# SANDIP FOUNDATION'S

# SANDIP INSTITUTE OF TECHNOLOGY AND RESEARCH CENTRE

**(An autonomous institute permanently affiliated to Savitribai Phule Pune University, Pune and Accredited by NAAC 'A' Grade)**

# CURRICULUM STRUCTURE
# FOR
# FIRST YEAR OF B. Tech PROGRAM (Common)
# WITH PROVISIONS
# OF
# EXIT OPTION PROGRAMS

**PROGRAM STRUCTURE AND SYLLABI FOR I & II SEMESTERS FROM ACADEMIC YEAR 2024 - 25**

# CURRICULA FOR UG PROGRAMS

## Table 1: Coverage of Subject Area over Curriculum (UG Programs)

| Semester | Subject Area Coverage |
|---|---|
| I-II | Basic Science Course, Engineering Science Course, Vocational Course / Skill Enhancement Course, Ability Enhancement Course, Co – curricular Course, Programme Core Course, Indian Knowledge System |
| III-IV | Combined institute and program core courses, Open Electives, Foreign Languages (At least one), Value Added Courses, Skill Development Courses, Employability Certificate Courses |
| V-VI | Combined institute and program core courses, Program Electives towards specialisation, Vacational Internship (Mandatory), Value Added Courses, Skill Development Courses, Employability Certificate Courses |
| VII - VIII | Program core courses Program Electives, Program lined Project work,Value Added Courses |

## Table 2: Coding for Courses used in Curriculum

| Course Code XXYYZZZE | Definitions |
|---|---|
| XX | Year of curriculum implementation |
| YY | Branch code |
| ZZZ | Level of program & Course no. 1: First Year (UG)    2: Second Year (UG) 3: Third Year (UG)    4: Fourth Year (UG) 5: First Year (PG)    6: Second Year (PG) |
| E | Suffix only for elective |
| VAC | Value Added Course |
| **Branch Code (YY)** | **Branch/Program** |
| 00 | Institute Level Course/Program |
| 01 | Engineering Sciences and Humanities |
| 10 | Computer Engineering |
| 11 | Electrical Engineering |
| 12 | Mechanical Engineering |
| 13 | Automation & Robotics |
| 14 | Civil Engineering |
| 15 | Information Technology |
| 16 | Master of Business Administration (M.B.A.) |
| 17 | Electronics & Telecommunication Engineering |
| 18 | Artificial Intelligence & Data Science |
| 19 | Computer Science |
| 20 | Artificial Intelligence and Machine Learning |
| 21 | MBA (Digital Marketing) |
| 22 | MBA (FinTech) |
| 23 | Master of Computer Application |

## Abbreviations

| | | | |
|---|---|---|---|
| **CIA** | Continuous Internal Assessment | **AEC** | Ability Enhancement Course |
| **L** | Theory Lecture | **BS** | Basic Science |
| **T** | Tutorial | **ES** | Engg. Science |
| **P** | Practical | **CEP** | Community Engagement Project |
| **TC** | Total Credits | **EC** | Exit Course |
| **CP** | Credits for Practical | **HSSM** | Humanities, Social Science and Management |
| **CT** | Credits for Theory | **IKS** | Indian Knowledge System |
| **IC** | Institute Core | **VSEC** | Vocational and Skill Enhancement Course |
| **IE** | Institute Elective | **MD** | Multidisciplinary Minor |
| **OE** | Open Elective | **LLC** | Liberal Learning Course |
| **PC** | Programme Core | **VEC** | Value Education Course |
| **PE** | Programme Elective | **ELC** | Experiential Learning Course |
| **VAC** | Value Added Course | a | Oral/ Presentation Examination |
| **HM** | Honors / Minor Program Course | b | Practical Examination |
| **SDC** | Skill Development Course | | |
| **EEC** | Employability Enhancement Course | | |

| Formative Assessment for Theory Course *(Scaled to allotted marks)* | | |
|---|---|---|
| **CIA** | **Weightage** | **Description** |
| CIA 1 | 20% | Home Assignment |
| CIA 2 | 40% | Mid-Term Exam (MTE) |
| CIA 3 | 20% | Quizzes |
| CIA 4 | 20% | Topic Based Presentation |
| **TOTAL** | **100%** | |

# SANDIP INSTITUTE OF TECHNOLOGY AND RESEARCH CENTRE, NASHIK

**(An Autonomous Institute Permanently Affiliated to Savitribai Phule Pune University, Pune)**

## F.Y. B. Tech (Common) *(2024 Pattern)*

### Semester – I (Common)

| Sr. No. | Course Type | Course Code | Course Name | Teaching Scheme (Hrs./Week) | | | | | | Examination Scheme | | | | Total Marks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Formative Assessment CIA | | Summative Assessment ESE | | |
| | | | | L | T | CT | P | CP | TC | Theory | Lab | Theory | Lab | |
| 1 | Basic Science Course | 2401101 | Engineering Mathematics-I | 4 | -- | 4 | -- | -- | 4 | 50 | -- | 75 | -- | 125 |
| 2 | Basic Science Course | 2401102/ 2401103 | Engineering Physics / Engineering Chemistry | 3 | -- | 3 | 2 | 1 | 4 | 50 | 25 | 75 | -- | 150 |
| 3 | Engineering Science Course | 2414104/ 2412105 | Engineering Mechanics / Engineering Graphics | 2 | -- | 2 | 2 | 1 | 3 | 25 | 25 | 50 | -- | 100 |
| 4 | Engineering Science Course | 2311105/ 2317106 | Elements of Electrical Engineering / Elements of Electronics Engineering | 2 | -- | 2 | 2 | 1 | 3 | 25 | 25 | 50 | -- | 100 |
| 5 | Engineering Science Course | 2415108 | Fundamental of C Programming | 2 | -- | 2 | -- | -- | 2 | 25 | -- | 50 | -- | 75 |
| 6 | Vocational Course / Skill Enhancement Course | 2412109/ 2410110 | Workshop Practice / Problem Solving and Programming using Python | -- | -- | -- | 4 | 2 | 2 | -- | 50 | -- | 50[a] | 100 |
| 7 | Ability Enhancement Course | 2401111 | Professional Communication Skill | 2 | -- | -- | -- | -- | 2 | 25 | -- | 50 | -- | 75 |
| 8 | Co – curricular Course | 2300115/ 2300116 | Physical Education and Yoga / Physical Education and Sports | -- | -- | -- | 4 | 2 | 2 | | 50 | -- | -- | 50 |
| | **TOTAL** | | | **15** | **00** | **15** | **14** | **7** | **22** | **200** | **175** | **350** | **50** | **775** |

## Semester – II (Common)

| Sr. No. | Course Type | Course Code | Course Name | L | T | CT | P | CP | TC | CIA Theory | CIA Lab | ESE Theory | ESE Lab | Total Marks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | **Formative Assessment CIA** | | **Summative Assessment ESE** | | |
| 1 | Basic Science Course | 2401114 | Engineering Mathematics-II | 4 | -- | 4 | -- | -- | 4 | 50 | -- | 75 | -- | 125 |
| 2 | Basic Science Course | 2401102/ 2401103 | Engineering Physics / Engineering Chemistry | 3 | -- | 3 | 2 | 1 | 4 | 50 | 25 | 75 | -- | 150 |
| 3 | Engineering Science Course | 2414104/ 2412105 | Engineering Mechanics / Engineering Graphics | 2 | -- | 2 | 2 | 1 | 3 | 25 | 25 | 50 | -- | 100 |
| 4 | Engineering Science Course | 2311105/ 2317106 | Elements of Electrical Engineering/ Elements of Electronics Engineering | 2 | -- | 2 | 2 | 1 | 3 | 25 | 25 | 50 | -- | 100 |
| 5 | Programme Core Course | 24YY115 | Program Specific Core Courses | 2 | -- | 2 | -- | -- | 2 | 25 | -- | 50 | -- | 75 |
| 6 | Vocational and Skill Enhancement Course | 2412109/ 2410110 | Workshop Practice / Problem Solving and Programming using Python | -- | -- | -- | 4 | 2 | 2 | -- | 50 | -- | 50[a] | 100 |
| 7 | Indian Knowledge System | 2400116 | Indian Knowledge System | 2 | -- | 2 | -- | -- | 2 | 25 | -- | 50 | -- | 75 |
| 8 | Co – curricular Course | 2300115/ 2300116 | Physical Education and Yoga / Physical Education and Sports | -- | -- | -- | 4 | 2 | 2 | | 50 | -- | -- | 50 |
| | **TOTAL** | | | **15** | **00** | **15** | **14** | **7** | **22** | **200** | **175** | **350** | **50** | **775** |

### Program Core Courses

| Sr. No. | Department | Course Code | Course Name |
|---|---|---|---|
| 1 | Civil Engineering | 2414115 | Basics of Civil Engineering |
| 2 | Mechanical Engineering | 2412115 | Basics of Mechanical Engineering |
| 3 | Automation & Robotics | 2413115 | Introduction to Drone Technology |
| 4 | Computer Engineering/ Information Technology/ Artificial Intelligence & Data Science/ Computer Science/ Artificial Intelligence and Machine Learning | 2418115 | Exploring of C Programming |
| 5 | Electronics & Telecommunication Engineering | 2417115 | Sensors & its Applications |
| 6 | Electrical Engineering | 2411115 | Electrical Engineering Materials |

## Skill Based Courses for UG Certificate (Exit Option)

| Sr. No. | Course Code | Course Name |
|---|---|---|
| **Automation & Robotics** | | |
| 1 | EC131 | Robot Maneuverability |
| **Computer Engineering** | | |
| 1 | EC101 | Java Script |
| **Information Technology** | | |
| 1 | EC151 | Data Analytics using MS-Excel, POWER BI & Tableau |
| **Artificial Intelligence & Data Science** | | |
| 1 | EC181 | Elementary Data Analytics using MS-Excel |
| **Electronics & Telecommunication Engineering** | | |
| 1 | EC171 | Identification of active and passive components |
| **Electrical Engineering** | | |
| 1 | EC111 | Basics of Electrical Wiring System |
| **Civil Engineering** | | |
| 1 | EC141 | Basics of Civil Engineering for Construction |
| **Mechanical Engineering** | | |
| 1 | EC121 | Basic Machining operations using Lathe |