0 | 3 | 100 | 0 | 0 | 100 | 03 |
| 2. | Core Elective-4 | CE4BB | 3-0-0 | 3 | 100 | 0 | 0 | 100 | 03 |
| **3.** | **Core Elective 5** | **CE4XX** | **3-0-0** | **3** | **100** | **0** | **0** | **100** | **03** |
| **4.** | **Core Elective 6** | **CE4YY** | **3-0-0** | **3** | **100** | **0** | **0** | **100** | **03** |
| **5.** | **Core Elective 7** | **CE4ZZ** | **3-0-0** | **3** | **100** | **0** | **0** | **100** | **03** |
| 6. | Project | CE407 | 0-0-10 | 0 | 0 | 0 | 150 | 150 | 05 |
| | | **Total** | **15-0-10** | **15** | **500** | **0** | **150** | **650** | **20** |
| | | | **25** | | | | | | |

**Core Electives 3:**

| Sr. No. | Core Elective – 3 (7th Semester) CE4AA |
|---|---|
| 1. | CE421 Urban Infrastructure Planning and Management |
| 2. | CE423 Urban Land Management |
| 3. | CE425 Urban Transport Systems Planning |
| 4. | CE427 Flood control and River Training works |
| 5. | CE429Advanced Hydrologic Analysis & Design |
| 6. | CE431 Advanced Fluid Mechanics |
| 7. | CE433 Stochastic Hydrology |
| 8. | CE435 GPS and Applications |
| 9. | CE437 Industrial Waste Management |
| 10. | CE439 Building Maintenance |
| 11. | CE441 Environmental Health and Risk Management |
| 12. | CE443 Air Pollution and Control |
| 13. | CE445 Traffic Engineering and Management |

**Core Electives 4:**

| Sr. No. | Core Elective – 4 (7th Semester) CE4BB |
|---|---|
| 1. | CE 447 Design of Industrial Structures |
| 2. | CE 449 Ground Engineering |
| 3. | CE 451 Advanced Concrete Technology |
| 4. | CE 453 Geosynthetic and Reinforced Soil Structure |
| 5. | CE 455 Introduction to Finite Element Methods |
| 6. | CE 457 Rock Mechanics |
| 7. | CE459 Design of Formwork |

**Core Electives 5:** **Core Electives 6:**

| Sr. No. | Core Elective – 5 and 6(7th Semester) CE4XX, CE4YY |
|---|---|
| 1. | CE422 Regional Planning |
| 2. | CE424 Real Estate management |
| 3. | CE426 Urban Design and Landscape Planning |
| 4. | CE428 Tourism Planning and Development |
| 5. | CE432 Smart Cities Planning and Management |
| 6. | CE434 Public Transport Systems and Operations |
| 7. | CE436 Transportation Safety and Environment |
| 8. | CE438 Waterways Infrastructure Planning & Design |
| 9. | CE442 Traffic Flow Theory |
| 10. | CE444 Advanced Hydraulics Structure |
| 11. | CE446 Hydraulics of Alluvial Rivers |
| 12. | CE448 Computational Hydraulics |
| 13. | CE452 Geospatial Techniques |
| 14. | CE454 Advanced Water and Wastewater Treatment |
| 15. | CE456 Solid and Hazardous Waste Management |
| 16. | CE458 Metro Construction Technology |
| 17. | CE462 Environmental Impact Assessment |
| 18. | CE464 Construction Laws |
| 19. | CE466 Professional Practice |
| 20. | CE468 Advanced Construction Technology |
| 21. | CE472 Operation and Maintenance Management of Pavements |

**Core Electives 7:**

| Sr. No. | Core Elective – 7 (7th Semester) CE4ZZ |
|---|---|
| 1. | CE474 Advanced Design of Concrete Structures |
| 2. | CE 476 Design of Pre-Stressed Concrete Structures |
| 3. | CE 478 Design of Bridge Structures |
| 4. | CE 482 Design of Tall Structures |
| 5. | CE 484 Computer Aided Design of Structures |
| 6. | CE 488 Introduction to Geotechnical Earthquake Engineering |
| 7. | CE 492 Introduction to Wind Engineering |
| 8. | CE 494 Tunneling Engineering |
| 9. | CE 496 Ground Improvement Techniques |

**SEMESTER – VIII**
**(Effective from A.Y. 2024-25)**

| Sr. No. | Course | Code | Scheme | Exam Scheme | | Total | Credit |
|---|---|---|---|---|---|---|---|
| | | | | Continuous Assessment | End Semester Assessment | | |
| | | | | (Marks) | (Marks) | | |
| 1. | Industrial Internship | CEXXX | 0-0-20 | 160 | 240 | 400 | 10 |
| | | | | | Grand Total | | 184 |

Annexure 4

Department of Computer Science and Engineering, SVNIT, Surat
B. Tech. Computer Science and Engineering – Curriculum

# Teaching Scheme of B. Tech. - I (Semester I & II)

# (Effective from Academic Year 2022-23)

## Semester I

| Sr. No. | Course | Code | Credits | Teaching Scheme | | | Examination Scheme | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | L | T | P | L | T | P | |
| 1 | Mathematics-I | MA101S1 | 4 | 3 | 1 | 0 | 100 | 25 | 0 | 125 |
| 2 | Electrical Networks **Branch Specific Course-I** | CSEE102S1 | 4 | 3 | 0 | 2 | 100 | 0 | 50 | 150 |
| 3 | Mechanics, Lasers and Fiber Optics | PH103S1 | 4 | 3 | 0 | 2 | 100 | 0 | 50 | 150 |
| 4 | Applied Chemistry | CY104S1 | 4 | 3 | 0 | 2 | 100 | 0 | 50 | 150 |
| 5 | Engineering Drawing | CIME105S1 | 4 | 2 | 0 | 4 | 50 | 0 | 100 | 150 |
| 6 | Energy & Environmental Engineering | CIME106S1 | 4 | 3 | 1 | 0 | 100 | 25 | 0 | 125 |
| 7 | Holistic Empowerment & Human Values* | HU107S1 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| | **Total** | | **24** | **20** | **2** | **10** | **550** | **50** | **250** | **850** |
| | **Total Contact Hours per week** | | | **32** | | | | | | |

*Audit Course

## Semester II

| Sr. No. | Course | Code | Credits | Teaching Scheme | | | Examination Scheme | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | L | T | P | L | T | P | |
| 1 | Engineering Mechanics | AM108S2 | 4 | 3 | 0 | 2 | 100 | 0 | 50 | 150 |
| 2 | Fundamentals of Computer & Programming | CS109S2 | 4 | 3 | 0 | 2 | 100 | 0 | 50 | 150 |
| 3 | English & Professional Communication | HU110S2 | 3 | 3 | 0 | 0 | 100 | 0 | 0 | 100 |
| 4 | Workshop Practice | ME111S2 | 2 | 0 | 0 | 4 | 0 | 0 | 100 | 100 |
| 5 | Physics of Materials and Nuclei | PH112S2 | 4 | 4 | 0 | 0 | 100 | 0 | 0 | 100 |
| 6 | Web Programming **Branch Specific Course-II** | CSCS113S2 | 4 | 3 | 0 | 2 | 100 | 0 | 50 | 150 |
| 7 | Mathematics-II | MA114S2 | 4 | 3 | 1 | 0 | 100 | 25 | 0 | 125 |
| | **Total** | | **25** | **18** | **2** | **10** | **600** | **25** | **250** | **875** |
| | **Total Contact Hours per week** | | | **30** | | | | | | |

S1 = Semester-1, S2 = Semester-2, AM = Applied Mechanics, CH = Chemical, CE = Civil, CS = Computer, ME = Mechanical, EE = Electrical, EC = Electronics, PH = Physics, CY = Chemistry, MA = Mathematics, HU = Humanities. Branch Specific Course: First two letters indicate branch for which the course is offered and the last two letters indicate the department which is offering the course.

Department of Computer Science and Engineering

# Teaching Scheme of B. Tech. - I (Semester I & II)

# (Effective from Academic Year 2022-23)

## Semester-I

| Sr. No. | Course | Code | Credits | Teaching Scheme | | | Examination Scheme | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | L | T | P | L | T | P | |
| 1 | Mathematics-I | MA101S1 | 4 | 3 | 1 | 0 | 100 | 25 | 0 | 125 |
| 2 | Electrical Networks **Branch Specific Course-I** | CSEE102S1 | 4 | 3 | 0 | 2 | 100 | 0 | 50 | 150 |
| 3 | Engineering Mechanics | AM108S1 | 4 | 3 | 0 | 2 | 100 | 0 | 50 | 150 |
| 4 | Fundamentals of Computer & Programming | CS109S1 | 4 | 3 | 0 | 2 | 100 | 0 | 50 | 150 |
| 5 | English & Professional Communication | HU110S1 | 3 | 3 | 0 | 0 | 100 | 0 | 0 | 100 |
| 6 | Workshop Practice | ME111S1 | 2 | 0 | 0 | 4 | 0 | 0 | 100 | 100 |
| 7 | Physics of Materials and Nuclei | PH112S1 | 4 | 3 | 0 | 2 | 100 | 0 | 50 | 150 |
| | **Total** | | **25** | **18** | **1** | **12** | **600** | **25** | **300** | **925** |
| | **Total Contact Hours per week** | | | **31** | | | | | | |

## Semester-II

| Sr. No. | Course | Code | Credits | Teaching Scheme | | | Examination Scheme | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | L | T | P | L | T | P | |
| 1 | Mechanics, Lasers and Fiber Optics | PH103S2 | 4 | 4 | 0 | 0 | 100 | 0 | 0 | 100 |
| 2 | Applied Chemistry | CY104S2 | 4 | 3 | 0 | 2 | 100 | 0 | 50 | 150 |
| 3 | Engineering Drawing | CEME105S2 | 4 | 2 | 0 | 4 | 50 | 0 | 100 | 150 |
| 4 | Energy & Environmental Engineering | CEME106S2 | 4 | 3 | 1 | 0 | 100 | 25 | 0 | 125 |
| 5 | Holistic Empowerment & Human Values* | HU107S2 | 0 | 3 | 0 | 0 | 100 | 0 | 0 | 100 |
| 6 | Web Programming **Branch Specific Course-II** | CSCS113S2 | 4 | 3 | 0 | 2 | 100 | 0 | 50 | 150 |
| 7 | Mathematics-II | MA112S2 | 4 | 3 | 1 | 0 | 100 | 25 | 0 | 125 |
| | **Total** | | **24** | **21** | **2** | **8** | **650** | **50** | **200** | **900** |
| | **Total Contact Hours per week** | | | **31** | | | | | | |

*Audit Course

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# Teaching Scheme of B. Tech. - II (CSE)
# (Effective from Academic Year 2022-23)

## Semester III

| Sr. No. | Course | Code | Credits | Teaching Scheme | | | Examination Scheme | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | L | T | P | L | T | P | |
| 1 | Discrete Mathematics (Mathematics – III) | MA221 | 4 | 3 | 1 | 0 | 100 | 25 | 0 | 125 |
| 2 | Data Structures (Core-1) | CS210 | 5 | 3 | 1 | 2 | 100 | 25 | 50 | 175 |
| 3 | Computer Organization (Core-2) | CS201 | 5 | 3 | 1 | 2 | 100 | 25 | 50 | 175 |
| 4 | Digital Electronics & Logic Design (Core-3/Interdisciplinary Subject) | EC207 | 5 | 3 | 1 | 2 | 100 | 25 | 50 | 175 |
| 5 | Digital Communication (Core-4/Interdisciplinary Subject) | EC209 | 4 | 3 | 0 | 2 | 100 | 0 | 50 | 150 |
| | **Total** | | **23** | **15** | **4** | **8** | **500** | **100** | **200** | **800** |
| | **Total Contact Hours per week** | | | **27** | | | | | | |

Practical Examination Scheme (Continuous Evaluation 50% and End-Semester Evaluation 50%)

## Semester IV

| Sr. No. | Course | Code | Credits | Teaching Scheme | | | Examination Scheme | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | L | T | P | L | T | P | |
| 1 | Linear Algebra and Statistical Analysis (Mathematic – IV) | MA212 | 4 | 3 | 1 | 0 | 100 | 25 | 0 | 125 |
| 2 | Microprocessor and Interfacing Techniques (Core-5) | CS202 | 5 | 3 | 1 | 2 | 100 | 25 | 50 | 175 |
| 3 | Database Management Systems (Core-6) | CS204 | 5 | 3 | 1 | 2 | 100 | 25 | 50 | 175 |
| 4 | Design and Analysis of Algorithms (Core-7) | CS206 | 5 | 3 | 1 | 2 | 100 | 25 | 50 | 175 |
| 5 | Automata and Formal Languages (Core-8) | CS208 | 4 | 3 | 1 | 0 | 100 | 25 | 0 | 125 |
| | **Total** | | **23** | **15** | **5** | **6** | **500** | **125** | **150** | **775** |
| | **Total Contact Hours per week** | | | **26** | | | | | | |

Practical Examination Scheme (Continuous Evaluation 50% and End-Semester Evaluation 50%)

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# Teaching Scheme of B. Tech. - III (CSE)

# (Effective from Academic Year 2022-23)

## Semester V

| Sr. No. | Course | Code | Credits | Teaching Scheme | | | Examination Scheme | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | L | T | P | L | T | P | |
| 1 | Operating Systems (Core-9) | CS301 | 5 | 3 | 1 | 2 | 100 | 25 | 50 | 175 |
| 2 | Computer Networks (Core-10) | CS303 | 5 | 3 | 1 | 2 | 100 | 25 | 50 | 175 |
| 3 | Machine Learning (Core-11) | CS305 | 4 | 3 | 0 | 2 | 100 | 0 | 50 | 150 |
| 4 | Professional Ethics, Economics and Business Management | HU303 | 4 | 3 | 1 | 0 | 125 | 0 | 0 | 125 |
| 5 | Core Elective-1 | CS3AA | 3 | 3 | 0 | 0 | 100 | 0 | 0 | 100 |
| 6 | Institute Elective-1 | CS3XX | 3 | 3 | 0 | 0 | 100 | 0 | 0 | 100 |
| 7 | Seminar | CS307 | 1 | 0 | 0 | 2 | 0 | 0 | 50 | 50 |
| | **Total** | | **25** | **18** | **3** | **8** | **625** | **50** | **200** | **875** |
| | **Total Contact Hours per week** | | | **29** | | | | | | |

Practical Examination Scheme (Continuous Evaluation 50% and End-Semester Evaluation 50%)

**Core Elective-1 (CS3AA):**

| | | | |
|---|---|---|---|
| 1 | Software Engineering (CS321) | 4 | Information Theory & Coding (CS327) |
| 2 | Advanced Microprocessors (CS323) | 5 | Object Oriented Technology (CS329) |
| 3 | Parallel Processing and Architecture (CS325) | | |

**Institute Elective-1 (CS3XX):**

| | | | |
|---|---|---|---|
| 1 | Soft Computing (CS361) | 4 | Signals & Systems (CS367) |
| 2 | Computer Graphics (CS363) | 5 | Logic and Functional Programming (CS369) |
| 3 | Computational Geometry (CS365) | | |

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# Semester VI

| Sr. No. | Course | Code | Credits | Teaching Scheme | | | Examination Scheme | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | L | T | P | L | T | P | |
| 1 | Information Security and Cryptography (Core-12) | CS302 | 5 | 3 | 1 | 2 | 100 | 0 | 50 | 150 |
| 2 | Artificial Intelligence (Core-13) | CS304 | 5 | 3 | 1 | 2 | 100 | 25 | 50 | 175 |
| 3 | System Software (Core-14) | CS306 | 5 | 3 | 1 | 2 | 100 | 0 | 50 | 150 |
| 4 | Innovation, Incubation and Entrepreneurship | HU410 | 3 | 3 | 0 | 0 | 100 | 0 | 0 | 100 |
| 5 | Core Elective-2 | CS3BB | 3 | 3 | 0 | 0 | 100 | 0 | 0 | 100 |
| 6 | Core Elective-3 | CS3CC | 3 | 3 | 0 | 0 | 100 | 0 | 0 | 100 |
| 7 | Institute Elective-2 | CS3YY | 3 | 3 | 0 | 0 | 100 | 0 | 0 | 100 |
| | **Total** | | **27** | **21** | **3** | **6** | **700** | **75** | **200** | **925** |
| | **Total Contact Hours per week** | | | **30** | | | | | | |

Practical Examination Scheme (Continuous Evaluation 50% and End-Semester Evaluation 50%)

**Core Elective-2 (CS3BB):**

| | | | |
|---|---|---|---|
| 1 | Data Science (CS322) | 4 | Wireless Networks (CS328) |
| 2 | Data Visualization (CS324) | 5 | Optimization Methods (CS332) |
| 3 | High Performance Computing (CS326) | | |

**Core Elective-3 (CS3CC):**

| | | | |
|---|---|---|---|
| 1 | Social Network Analysis (CS342) | 4 | Video Codec Standards and Design (CS348) |
| 2 | Digital Forensics (CS344) | 5 | Service Oriented Architectures (CS350) |
| 3 | Cellular Network and Mobile Computing (CS346) | | |

**Institute Elective-2 (CS3YY):**

| | | | |
|---|---|---|---|
| 1 | Cyber Physical Systems (CS362) | 4 | Computer Vision & Image Processing (CS368) |
| 2 | Ethical Hacking (CS364) | 5 | Adaptive Signal Processing (CS372) |
| 3 | Smartphone Computing and Applications (CS366) | 6 | Applied Machine Learning (CS374) |

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# Teaching Scheme of B. Tech. - IV (CSE)
# (Effective from Academic Year 2023-24)

## Semester VII

| Sr. No. | Course | Code | Credits | Teaching Scheme | | | Examination Scheme | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | L | T | P | L | T | P | |
| 1 | Distributed Systems (Core-15) | CS401 | 5 | 3 | 1 | 2 | 100 | 25 | 50 | 175 |
| 2 | Cloud Computing (Core-16) | CS403 | 4 | 3 | 0 | 2 | 100 | 0 | 50 | 150 |
| 2 | Cyber Laws and Forensics Tools (Core-17) | CS405 | 5 | 3 | 1 | 2 | 100 | 25 | 50 | 150 |
| 4 | Core Elective-4 | CS4AA | 3 | 3 | 0 | 0 | 100 | 0 | 0 | 100 |
| 5 | Core Elective-5 | CS4BB | 3 | 3 | 0 | 0 | 100 | 0 | 0 | 100 |
| 6 | Core Elective-6 | CS4CC | 3 | 3 | 0 | 0 | 100 | 0 | 0 | 150 |
| 7 | Project | CS407 | 3 | 0 | 0 | 6 | 0 | 0 | 150 | 100 |
| | **Total** | | **26** | **18** | **2** | **12** | **600** | **75** | **250** | **875** |
| | **Total Contact Hours per week** | | | **32** | | | | | | |

*Summer training is to be organized in the summer vacation after 6th Semester.
Practical Examination Scheme (Continuous Evaluation 50% and End-Semester Evaluation 50%)

**Core Elective-4 (CS4AA):**

| | | | |
|---|---|---|---|
| 1 | Natural Language Processing (CS421) | 5 | Research Methodology (CS429) |
| 2 | Network Security (CS423) | 6 | Advanced Database Management System (CS431) |
| 3 | System Analysis and Simulation (CS425) | 7 | Network Reconnaissance (CS433) |
| 4 | Audio and Speech Signal Processing (CS427) | | |

**Core Elective-5 (CS4BB):**

| | | | |
|---|---|---|---|
| 1 | Big Data Analytics (CS441) | 4 | Security in Resource Constrained Environment(CS447) |
| 2 | Software Security & Defensive Programming (CS443) | 5 | Animation and Rendering (CS449) |
| 3 | Advanced Computer Architecture (CS445) | | |

**Core Elective-6 (CS4CC):**

| | | | |
|---|---|---|---|
| 1 | Deep Learning (CS461) | 5 | Web Engineering (CS469) |
| 2 | Secure Software Engineering (CS463) | 6 | Formal Specification and Verification of Real Time Systems (CS471) |
| 3 | Advanced Compiler Design (CS465) | 7 | Machine Learning for Security (CS473) |
| 4 | Blockchain Technology (CS467) | | |

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# Semester VIII

| Sr. No. | Course | Code | Credits | Teaching Scheme | | | Examination Scheme | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Industrial Training | CS402 | 10 | 0 | 0 | 20 | 0 | 0 | 300 | 300 |
| | **Total** | | **10** | **0** | **0** | **20** | **0** | **0** | **300** | **300** |
| | **Total Contact Hours per week** | | | **20** | | | | | | |

Practical Examination Scheme (Continuous Evaluation 50% and End-Semester Evaluation

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# Department of Computer Science and Engineering

## B. Tech. Minor in CSE

## (Effective from Academic Year 2022-23)

Eligibility:

1. Institute general guideline for B.Tech. Minor programme

2. 'AA' grade in both, theory and practical, of subject Fundamental of Computers and Programming CS 109 S2/S1. (DAAC resolutions No. COED/DAAC/113/2020-21 dated 29 June 2020 and No. COED/DAAC/307/2020-21 dated 2 September 2020)

Courses offered for B.Tech. Minor in CSE

| Sr. No. | Course Title | Course Code | Scheme | Credits |
|---|---|---|---|---|
| Semester III | | | | |
| 1 | Data Structures** | CS210 | 3 – 1 – 2 | 5 |
| 2 | Computer Organization | CS201 | 3 – 1 – 2 | 5 |
| Semester IV | | | | |
| 3 | Database Management System* | CS204 | 3 – 1 – 2 | 5 |
| 4 | Design and Analysis of Algorithms | CS206 | 3 – 1 – 2 | 5 |
| Semester V | | | | |
| 5 | Operating System | CS301 | 3 – 1 – 2 | 5 |
| 6 | Computer Networks | CS303 | 3 – 1 – 2 | 5 |

** Excluding B.Tech. II year Electrical discipline students registered for B.Tech. Minor in CSE

* Only for B.Tech. II year Electrical discipline students registered for B.Tech. Minor in CSE

Department of Computer Science and Engineering

# Department of Electrical Engineering

## Teaching Scheme of B. Tech.-I (Semester I & II)
## (Electrical Engineering)

### SEMESTER – I (Effective from 2022-2023)

| Sr. No. | Subject | Code | Scheme | Credit |
|---|---|---|---|---|
| 1 | Mathematics-I | MA 101 S1 | 3-1-0 | 04 |
| 2 | Physics-I | PH 102 S1 | 3-0-2 | 04 |
| 3 | Branch Specific Course -I (Basic Electrical Engineering) | EE 103 S1 | 3-0-2 | 04 |
| 4 | Chemistry | CY 104 S1/S2 | 3-0-2 | 04 |
| 5 | Engineering Drawing | CIME 105 S1/S2 | 2-0-4 | 04 |
| 6 | Energy and Environmental Engineering | CIME 106 S1/S2 | 3-0-2 | 04 |
| 7 | Holistic Empowerment and Human Values* | HU 107 S1/S2 | 3-0-0 | 00 |
| | | **Total** | **20-1-12=33** | **24** |

* Audit Course (attendance would be compulsory as per institute norms)

### SEMESTER – II (Effective from 2022-2023)

| Sr. No. | Subject | Code | Scheme | Credit |
|---|---|---|---|---|
| 1 | Mathematics-II | MA 112 S2 | 3-1-0 | 04 |
| 2 | Physics-II | PH 113 S2 | 4-0-0 | 04 |
| 3 | Branch Specific Course -II (Electronics Devices & Circuits) | EC 114 S2 | 3-0-2 | 04 |
| 4 | Engineering Mechanics | AM 108 S2/S1 | 3-0-2 | 04 |
| 5 | Fundamentals of Computers & Programming | CO 109 S2/S1 | 3-0-2 | 04 |
| 6 | English & Professional Communications | HU 110 S2/S1 | 3-0-0 | 03 |
| 7 | Workshop Practice | ME 111 S2/S1 | 0-0-4 | 02 |
| | | **Total** | **19-1-10=30** | **25** |

S1 = Semester-1, S2 = Semester-2
AM = Applied Mechanics, CH = Chemical, CI = Civil, CO = Computer,
ME = Mechanical, EE = Electrical, EC = Electronics,
PH = Physics, CY = Chemistry, MA = Mathematics, HU = Humanities, MG = Management

# Department of Electrical Engineering

## Teaching Scheme of B. Tech.-I (Semester I & II)
## (Electrical Engineering)
## SEMESTER – I (Effective from 2022-2023)

| Sr. No. | Subject | Code | Scheme | Credit |
|---|---|---|---|---|
| 1 | Mathematics-I | MA 101 S1 | 3-1-0 | 04 |
| 2 | Physics-I | PH 102 S1 | 3-0-2 | 04 |
| 3 | Branch Specific Course -II (Electronics Devices & Circuits) | EC 114 S1 | 3-0-2 | 04 |
| 4 | Engineering Mechanics | AM 108 S2/S1 | 3-0-2 | 04 |
| 5 | Fundamentals of Computers & Programming | CO 109 S2/S1 | 3-0-2 | 04 |
| 6 | English & Professional Communications | HU 110 S2/S1 | 3-0-0 | 03 |
| 7 | Workshop Practice | ME 111 S2/S1 | 0-0-4 | 02 |
| | | **Total** | **18-1-12=31** | **25** |

## Semester – II (Effective from 2022-2023)

| Sr. No. | Subject | Code | Scheme | Credit |
|---|---|---|---|---|
| 1 | Mathematics-II | MA 112 S2 | 3-1-0 | 04 |
| 2 | Physics-II | PH 113 S2 | 4-0-0 | 04 |
| 3 | Branch Specific Course -I (Basic Electrical Engineering) | EE 103 S2 | 3-0-2 | 04 |
| 4 | Chemistry | CY 104 S1/S2 | 3-0-2 | 04 |
| 5 | Engineering Drawing | CIME 105 S1/S2 | 2-0-4 | 04 |
| 6 | Energy and Environmental Engineering | CIME 106 S1/S2 | 3-0-2 | 04 |
| 7 | Holistic Empowerment and Human Values* | HU 107 S1/S2 | 3-0-0 | 00 |
| | | **Total** | **21-1-10=32** | **24** |

* Audit Course (attendance would be compulsory as per institute norms

S1 = Semester-1, S2 = Semester-2

AM = Applied Mechanics, CH = Chemical, CI = Civil, CO = Computer,
ME = Mechanical, EE = Electrical, EC = Electronics,
PH = Physics, CY = Chemistry, MA = Mathematics, HU = Humanities, MG = Management

# Department of Electrical Engineering

## SEMESTER – III (Effective from 2022-2023)

| Sr. No. | Subject | Code | Scheme | Credit |
|---|---|---|---|---|
| 1 | Mathematics-III | MA217 | 3-1-0 | 04 |
| 2 | Electric Circuits | EE201 | 4-1-0 | 05 |
| 3 | Electrical Machines I | EE203 | 3-1-2 | 05 |
| 4 | Digital Circuits | EC211 | 3-1-2 | 05 |
| 5 | Introduction to Data Structure | CS207 | 3-0-2 | 04 |
| | | **Total** | **16-4-6=26** | **23** |

## SEMESTER – IV (Effective from 2022-2023)

| Sr. No. | Subject | Code | Scheme | Credit |
|---|---|---|---|---|
| 1 | Numerical Methods Applications for Electrical Engineering (to be taught by the concerned Department)# | EE202 | 3-1-2 | 05 |
| 2 | Electrical Machines II | EE204 | 3-1-2 | 05 |
| 3 | Elements of Power Systems | EE206 | 3-1-2 | 05 |
| 4 | Electromagnetic Field Theory | EE208 | 3-1-0 | 04 |
| 5 | Signals & Systems | EE212 | 3-1-0 | 04 |
| | | **Total** | **15-5-6=26** | **23** |

# Resolution 4 of 58th DAAC meeting held on 07/01/2022

# Department of Electrical Engineering

## SEMESTER –V (Effective from 2022-2023)

| Sr. No. | Subject | Code | Scheme | Credit |
|---|---|---|---|---|
| 1 | Professional Ethics, Economics & Management# | HU353 | 3-1-0 | 04 |
| 2 | Power System Analysis | EE301 | 3-1-2 | 05 |
| 3 | Control Systems | EE303 | 3-1-2 | 05 |
| 4 | Power Electronic Converters | EE305 | 3-1-2 | 05 |
| 5 | EIS-I | -- | 3-0-0 | 03 |
| 6 | Electrical and Electronic Measurements | EE307 | 3-1-2 | 05 |
| 7 | Seminar | EE309 | 0-0-2 | 01 |
| | | **Total** | **18-5-10=33** | **28** |

## SEMESTER –VI (Effective from 2022-2023)

| Sr. No. | Subject | Code | Scheme | Credit |
|---|---|---|---|---|
| 1 | Power Electronics System and Electric Drives | EE304 | 3-1-2 | 05 |
| 2 | Microprocessor & Microcontrollers | EE306 | 3-1-2 | 05 |
| 3 | Instrumentation | EE308 | 3-1-2 | 05 |
| 4 | EIS-II | -- | 3-0-0 | 03 |
| 5 | ES-I | EE3AA | 3-0-0 | 03 |
| 6 | ES-II | EE3BB | 3-0-0 | 03 |
| 7 | ES-III | EE3CC | 3-0-0 | 03 |
| | | **Total** | **21-3-6=30** | **27** |

**# One hour will be engaged by the core department.**

# Department of Electrical Engineering

## SEMESTER –VII (Effective from 2023-2024)

| Sr. No. | Subject | Code | Scheme | Credit |
|---|---|---|---|---|
| 1 | Microcontroller and Embedded 'C' Programming | EE401 | 3-0-2 | 04 |
| 2 | Electrical Machine Design | EE403 | 3-1-0 | 04 |
| 3 | Switch Gear and Protection | EE405 | 3-0-2 | 04 |
| 4 | ES-IV | EE4AA | 3-0-0 | 03 |
| 5 | ES-V | EE4BB | 3-0-0 | 03 |
| 6 | ES-VI | EE4CC | 3-0-0 | 03 |
| 7 | Project | EE407 | 0-0-6 | 03 |
| | | **Total** | **18-1-10=29** | **24** |

## SEMESTER –VIII (Effective from 2023-2024)

| Sr. No. | Subject | Code | Scheme | Credit |
|---|---|---|---|---|
| 1 | Internship Training in Industry/Academic Institute/Research Organization | EE402 | 0-0-20 | 10 |
| | | **Total** | **0-0-20=20** | **10** |

**Total credits= 184**

| ELECTIVE INTERDISCIPLINARY SUBJECTS- EIS-I (EE3XX) (INSTITUTE LEVEL) | |
|---|---|
| Course Code | Subject Name |
| EE361 | Renewable Energy Sources |
| EE363 | Optimization Methods |
| EE365 | Forecasting and Planning Methods |
| EE367 | Fundamental of Electrical Power Systems (Non-Electrical Students) |
| EE369 | Modern Electrical Drives (Non-Electrical Students) |
| EE371 | Introduction to Power Electronics Converters (Non-Electrical Students) |

| ELECTIVE INTERDISCIPLINARY SUBJECTS- EIS-II (EE3YY) (INSTITUTE LEVEL) | |
|---|---|
| Course Code | Subject Name |
| EE362 | Industrial Automation and Process Control |
| EE364 | State Variable Analysis |
| EE366 | Energy Audit and Management |
| EE368 | Advanced Materials for Energy Applications |
| EE372 | Distributed Power Generation and Micro-grids |
| EE374 | Electromagnetic Field Theory (Non-Electrical Students) |

| CORE ELECTIVE SUBJECTS- ES-I (EE3AA) (DEPARTMENT LEVEL) | |
|---|---|
| Course Code | Subject Name |
| EE322 | Power Plant Engineering |
| EE324 | Adaptive Control and Soft Computing |
| EE326 | Utilization of Electrical Energy |
| EE328 | Modelling and Simulation of Electrical Machines |
| EE332 | Random Processes |
| EE334 | Artificial Intelligent Techniques |

| CORE ELECTIVE SUBJECTS- ES-II (EE3BB) (DEPARTMENT LEVEL) | |
|---|---|
| Course Code | Subject Name |
| EE338 | Power Quality Disturbances and Mitigations |
| EE342 | High Voltage Engineering |
| EE344 | FACTS Devices |
| EE346 | Discrete-Time control Systems |
| EE348 | Restructuring and Deregulation of Power Systems |
| EE352 | Special Electrical Machines |

| CORE ELECTIVE SUBJECTS- ES-III (EE3CC) (DEPARTMENT LEVEL) | |
|---|---|
| Course Code | Subject Name |
| EE354 | Advanced Electrical Drives |
| EE356 | Electronic Instrumentation and Control |
| EE358 | Power System Transients |
| EE376 | Advanced Industrial Automation |
| EE378 | Reliability Evaluation of Electrical Systems |
| **HU312** | **Innovation, Incubation and Entrepreneurship (To be taught by DoAMH)** |

| CORE ELECTIVE SUBJECTS- ES-IV (EE4AA) (DEPARTMENT LEVEL) | |
|---|---|
| Course Code | Subject Name |
| EE421 | Electrical Traction and Linear Machines |
| EE423 | EHV AC Transmission |
| EE425 | Advanced Power Electronics |
| EE427 | Nonlinear and Optimal Control |
| EE429 | Advanced Microcontroller (Digital Signal Controller) |
| EE431 | Industrial Instrumentation |
| EE433 | Power System Operation and Control |
| EE435 | Wind and Solar Energy Conversion Systems |

| CORE ELECTIVE SUBJECTS- ES-V (EE4BB) (DEPARTMENT LEVEL) | |
|---|---|
| Course Code | Subject Name |
| EE437 | Power Filter Technology |
| EE439 | Smart Grid Technology |
| EE441 | HVDC Transmission |
| EE443 | Electric Vehicles |
| EE445 | Digital Signal Processing |
| EE447 | Modern Materials for Electrical Engineering |
| EE449 | Special Electrical Machines and Drives |

| CORE ELECTIVE SUBJECTS- ES-VI (EE4CC) (DEPARTMENT LEVEL) | |
|---|---|
| Course Code | Subject Name |
| EE451 | Switch Mode Power Supply |
| EE453 | Computer Methods for Power Systems# |
| EE455 | Robotics |
| EE457 | Communication Engineering |
| EE459 | VLSI Technology |
| EE461 | Antenna and Wave Propagation |
| EE463 | Cryptography and Cyber Security for Smart Grid |

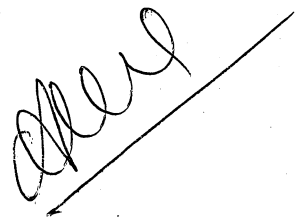
# Resolution 3 of 58th DAAC meeting held on 07/01/2022

## (Effective from 2022-2023)

**Minor courses to be offered to B. Tech. (Electrical Engineering) for other branches students**

A candidate has to register the following courses in order to complete minimum 15 extra credits to obtain minor degree in B Tech (Electrical Engineering).

| | Course Code | Course Name | Scheme | Credits |
|---|---|---|---|---|
| **B Tech II (EE)** | | | | |
| 3rd Sem | EE203 | Electrical Machines-I | 3-1-2 | 05 |
| 4th Sem | EE206 | Elements of Power System | 3-1-2 | 05 |
| **B Tech III (EE)** | | | | |
| 5th Sem | EE305 | Power Electronics Converters | 3-1-2 | 05 |
| | EE307 | Electrical and Electronics Measurements | 3-1-2 | 05 |
| 6th Sem | EE304 | Power Electronics Systems and Drives | 3-1-2 | 05 |



Annexure 4

# Department of Electronics Engineering
## Teaching Scheme of B. Tech.-I (Semester I & II)
## (Effective from 2022-23)

**SEMESTER – I**

| Sr. No. | Subject | Code | Scheme | Credit |
|---|---|---|---|---|
| 1 | **Mathematics-I** | **MA 101 S1** | **3-1-0** | **04** |
| 2 | **Branch Specific Course-I** | **XXXX 102 S1** | **3-1-0/3-0-2** | **04** |
| 3 | Mechanics, Lasers and Fiber Optics | PH 103 S1/S2 | 3-0-2 | 04 |
| 4 | Applied Chemistry | CY 104 S1/S2 | 3-0-2 | 04 |
| 5 | Engineering Drawing | CEME 105 S1/S2 | 2-0-4 | 04 |
| 6 | Energy and Environmental Engineering | CEME 106 S1/S2 | 3-0-2 | 04 |
| 7 | Holistic Empowerment and Human Values* | HU 107 S1/S2 | 3-0-0 | 00 |
| | | **Total** | **20-2-10=32/ 20-1-12=33** | **24** |

* Audit Course (attendance would be compulsory as per institute norms)

**SEMESTER – II**

| Sr. No. | Subject | Code | Scheme | Credit |
|---|---|---|---|---|
| 1 | Engineering Mechanics | AM 108 S2/S1 | 3-0-2 | 04 |
| 2 | Fundamentals of Computer & Programming | CS 109 S2/S1 | 3-0-2 | 04 |
| 3 | English & Professional Communication | HU 110 S2/S1 | 3-0-0 | 03 |
| 4 | Workshop Practice | ME 111 S2/S1 | 0-0-4 | 02 |
| 5 | Physics of Materials and Nuclei | PH 112 S2/S1 | 4-0-0 | 04 |
| 6 | **Branch Specific Course-II** | **XXXX 113 S2** | **3-1-0/3-0-2** | **04** |
| 7 | **Mathematics-II** | **MA 114 S2** | **3-1-0** | **04** |
| | | **Total** | **19-2-8=29/ 19-1-10=30** | **25** |

S1 = Semester-1, S2 = Semester-2
AM = Applied Mechanics, CH = Chemical, CE = Civil, CS = Computer,
ME = Mechanical, EE = Electrical, EC = Electronics,
PH = Physics, CY = Chemistry, MA = Mathematics, HU = Humanities

# Department of Electronics Engineering

## B. Tech. II Electronics and Communication Engineering

### (Effective from 2022-23)

### Scheme

### SEMESTER – III

| Sr. No. | Subject | Code | Scheme | Credit | Examination Scheme | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Theory Marks | Tutorial Marks | Term work Marks | Practical Marks | Total Marks |
| 1. | Engineering Mathematics-III | MA 217 | 3-1-0 | 04 | 100 | 25 | - | - | 125 |
| 2. | Core-1 – Electronic Circuits | EC 201 | 3-1-2 | 05 | 100 | 25 | 25 | 25 | 175 |
| 3. | Core-2 – Digital Logic Design | EC 203 | 3-1-2 | 05 | 100 | 25 | 25 | 25 | 175 |
| 4. | Core-3 – Signals and Systems | EC 205 | 3-1-0 | 04 | 100 | 25 | - | - | 125 |
| 5. | Interdisciplinary Subject 1– Network Analysis and Synthesis | EE 207 | 3-1-0 | 04 | 100 | 25 | - | - | 125 |
| | | | | | | | | | |
| | | **Total** | **15-5-4=24** | **22** | **500** | **125** | **50** | **50** | **725** |

### SEMESTER – IV

| Sr. No. | Subject | Code | Scheme | Credit | Examination Scheme | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Theory Marks | Tutorial Marks | Term work Marks | Practical Marks | Total Marks |
| 1. | Core-4 - Statistical Signal Analysis | EC 202 | 3-1-0 | 04 | 100 | 25 | - | - | 125 |
| 2. | Core-5 – Principles of Communication Systems | EC 204 | 3-1-2 | 05 | 100 | 25 | 25 | 25 | 175 |
| 3. | Core-6 – Microprocessors and Microcontrollers | EC 206 | 3-1-2 | 05 | 100 | 25 | 25 | 25 | 175 |
| 4. | Core-7 - Linear IC Applications | EC 208 | 3-1-2 | 05 | 100 | 25 | 25 | 25 | 175 |
| 5. | Interdisciplinary Subject 2 – Core-8 – Control Systems | EE 214 | 3-1-0 | 04 | 100 | 25 | - | - | 125 |
| | | | | | | | | | |
| | | **Total** | **15-5-6=26** | **23** | **500** | **125** | **75** | **75** | **775** |

27/04/22

# Department of Electronics Engineering

## B. Tech. III Electronics and Communication Engineering

### (Effective from 2022-23)

### Scheme

### SEMESTER – V

| Sr. No. | Subject | Code | Scheme | Credit | Examination Scheme | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Theory Marks | Tutorial Marks | Term work Marks | Practical Marks | Total Marks |
| 1. | Professional Ethics, Economics and Business Management | HU 3XX | 3-1-0 | 04 | 100 | 25 | - | - | 125 |
| 2. | Core-9 – Transmission Lines and Electromagnetic Waves | EC 301 | 3-1-2 | 05 | 100 | 25 | 25 | 25 | 175 |
| 3. | Core-10 – Digital Communication | EC 303 | 3-1-2 | 05 | 100 | 25 | 25 | 25 | 175 |
| 4. | Core-11 – Digital Signal Processing | EC 305 | 3-1-2 | 05 | 100 | 25 | 25 | 25 | 175 |
| 5. | Seminar | EC 307 | 0-0-2 | 01 | - | - | 25 | 25 | 50 |
| 6. | Core Elective- I | EC 3XX | 3-0-0 | 03 | 100 | - | - | - | 100 |
| 7. | Institute Elective-1 | EC 3XX | 3-0-0 | 03 | 100 | - | - | - | 100 |
| | | **Total** | **18-4-8=30** | **26** | **600** | **100** | **100** | **100** | **900** |

**List of Subjects for Core Elective I**

| Sr. No. | Subject | Code |
|---|---|---|
| 1. | Computer Architecture and Organization | EC 321 |
| 2. | Data Structures and Algorithms | EC 323 |
| 3. | VLSI Technology | EC 325 |
| 4. | Digital Image Processing | EC 327 |

**List of Subjects for Institute Elective 1**

| Sr. No. | Subject | Code |
|---|---|---|
| 1. | Sensors and Transducers | EC 361 |
| 2. | Neural Networks | EC 363 |
| 3. | Multimedia Communication | EC 365 |



28/Oct/22

## SEMESTER – VI

## (Effective from 2022-23)

| Sr. No. | Subject | Code | Scheme | Credit | Examination Scheme | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Theory Marks | Tutorial Marks | Term work Marks | Practical Marks | Total Marks |
| 1. | Core-12 – Wireless and Mobile Communication | EC 302 | 3-1-2 | 05 | 100 | 25 | 25 | 25 | 175 |
| 2. | Core-13 – Digital Integrated Circuits | EC 304 | 3-1-2 | 05 | 100 | 25 | 25 | 25 | 175 |
| 3. | Core 14 – Optical Fiber Communication | EC 306 | 3-1-2 | 05 | 100 | 25 | 25 | 25 | 175 |
| 4. | Core Elective II Lab<br>- Communication Networks Lab<br>- Machine Learning Lab<br>- Embedded Systems Lab<br>- Electronic Instrumentation Lab | EC 308<br>EC 310<br>EC 312<br>EC 314 | 0-0-2 | 01 | - | - | 25 | 25 | 50 |
| 5. | Core Elective- II | EC 3XX | 3-0-0 | 03 | 100 | - | - | - | 100 |
| 6. | Core Elective- III | EC 3XX | 3-0-0 | 03 | 100 | - | - | - | 100 |
| 7. | Institute Elective-2 | EC 3XX | 3-0-0 | 03 | 100 | - | - | - | 100 |
| | | **Total** | **18-3-8=29** | **25** | **600** | **75** | **100** | **100** | **875** |

### List of Subjects for Core Elective II

| Sr. No. | Subject | Code |
|---|---|---|
| 1. | Communication Networks | EC 322 |
| 2. | Machine Learning | EC 324 |
| 3. | Embedded Systems | EC 326 |
| 4. | Electronic Instrumentation | EC 328 |

### List of Subjects for Core Elective III

| Sr. No. | Subject | Code |
|---|---|---|
| 1. | Antenna Theory | EC 330 |
| 2. | Satellite Communication | EC 332 |
| 3. | Internet of Things | EC 334 |
| 4. | Innovation, Incubation and Entrepreneurship (To be offered by DoAMH) | HU 3XX |

### List of Subjects for Institute Elective 2

| Sr. No. | Subject | Code |
|---|---|---|
| 1. | High Performance Computing | EC 362 |
| 2. | Computer Vision | EC 364 |
| 3. | Micro - Electromechanical Systems | EC 366 |

# Department of Electronics Engineering

## B. Tech. IV Electronics and Communication Engineering

### (Effective from 2023-24)

### Scheme

### SEMESTER – VII

| Sr. No. | Subject | Code | Scheme | Credit | Examination Scheme | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Theory Marks | Tutorial Marks | Term work Marks | Practical Marks | Total Marks |
| 1. | Core-15 – Microwave Engineering | EC 401 | 3-1-2 | 05 | 100 | 25 | 25 | 25 | 175 |
| 2. | Core-16 – VLSI Design | EC 403 | 3-1-2 | 05 | 100 | 25 | 25 | 25 | 175 |
| 3. | Core-17 – Deep Learning | EC 405 | 3-0-2 | 04 | 100 | - | 25 | 25 | 150 |
| 4. | Project | EC 407 | 0-0-6 | 03 | - | - | 75 | 75 | 150 |
| 5. | Core Elective-IV | EC 4XX | 3-0-0 | 03 | 100 | - | - | - | 100 |
| 6. | Core Elective-V | EC 4XX | 3-0-0 | 03 | 100 | - | - | - | 100 |
| 7. | Core Elective-VI | EC 4XX | 3-0-0 | 03 | 100 | - | - | - | 100 |
| | | **Total** | **18-2-12=32** | **26** | **600** | **50** | **150** | **150** | **950** |

**List of Subjects for Core Elective IV**

| Sr. No. | Subject | Code |
|---|---|---|
| 1. | Optical Wireless Communication | EC 421 |
| 2. | Ad-Hoc Networks | EC 423 |
| 3. | Adaptive Signal Processing | EC 425 |
| 4. | Fundamentals of Nanoelectronics | EC 427 |
| 5. | Processor Architecture | EC 429 |

**List of Subjects for Core Elective V**

| Sr. No. | Subject | Code |
|---|---|---|
| 1. | Error Control Coding | EC 431 |
| 2. | EM Interference and Compatibility | EC 433 |
| 3. | Global Navigation Satellite System | EC 435 |
| 4. | Real Time Systems | EC 437 |
| 5. | Advanced Electronic Circuits | EC 439 |

**List of Subjects for Core Elective VI**

| Sr. No. | Subject | Code |
|---|---|---|
| 1. | MIMO Communication systems | EC 441 |
| 2. | Visible Light Communication | EC 443 |
| 3. | Estimation and Detection Theory | EC 445 |
| 4. | Speech Processing and Human-Machine Communication | EC 447 |
| 5. | Robotics | EC 449 |

29/04/22

## SEMESTER – VIII
## (Effective from 2023-24)

| Sr. No. | Subject | Code | Scheme | Credit | Examination Scheme | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Theory Marks | Tutorial Marks | Term work Marks | Practical Marks | Total Marks |
| 1. | Internship training in Industry / Research Organization/ Academic Institute | EC 402 | 0-0-20 | 10 | - | - | 120 | 180 | 300 |
| | | **Total** | **0-0-20=20** | **10** | **-** | **-** | **120** | **180** | **300** |

| Course | Semester | Credit |
|---|---|---|
| B. Tech. – I | Semester – I | 24 |
| | Semester – II | 25 |
| | | |
| B. Tech. – II | Semester – III | 22 |
| | Semester – IV | 23 |
| | | |
| B. Tech. – III | Semester – V | 26 |
| | Semester – VI | 25 |
| | | |
| B. Tech. – IV | Semester – VII | 26 |
| | Semester – VIII | 10 |
| | | |
| | **Total UG Credit** | **181** |

**Credit Range: 180-186**

27/6/22

Department of Electronics Engineering

SVNIT-Surat -395 007

B.Tech. (Minor) in Electronics and Communications Engineering

(Effective from 2022-23)

Eligibility:

1. Institute general guideline for B.Tech. Minor programme
2. Courses offered for B.Tech. Minor in Electronics and Communications Engineering

| | Subject | Code | Scheme | Credit |
|---|---|---|---|---|
| B.Tech. II EC Semester-III | Electronics Circuits | EC 201 | 3-1-2 | 5 |
| | Signals and Systems | EC 205 | 3-1-0 | 4 |
| B.Tech. III EC Semester-V | Transmission Lines and Electromagnetic Waves | EC 301 | 3-1-2 | 5 |
| | Digital Communication | EC 303 | 3-1-2 | 5 |
| B.Tech. III EC Semester-VI | Digital Integrated Circuits | EC 304 | 3-1-2 | 5 |

27/04/22

Annexure - 4

# Department of Mechanical Engineering

## Teaching Scheme of B. Tech.-I (Semester I & II)

## (Effective from AY 2022-2023)

**SEMESTER – I**

| Sr. No. | Subject | Code | Scheme | Credit |
|---|---|---|---|---|
| 1 | **Mathematics-I** | **MA 101 S1** | **3-1-0** | **04** |
| 2 | **Branch Specific Course-I** | **MEME 102 S1** | **3-0-2** | **04** |
| 3 | Mechanics, Lasers and Fiber Optics | PH 103 S1/S2 | 3-0-2 | 04 |
| 4 | Applied Chemistry | CY 104 S1/S2 | 3-0-2 | 04 |
| 5 | Engineering Drawing | CEME 105 S1/S2 | 2-0-4 | 04 |
| 6 | Energy and Environmental Engineering | CEME 106 S1/S2 | 3-0-2 | 04 |
| 7 | Holistic Empowerment and HumanValues* | HU 107 S1/S2 | 3-0-0 | 00 |
| | | **Total** | **20-1-12=33** | **24** |

* Audit Course (attendance would be compulsory as per institute norms)

**SEMESTER – II (Effective from AY 2022-2023)**

| Sr. No. | Subject | Code | Scheme | Credit |
|---|---|---|---|---|
| 1 | Engineering Mechanics | AM 108 S2/S1 | 3-0-2 | 04 |
| 2 | Fundamentals of Computer & Programming | CS 109 S2/S1 | 3-0-2 | 04 |
| 3 | English & Professional Communication | HU 110 S2/S1 | 3-0-0 | 03 |
| 4 | Workshop Practice | ME 111 S2/S1 | 0-0-4 | 02 |
| 5 | Physics of Materials and Nuclei | PH 112 S2/S1 | 4-0-0 | 04 |
| 6 | **Branch Specific Course-II** | **MEME 113 S2** | **3-0-2** | **04** |
| 7 | **Mathematics-II** | **MA 114 S2** | **3-1-0** | **04** |
| | | **Total** | **19-1-10=30** | **25** |

S1 = Semester-1, S2 = Semester-2
AM = Applied Mechanics, CH = Chemical, CE = Civil, CS = Computer,ME = Mechanical, EE = Electrical, EC = Electronics,
PH = Physics, CY = Chemistry, MA = Mathematics, HU = Humanities

**Teaching Scheme: B. Tech. (Mechanical Engineering) II Year**

**SEMESTER – III (Effective from AY 2022-2023)**

| Sr. No. | Subject | Code | Scheme | Exam Scheme | | | | Total | Credit |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Theory | | Tuto. | Pract. | | |
| | | | | Hrs. | Marks | Marks | Marks | | |
| 1. | Mathematics - III | MA219 | 3 – 1 – 0 | 3 | 100 | 25 | - | 125 | 04 |
| 2. | Engineering Thermodynamics | ME201 | 4 – 1 – 0 | 4 | 100 | 25 | - | 125 | 05 |
| 3. | Theory of Machines | ME203 | 3 – 1 – 2 | 3 | 100 | 25 | 50 | 175 | 05 |
| 4. | Metallurgy | ME205 | 3 – 0 – 2 | 3 | 100 | - | 50 | 150 | 04 |
| 5. | Measurement and Instrumentation | ME207 | 3 – 1 – 2 | 3 | 100 | 25 | 50 | 175 | 05 |
| | | Total | 16 – 4 – 6 | 16 | 500 | 100 | 150 | 750 | 23 |

**SEMESTER – IV (Effective from AY 2022-2023)**

| Sr. No. | Subject | Code | Scheme | Exam Scheme | | | | Total | Credit |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Theory | | Tuto. | Pract. | | |
| | | | | Hrs. | Marks | Marks | Marks | | |
| 1. | Fluid Mechanics | ME202 | 3 – 1 – 2 | 3 | 100 | 25 | 50 | 175 | 05 |
| 2. | Heat Transfer | ME204 | 3 – 1 – 2 | 3 | 100 | 25 | 50 | 175 | 05 |
| 3. | Machine Design and Drawing | ME206 | 4 – 0 – 4 | 4 | 100 | - | 100 | 200 | 06 |
| 4. | Dynamics of Machines | ME208 | 3 – 1 – 2 | 3 | 100 | 25 | 50 | 175 | 05 |
| 5. | Industrial Engineering | ME212 | 3 – 0 – 0 | 3 | 100 | - | - | 100 | 03 |
| | | Total | 16 – 3 – 10 | 16 | 500 | 75 | 250 | 825 | 24 |

**Teaching Scheme: B. Tech. (Mechanical Engineering) III Year**

**SEMESTER – V (Effective from AY 2022-2023)**

| Sr. No. | Subject | Code | Scheme | Exam Scheme | | | | Total | Credit |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Theory | | Tuto. | Pract. | | |
| | | | | Hrs. | Marks | Marks | Marks | | |
| 1. | Fluid Machines | ME301 | 4 – 0 – 2 | 4 | 100 | - | 50 | 150 | 05 |
| 2. | Design of Machine Components | ME303 | 3 – 1 – 2 | 3 | 100 | 25 | 50 | 175 | 05 |
| 3. | Machining Processes | ME305 | 3 – 1 – 2 | 3 | 100 | 25 | 50 | 175 | 05 |
| 4. | Institute Elective –1 | ME3XX | 3 – 0 – 0 | 3 | 100 | - | 00 | 100 | 03 |
| 5. | Core Elective – 1 | ME3AA | 3 – 0 – 0 | 3 | 100 | - | - | 100 | 03 |
| 6. | Professional Ethics,Economics and Management | HU308 | 3 – 1 – 0 | 4 | 100 | - | - | 100 | 04 |
| 7. | Seminar | ME307 | 0 – 0 – 2 | 0 | - | - | 50 | 50 | 01 |
| | | Total | 19 – 3– 8 | 20 | 600 | 50 | 200 | 850 | 26 |

***Institute Elective – 1 (ME3XX)***

1. Plastic and Ceramics: ME361
2. Theory and Application of Fluid Machinery*: ME363
3. Mechatronics: ME365
4. Control System: ME367
5. Engineering Estimation and Costing: ME369

*Except MED students

***Core Elective – 1 (ME3AA)***

1. Computational Fluid Dynamics: M321
2. Maintenance & Safety Engineering:ME323
3. Powder Processing Techniques: ME325
4. Mechanics of Materials: ME327
5. Additive Manufacturing Process:ME329

**SEMESTER – VI (Effective from AY 2022-2023)**

| Sr. No. | Subject | Code | Scheme | Exam Scheme | | | | Total | Credit |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Theory | | Tuto. | Pract. | | |
| | | | | Hrs. | Marks | Marks | Marks | | |
| 1. | Tribology and Mechanical Vibration | ME302 | 3 – 1 – 2 | 3 | 100 | 25 | 50 | 175 | 05 |
| 2. | Production Technology | ME304 | 3– 0 – 2 | 3 | 100 | - | 50 | 150 | 04 |
| 3. | Applied Thermal Engineering | ME306 | 4 – 0 – 2 | 4 | 100 | - | 50 | 150 | 05 |
| 4. | Institute Elective – 2 | ME3YY | 3 – 0 – 0 | 3 | 100 | - | - | 100 | 03 |
| 5. | Core Elective - 2 | ME3BB | 3 – 0 – 0 | 3 | 100 | - | - | 100 | 03 |
| 6. | Core Elective - 3 | ME3CC | 3 – 0 – 0 | 3 | 100 | - | - | 100 | 03 |
| | | Total | 19 – 1 – 6 | 19 | 600 | 25 | 150 | 775 | 23 |

**Institute Elective – 2 (ME3YY)**

1. Corrosion Engineering: ME362
2. Energy Efficiencies in Industrial Utilities#: ME364
3. Product Design and Development: ME366
4. Lubrication Technology: ME368
5. Plant Layout and Material Handling: ME372
6. Risk, Reliability and Life Testing: ME374
7. Materials Management: ME376

# Except ECED and CoED students

**Core Elective – 2 (ME3BB)**

1. Advance Engineering Materials: ME322
2. Energy and Exergy Analysis of Thermal Systems: ME324
3. Machine Tool Design: ME326
4. Micro Hydro Power Plant: ME328
5. Micro- and Nano-Manufacturing: ME332
6. Finite Element Methods: ME334

**Core Elective – 3 (ME3CC)**

1. Renewable Energy Systems: ME431
2. Mechanics of Composite Materials: ME433
3. Gas Dynamics: ME435
4. Fatigue, Fracture and Failure Analysis: ME437
5. Robotics: ME438
6. **Innovation, Incubation and Entrepreneurship (Course will be taught by Department of Mathematics and Humanities)**

**Teaching Scheme: B. Tech. (Mechanical Engineering) IV Year**

**SEMESTER – VII (Effective from AY 2023-2024)**

| Sr. No. | Subject | Code | Scheme | Exam Scheme | | | | Total | Credit |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Theory | | Tuto. | Pract. | | |
| | | | | Hrs. | Marks | Marks | Marks | | |
| 1. | Industrial Management Techniques | ME401 | 3 – 1 - 0 | 3 | 100 | 25 | - | 125 | 04 |
| 2. | CAD-CAM | ME403 | 4 – 0 – 2 | 4 | 100 | - | 50 | 150 | 05 |
| 3. | Core Elective – 4 | ME4AA | 3 – 0 – 0 | 3 | 100 | - | - | 100 | 03 |
| 4. | Core Elective - 5 | ME4BB | 3 – 0 – 0 | 3 | 100 | - | - | 100 | 03 |
| 5. | Core Elective - 6 | ME4CC | 3 – 0 – 0 | 3 | 100 | - | - | 100 | 03 |
| 6. | Core Elective - 7 | ME4DD | 3 – 0 – 0 | 3 | 100 | - | - | 100 | 03 |
| 6. | Project | ME402 | 0 – 0 – 8 | 0 | - | - | 200 | 200 | 04 |
| | | Total | 19 – 1 – 10 | 19 | 600 | 25 | 250 | 875 | 25 |

**Core Elective – 4 (ME4AA)**

1. Refrigeration and Air Conditioning Systems: ME421
2. Automobile Engineering: ME423
3. Surface Engineering and Heat Treatment: ME425
4. Production and Operations Management: ME427
5. Fundamentals of Combustion: ME429

**Core Elective – 5 (ME4BB)**

1. Design of Heat Exchanger: ME422
2. Design of Pressure Vessels: ME424
3. Radiation Heat Transfer: ME426
4. Theory of Elasticity and Plasticity: ME428
5. Sheet Metal Forming: ME432
6. Total Quality Management: ME434

**Core Elective – 6 (ME4YY)**

1. Jet Propulsion Systems: ME436
2. Smart Materials and Structures: ME439
3. Experimental Fluid Mechanics: ME442
4. Data Analytics: ME444
5. Advanced Welding Processes: ME446

**Core Elective – 7 (ME4ZZ)**

7. Automation and Smart Manufacturing: ME448
8. Theory and Analysis of Cryogenic Systems: ME452
9. Computer Aided Machine Design: ME454
10. Foundry Technology: ME456
11. Logistics and Supply Chain: ME458
12. Two Phase Flow: ME462

**SEMESTER – VIII (Effective from AY 2023-2024)**

| Sr. No. | Subject | Code | Scheme | Exam Scheme | | | | Total | Credit |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Theory | | Tuto. | Pract. | | |
| | | | | Hrs. | Marks | Marks | Marks | | |
| 1. | Internship | ME4XX | 0 – 0 – 20 | - | - | - | 100 | 100 | 10 |
| | | Total | 0 – 0 – 20 | - | - | - | 100 | 100 | 10 |

## B. Tech. Minor in Mechanical Engineering

## LIST OF SUBJECTS OFFERED IN MINOR DEGREE FOR B. TECH. MECHANICAL ENGINEERING

## (Effective from AY 2022-2023)

**Reso. 52.2 of 52nd DAAC held on 31/07/2020)**

| Year | Semester | Name of Subject | Subject Code | Scheme |
|---|---|---|---|---|
| II | Third | Theory of Machines | ME203 | (3-1-2) |
| | Fourth | Industrial Engineering | ME212 | (3-0-0) |
| | Fourth | Machine Design & Drawing | ME206 | (4-0-4) |
| III | Fifth | Machining Processes | ME305 | (3-1-2) |
| | Fifth | Fluid Machines | ME301 | (4-0-2) |
| | Sixth | Applied Thermal Engineering | ME306 | (4-0-2) |

Students can opt any two courses (out of three as listed above) in 2nd year.