

**Symbiosis Institute of Technology (SIT), Nagpur**  
**Bachelor of Technology (Computer Science and Engineering)**  
**Programme Structure 2021-25**

|                                |   |  |                                  |  |   |
|--------------------------------|---|--|----------------------------------|--|---|
| <b>1. OBJECTIVE</b>            | <p>B.Tech is a full-time four year graduation programme, which aims at transforming a student into a technically sound professional. The syllabus contains courses on basic sciences, technical arts, humanities &amp; liberal arts and professional courses. The mix of these courses has been evolved with an aim to produce professionals who have knowledge not only of Engineering but who are good managers to contribute in a cross-functional team and have human values.</p> <p>Being a professional programme it ensures a healthy balance between theoretical foundation and practical exposure to the present day world.</p> <p>The emphasis is to develop all round personality that would enable the students to take up the challenges of the corporate world and also become responsible citizens of the society.</p> |  |                                  |  |   |
| <b>2. DURATION (IN MONTHS)</b> | 48 (Full Time)  |  |                                  |  |   |
| <b>3. INTAKE</b>               | 120   |  |                                  |  |   |
| <b>4. RESERVATION</b>          | <b>I. Within the sanctioned intake</b>  | <b>a) SC<br/>(In Percentage)</b>           | <b>b) ST<br/>(In Percentage)</b> | <b>c) Differently abled<br/>(In Percentage)</b>      | <b>d) Domicile of<br/>Nagpur<br/>(In Percentage)</b>  |
|                                |   | 15   | 7.5                              | 3  | 25<br>( Includes<br>i. Scheduled Caste<br>(percentage) - 15<br>ii. Scheduled Tribes<br>(percentage) - 7.5<br>iii. Differently Abled<br>(percentage) - 3 ) |
|                                | <b>II. Over and above the sanctioned intake</b>   | <b>a) Kashmiri Migrants<br/>(In Seats)</b> |                                  | <b>b) International Students<br/>(In Percentage)</b> |   |
|                                |   | 2  |                                  | 15   |   |
| <b>5. ELIGIBILITY</b>          | Passed 10+2 examination with Physics and Mathematics as compulsory subjects along with one of Chemistry/ Biotechnology/ Biology/  |  |                                  |  |   |

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|    |                                    |  |
|----|------------------------------------|--|
|    |                                    | <p>Technical Vocational subjects. Obtained at least 45% marks or equivalent grade (40% marks or equivalent grade for Scheduled Caste /Scheduled Tribes) in the above subjects taken together.</p> <p>B. Tech (Lateral entry to second year) :</p> <p>a) Passed Diploma examination from an AICTE approved Institution; with at least 45% marks or equivalent grade (40% marks or equivalent grade for Scheduled Caste /Scheduled Tribes) in appropriate branch of Engineering / Technology.</p> <p>b) Passed B.Sc. Degree from a recognized University as defined by UGC, with at least 45% marks or equivalent grade (40% marks or equivalent grade for Scheduled Caste /Scheduled Tribes) and passed XII standard with mathematics as a subject.</p> <p>c) Provided that in case of students belonging to B. Sc. Stream, shall clear the subjects of Engineering Graphics / Engineering Drawing and Engineering Mechanics of the first year Engineering program along with the second year subjects.</p> <p>d) Provided further that, the students belonging to B. Sc. Stream shall be considered only after filling the supernumerary seats in this category with students belonging to the Diploma stream.</p> <p>e) Provided further that students, who have passed Diploma in Engineering and Technology from an AICTE approved Institution or B. Sc. Degree from a recognized University as defined by UGC, shall also be eligible for admission to the first year Engineering Degree courses subject to vacancies in the first year class in case the vacancies at lateral entry are exhausted. However the admissions shall be based strictly on the eligibility criteria as mentioned in a, b, c, and d above.</p> |
| 6. | <b>SELECTION PROCEDURE</b>         | Merit list by valid score of Joint Entrance Examination (JEE - Main) or Any State Government Engineering Entrance Examination.   |
| 7. | <b>MEDIUM OF INSTRUCTION</b>       | English  |
| 8. | <b>PROGRAMME PATTERN</b>           | Semester   |
| 9. | <b>COURSE &amp; SPECIALIZATION</b> | <p>Annexure A: Bachelor of Technology (Computer Science and Engineering)</p> <p>Students may pursue optional 'Honours' specialization in one of the specialization areas by completing additional 20 credits in Semester: 5, 6 and 7 as specified in Annexure B for Honours.</p> <p>Annexure B: Optional 'Honours' specialization area</p> <ol style="list-style-type: none"> <li>1. Artificial Intelligence and Machine learning</li> <li>2. Computing</li> </ol>   |

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|  |   |  |                         |                          |              |
|--|---|--|-------------------------|--------------------------|--------------|
|  |   | 3.Data Science<br>4.Game Design & Development<br>5.Security and Privacy<br>6.Internet of Things  |                         |                          |              |
| <b>10.</b>   | <b>FEE</b>  |  | <b>Academic Fee p.a</b> | <b>Institute Deposit</b> | <b>Total</b> |
|  | <b>Indian Students</b>                                | <b>Other than Nagpur Domicile</b>  | 260000                  | 20000                    | 280000       |
|  |   | <b>International Students (USD equivalent to INR)</b>  | 221000                  | 20000                    | 241000       |
|  | <b>International Students (USD equivalent to INR)</b> |  | 390000                  | 20000                    | 410000       |
| <b>Note: For additional optional specialization 'Honours', an additional fees of Rs. 25000/- will be charged in the second year.</b> |   |  |                         |                          |              |
| <b>11.</b>   | <b>ASSESSMENT</b>                                     | All internal courses will have 100% component as internal evaluation at the institute level. All external courses will have 40% internal component and 60% component as external [University] examination. The internal and external will be separate heads of passing.  |                         |                          |              |
| <b>12.</b>   | <b>STANDARD OF PASSING</b>                            | The assessment of the student for each examination is done, based on relative performance. Maximum Grade Point (GP) is 10 corresponding to O (Outstanding). For all courses, a student is required to pass both internal and external examination separately with a minimum Grade Point of 4 corresponding to Grade P. Students securing less than 40% absolute marks in each head of passing will be declared FAIL. The University awards a degree to the student who has achieved a minimum CGPA of 4 out of maximum of 10 CGPA for the programme. |                         |                          |              |
| <b>13.</b>   | <b>AWARD OF DEGREE/<br/>DIPLOMA/<br/>CERTIFICATE</b>  | Bachelor of Technology (Computer Science Engineering)<br>OR<br>Bachelor of Technology (Computer Science Engineering) with Honours in Artificial Intelligence and Machine learning / Computing / Data Science / Game Design & Development / Security and Privacy /Internet of Things, will be awarded at the end of semester VIII examination by taking into consideration the performance of all semester examinations after obtaining minimum 4.00 CGPA out of 10 CGPA  |                         |                          |              |

| 14. CLASSIFICATION OF CREDITS                |              |                  |                     |                         |               |          |            |
|--|--------------|------------------|---------------------|-------------------------|---------------|----------|------------|
| Semester                                     | Generic Core | Generic Elective | Specialization Core | Specialization Elective | Open Elective | Audit    | Total      |
| <b>Group A</b>                               |              |                  |                     |                         |               |          |            |
| 1  | 18           | 0                | 0                   | 0                       | 0             | 1*       | 18         |
| 2  | 21           | 0                | 0                   | 0                       | 0             | 1*       | 21         |
| 3  | 23           | 1                | 0                   | 0                       | 0             | 0        | 24         |
| 4  | 17           | 2                | 0                   | 0                       | 0             | 1*       | 19         |
| 5  | 22           | 0                | 0                   | 0                       | 3             | 0        | 25         |
| 6  | 14           | 8                | 0                   | 0                       | 3             | 0        | 25         |
| 7  | 11           | 13               | 0                   | 0                       | 0             | 0        | 24         |
| 8  | 14           | 0                | 0                   | 0                       | 0             | 0        | 14         |
| <b>Total</b>                                 | <b>140</b>   | <b>24</b>        | <b>0</b>            | <b>0</b>                | <b>6</b>      | <b>0</b> | <b>170</b> |
| <b>Group B</b>                               |              |                  |                     |                         |               |          |            |
| 1  | 19           | 0                | 0                   | 0                       | 0             | 1*       | 19         |
| 2  | 20           | 0                | 0                   | 0                       | 0             | 1*       | 20         |
| 3  | 23           | 1                | 0                   | 0                       | 0             | 0        | 24         |
| 4  | 17           | 2                | 0                   | 0                       | 0             | 1*       | 19         |
| 5  | 22           | 0                | 0                   | 0                       | 3             | 0        | 25         |
| 6  | 14           | 8                | 0                   | 0                       | 3             | 0        | 25         |
| 7  | 11           | 13               | 0                   | 0                       | 0             | 0        | 24         |
| 8  | 14           | 0                | 0                   | 0                       | 0             | 0        | 14         |
| <b>Total</b>                                 | <b>140</b>   | <b>24</b>        | <b>0</b>            | <b>0</b>                | <b>6</b>      | <b>0</b> | <b>170</b> |
| <b>Optional Additional Courses (Honours)</b> |              |                  |                     |                         |               |          |            |
| <b>Total</b>                                 | <b>0</b>     | <b>0</b>         | <b>20</b>           | <b>0</b>                | <b>0</b>      | <b>0</b> | <b>20</b>  |

\* Satisfactory completion of the non letter grade course 'Integrated Disaster Management', 'Fitness for Life' and 'Certificate in COVID-19 Care for the Community' is mandatory for the award of degree.

**Note: For additional specializations (optional) as applicable, fees of Rs.25000/- will be charged, additionally in the third year**

The revised programme structure supersedes the previously approved programme structure dated 10/04/2024 for the programme.

**This Programme Structure is aligned with the norms laid down by the University and is approved by the Academic Council.  
Hereafter changes (if any) which conform to the policy on "Curriculum Development and Review" would be permissible, subject to revision of the Programme Structure, following the specified processes.**

**Director - Academics**

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**Annexure A**

| Catalog Course Code                   | Course Code | Course Title                                     | Nature | Specialization/ Area/ Department | Teaching Scheme (Hours Per Week) |   |         | Examination Scheme (Marks) |           |            |            | Total Credits      | Total      |
|---------------------------------------|-------------|--|--------|----------------------------------|----------------------------------|---|---------|----------------------------|-----------|------------|------------|--------------------|------------|
|                                       |             |  |        |                                  | L                                | T | La<br>b | Practical                  |           | Theory     |            |                    |            |
|                                       |             |  |        |                                  |                                  |   |         | CA                         | ESE       | CA         | ESE        |                    |            |
| <b>Semester : 1</b>                   |             |  |        |                                  |                                  |   |         |                            |           |            |            |                    |            |
| <b>Group - A Generic Core Courses</b> |             |  |        |                                  |                                  |   |         |                            |           |            |            |                    |            |
| TE7168                                | 0705210101  | Engineering Mathematics -I                       | BS     |                                  | 3                                | 1 | 0       | 0                          | 0         | 40         | 60         | 4                  | 100        |
| T7391                                 | 0705210102  | Physics  | BS     |                                  | 3                                | 0 | 0       | 0                          | 0         | 30         | 45         | 3                  | 75         |
| T7392                                 | 0705210103  | Physics lab                                      | BS     |                                  | 0                                | 0 | 2       | 10                         | 15        | 0          | 0          | 1                  | 25         |
| T7383                                 | 0705210104  | Communication Skills                             | HS     |                                  | 2                                | 0 | 0       | 0                          | 0         | 20         | 30         | 2                  | 50         |
| T7384                                 | 0705210105  | Communication skills lab                         | HS     |                                  | 0                                | 0 | 2       | 10                         | 15        | 0          | 0          | 1                  | 25         |
| TE7288                                | 0705210106  | Programming in C                                 | PC     |                                  | 3                                | 0 | 0       | 0                          | 0         | 30         | 45         | 3                  | 75         |
| TE7289                                | 0705210107  | Programming in C Lab                             | PC     |                                  | 0                                | 0 | 2       | 10                         | 15        | 0          | 0          | 1                  | 25         |
| TE7188                                | 0705210108  | Environmental Science                            | ES     |                                  | 2                                | 0 | 0       | 0                          | 0         | 20         | 30         | 2                  | 50         |
| T6773                                 | 0705210109  | Creative Thinking                                | HS     |                                  | 1                                | 0 | 0       | 0                          | 0         | 25         | 0          | 1                  | 25         |
| TH4272                                | 0705210110  | Certificate in COVID-19 Care for the Community * | 0      |                                  | 0                                | 0 | 0       | 0                          | 0         | 0          | 0          | Non - Letter Grade | 0          |
| <b>Total Required Credits</b>         |             |  |        |                                  |                                  |   |         | <b>30</b>                  | <b>45</b> | <b>165</b> | <b>210</b> | <b>18</b>          | <b>450</b> |
| <b>Group - B Generic Core Courses</b> |             |  |        |                                  |                                  |   |         |                            |           |            |            |                    |            |
| TE7168                                | 0705210101  | Engineering Mathematics -I                       | BS     |                                  | 3                                | 1 | 0       | 0                          | 0         | 40         | 60         | 4                  | 100        |
| T7381                                 | 0705210111  | Chemistry  | BS     |                                  | 3                                | 0 | 0       | 0                          | 0         | 30         | 45         | 3                  | 75         |
| T7382                                 | 0705210112  | Chemistry Lab                                    | BS     |                                  | 0                                | 0 | 2       | 10                         | 15        | 0          | 0          | 1                  | 25         |

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|-------------------------------------|-------------|--|--------|----------------------------------|----------------------------------|---|---------|----------------------------|-----------|------------|------------|--------------------|------------|
|                                     |             |  |        |                                  | L                                | T | La<br>b | Practical                  |           | Theory     |            |                    |            |
|                                     |             |  |        |                                  |                                  |   |         | CA                         | ESE       | CA         | ESE        |                    |            |
| T7540                               | 0705210113  | Basic Electrical and Electronics Engineering     | ES     |                                  | 3                                | 0 | 0       | 0                          | 0         | 30         | 45         | 3                  | 75         |
| T7593                               | 0705210114  | Basic Electrical and Electronics Engineering Lab | ES     |                                  | 0                                | 0 | 2       | 10                         | 15        | 0          | 0          | 1                  | 25         |
| TE7286                              | 0705210115  | Programming and Problem Solving                  | ES     |                                  | 2                                | 0 | 0       | 0                          | 0         | 20         | 30         | 2                  | 50         |
| TE7287                              | 0705210116  | Programming and Problem Solving Lab              | ES     |                                  | 0                                | 0 | 2       | 10                         | 15        | 0          | 0          | 1                  | 25         |
| T6732                               | 0705210117  | Critical Thinking                                | HS     |                                  | 1                                | 0 | 0       | 0                          | 0         | 25         | 0          | 1                  | 25         |
| T7925                               | 0705210118  | Engineering Graphics Lab                         | ES     |                                  | 0                                | 0 | 4       | 20                         | 30        | 0          | 0          | 2                  | 50         |
| TE7396                              | 0705210119  | Software Tools                                   | ES     |                                  | 0                                | 0 | 2       | 25                         | 0         | 0          | 0          | 1                  | 25         |
| TH4272                              | 0705210110  | Certificate in COVID-19 Care for the Community * | 0      |                                  | 0                                | 0 | 0       | 0                          | 0         | 0          | 0          | Non - Letter Grade | 0          |
| <b>Total Required Credits</b>       |             |  |        |                                  |                                  |   |         | <b>75</b>                  | <b>75</b> | <b>145</b> | <b>180</b> | <b>19</b>          | <b>475</b> |
| <b>Semester : 2</b>                 |             |  |        |                                  |                                  |   |         |                            |           |            |            |                    |            |
| <b>Group-A Generic Core Courses</b> |             |  |        |                                  |                                  |   |         |                            |           |            |            |                    |            |
| TE7169                              | 0705210201  | Engineering Mathematics -II                      | BS     |                                  | 3                                | 1 | 0       | 0                          | 0         | 40         | 60         | 4                  | 100        |
| T7381                               | 0705210202  | Chemistry  | BS     |                                  | 3                                | 0 | 0       | 0                          | 0         | 30         | 45         | 3                  | 75         |
| T7382                               | 0705210203  | Chemistry Lab                                    | BS     |                                  | 0                                | 0 | 2       | 10                         | 15        | 0          | 0          | 1                  | 25         |
| T7540                               | 0705210204  | Basic Electrical and Electronics Engineering     | ES     |                                  | 3                                | 0 | 0       | 0                          | 0         | 30         | 45         | 3                  | 75         |
| T7593                               | 0705210205  | Basic Electrical and Electronics Engineering Lab | ES     |                                  | 0                                | 0 | 2       | 10                         | 15        | 0          | 0          | 1                  | 25         |

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|--------------------------------------|-------------|-------------------------------------|--------|----------------------------------|----------------------------------|---|---------|----------------------------|-----------|------------|------------|--------------------|------------|
|                                      |             |                                     |        |                                  | L                                | T | La<br>b | Practical                  |           | Theory     |            |                    |            |
|                                      |             |                                     |        |                                  |                                  |   |         | CA                         | ESE       | CA         | ESE        |                    |            |
| TE7286                               | 0705210206  | Programming and Problem Solving     | ES     |                                  | 2                                | 0 | 0       | 0                          | 0         | 20         | 30         | 2                  | 50         |
| TE7287                               | 0705210207  | Programming and Problem Solving Lab | ES     |                                  | 0                                | 0 | 2       | 10                         | 15        | 0          | 0          | 1                  | 25         |
| T7925                                | 0705210208  | Engineering Graphics Lab            | ES     |                                  | 0                                | 0 | 4       | 20                         | 30        | 0          | 0          | 2                  | 50         |
| T6732                                | 0705210209  | Critical Thinking                   | HS     |                                  | 1                                | 0 | 0       | 0                          | 0         | 25         | 0          | 1                  | 25         |
| TE7396                               | 0705210210  | Software Tools                      | ES     |                                  | 0                                | 0 | 2       | 25                         | 0         | 0          | 0          | 1                  | 25         |
| TE7300                               | 0705210211  | Tinker Lab                          | ES     |                                  | 0                                | 0 | 4       | 50                         | 0         | 0          | 0          | 2                  | 50         |
| TH4095                               | 0705210212  | Fitness for Life *                  | 0      |                                  | 0                                | 0 | 0       | 0                          | 0         | 0          | 0          | Non - Letter Grade | 0          |
| <b>Total Required Credits</b>        |             |                                     |        |                                  |                                  |   |         | <b>125</b>                 | <b>75</b> | <b>145</b> | <b>180</b> | <b>21</b>          | <b>525</b> |
| <b>Group- B Generic Core Courses</b> |             |                                     |        |                                  |                                  |   |         |                            |           |            |            |                    |            |
| TE7169                               | 0705210201  | Engineering Mathematics -II         | BS     |                                  | 3                                | 1 | 0       | 0                          | 0         | 40         | 60         | 4                  | 100        |
| TE7300                               | 0705210211  | Tinker Lab                          | ES     |                                  | 0                                | 0 | 4       | 50                         | 0         | 0          | 0          | 2                  | 50         |
| T7391                                | 0705210213  | Physics                             | BS     |                                  | 3                                | 0 | 0       | 0                          | 0         | 30         | 45         | 3                  | 75         |
| T7392                                | 0705210214  | Physics lab                         | BS     |                                  | 0                                | 0 | 2       | 10                         | 15        | 0          | 0          | 1                  | 25         |
| TE7288                               | 0705210215  | Programming in C                    | ES     |                                  | 3                                | 0 | 0       | 0                          | 0         | 30         | 45         | 3                  | 75         |
| TE7289                               | 0705210216  | Programming in C Lab                | PC     |                                  | 0                                | 0 | 2       | 10                         | 15        | 0          | 0          | 1                  | 25         |
| T7383                                | 0705210217  | Communication Skills                | HS     |                                  | 2                                | 0 | 0       | 0                          | 0         | 20         | 30         | 2                  | 50         |
| T7384                                | 0705210218  | Communication skills lab            | HS     |                                  | 0                                | 0 | 2       | 10                         | 15        | 0          | 0          | 1                  | 25         |



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|-------------------------------|-------------|---|--------|----------------------------------|----------------------------------|----------|----------|----------------------------|-----------|------------|------------|--------------------|------------|
|                               |             |   |        |                                  | L                                | T        | La<br>b  | Practical                  |           | Theory     |            |                    |            |
|                               |             |   |        |                                  |                                  |          |          | CA                         | ESE       | CA         | ESE        |                    |            |
| T6773                         | 0705210219  | Creative Thinking                           | HS     |                                  | 1                                | 0        | 0        | 0                          | 0         | 25         | 0          | 1                  | 25         |
| TE7188                        | 0705210220  | Environmental Science                       | ES     |                                  | 2                                | 0        | 0        | 0                          | 0         | 20         | 30         | 2                  | 50         |
| TH4095                        | 0705210212  | Fitness for Life *                          | 0      |                                  | 0                                | 0        | 0        | 0                          | 0         | 0          | 0          | Non - Letter Grade | 0          |
| <b>Total Required Credits</b> |             |   |        |                                  |                                  |          |          | <b>80</b>                  | <b>45</b> | <b>165</b> | <b>210</b> | <b>20</b>          | <b>500</b> |
| <b>Semester : 3</b>           |             |   |        |                                  |                                  |          |          |                            |           |            |            |                    |            |
| <b>Generic Core Courses</b>   |             |   |        |                                  |                                  |          |          |                            |           |            |            |                    |            |
| T7995                         | 0705210301  | Discrete Mathematics and Probability Theory | BS     |                                  | 3                                | 1        | 0        | 0                          | 0         | 40         | 60         | 100                | 100        |
| T7996                         | 0705210302  | Computer Organization                       | PC     |                                  | 3                                | 0        | 0        | 0                          | 0         | 30         | 45         | 75                 | 75         |
| T7906                         | 0705210303  | Fundamentals of Data Structures             | PC     |                                  | 3                                | 0        | 0        | 0                          | 0         | 30         | 45         | 75                 | 75         |
| TE7257                        | 0705210304  | Fundamentals of Data Structures Lab         | PC     |                                  | 0                                | 0        | 2        | 10                         | 15        | 0          | 0          | 25                 | 25         |
| T7512                         | 0705210305  | Programming Paradigms                       | PC     |                                  | 3                                | 0        | 0        | 0                          | 0         | 30         | 45         | 75                 | 75         |
| T7513                         | 0705210306  | Programming Paradigms Lab                   | PC     |                                  | 0                                | 0        | 2        | 10                         | 15        | 0          | 0          | 25                 | 25         |
| T7997                         | 0705210307  | Digital Electronics and Logic Design        | ES     |                                  | 3                                | 0        | 0        | 0                          | 0         | 30         | 45         | 75                 | 75         |
| T7555                         | 0705210308  | Digital Electronics and Logic Design Lab    | ES     |                                  | 0                                | 0        | 2        | 10                         | 15        | 0          | 0          | 25                 | 25         |
| T2646                         | 0705210309  | Entrepreneurship Venture                    | HS     |                                  | 1                                | 0        | 0        | 0                          | 0         | 25         | 0          | 25                 | 25         |
| F7010                         | 0705210310  | Agile Software Development                  | PC     |                                  | 3                                | 0        | 0        | 0                          | 0         | 75         | 0          | 75                 | 75         |
| <b>Total</b>                  |             |   |        |                                  | <b>19</b>                        | <b>1</b> | <b>6</b> | <b>30</b>                  | <b>45</b> | <b>260</b> | <b>240</b> | <b>23</b>          | <b>575</b> |

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|---------------------------------------|-------------|-----------------------------------|--------|----------------------------------|----------------------------------|----------|----------|----------------------------|-----------|------------|------------|--------------------|------------|
|                                       |             |                                   |        |                                  | L                                | T        | La<br>b  | Practical                  |           | Theory     |            |                    |            |
|                                       |             |                                   |        |                                  |                                  |          |          | CA                         | ESE       | CA         | ESE        |                    |            |
| <b>Generic Elective Courses Group</b> |             |                                   |        |                                  |                                  |          |          |                            |           |            |            |                    |            |
| T6761                                 | 0705210311  | Foundation of Ethics              | GE     |                                  | 1                                | 0        | 0        | 0                          | 0         | 25         | 0          | 1                  | 25         |
| T6760                                 | 0705210312  | Introduction to Indian Philosophy | GE     |                                  | 1                                | 0        | 0        | 0                          | 0         | 25         | 0          | 1                  | 25         |
| <b>Total Required Credits</b>         |             |                                   |        |                                  |                                  |          |          | <b>0</b>                   | <b>0</b>  | <b>25</b>  | <b>0</b>   | <b>1</b>           | <b>25</b>  |
| <b>Semester : 4</b>                   |             |                                   |        |                                  |                                  |          |          |                            |           |            |            |                    |            |
| <b>Generic Core Courses</b>           |             |                                   |        |                                  |                                  |          |          |                            |           |            |            |                    |            |
| TE7170                                | 0705210401  | Engineering Mathematics-III       | BS     |                                  | 2                                | 1        | 0        | 0                          | 0         | 30         | 45         | 75                 | 75         |
| F0004                                 | 0705210402  | Flexi-Credit Course               | PC     |                                  | 4                                | 0        | 0        | 0                          | 0         | 100        | 0          | 100                | 100        |
| T7488                                 | 0705210403  | Data Structures                   | PC     |                                  | 3                                | 0        | 0        | 0                          | 0         | 30         | 45         | 75                 | 75         |
| T7489                                 | 0705210404  | Data Structures Lab               | PC     |                                  | 0                                | 0        | 2        | 10                         | 15        | 0          | 0          | 25                 | 25         |
| T7510                                 | 0705210405  | Operating Systems                 | PC     |                                  | 3                                | 0        | 0        | 0                          | 0         | 30         | 45         | 75                 | 75         |
| T7511                                 | 0705210406  | Operating Systems Lab             | PC     |                                  | 0                                | 0        | 2        | 10                         | 15        | 0          | 0          | 25                 | 25         |
| TE7290                                | 0705210407  | Project Based Learning -I         | PIS    |                                  | 0                                | 0        | 4        | 50                         | 0         | 0          | 0          | 50                 | 50         |
| T4005                                 | 0705210408  | Integrated Disaster Management *  | 0      |                                  | 0                                | 0        | 0        | 0                          | 0         | 0          | 0          | Non - Letter Grade | 0          |
| <b>Total</b>                          |             |                                   |        |                                  | <b>12</b>                        | <b>1</b> | <b>8</b> | <b>70</b>                  | <b>30</b> | <b>190</b> | <b>135</b> | <b>17</b>          | <b>425</b> |
| <b>Generic Elective Courses Group</b> |             |                                   |        |                                  |                                  |          |          |                            |           |            |            |                    |            |
| T6014                                 | 0705210409  | Basic French I                    | GE     |                                  | 2                                | 0        | 0        | 0                          | 0         | 50         | 0          | 2                  | 50         |

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| Catalog Course Code                | Course Code | Course Title                           | Nature | Specialization/ Area/ Department | Teaching Scheme (Hours Per Week) |          |           | Examination Scheme (Marks) |           |            |            | Total Credits | Total      |
|------------------------------------|-------------|--|--------|----------------------------------|----------------------------------|----------|-----------|----------------------------|-----------|------------|------------|---------------|------------|
|                                    |             |  |        |                                  | L                                | T        | La<br>b   | Practical                  |           | Theory     |            |               |            |
|                                    |             |  |        |                                  |                                  |          |           | CA                         | ESE       | CA         | ESE        |               |            |
| T6012                              | 0705210410  | Basic German I                         | GE     |                                  | 2                                | 0        | 0         | 0                          | 0         | 50         | 0          | 2             | 50         |
| T6016                              | 0705210411  | Basic Spanish I                        | GE     |                                  | 2                                | 0        | 0         | 0                          | 0         | 50         | 0          | 2             | 50         |
| <b>Total Required Credits</b>      |             |  |        |                                  |                                  |          |           | <b>0</b>                   | <b>0</b>  | <b>50</b>  | <b>0</b>   | <b>2</b>      | <b>50</b>  |
| <b>Semester : 5</b>                |             |  |        |                                  |                                  |          |           |                            |           |            |            |               |            |
| <b>Generic Core Courses</b>        |             |  |        |                                  |                                  |          |           |                            |           |            |            |               |            |
| F7046                              | 0705210501  | Introduction to Full Stack Development | PC     |                                  | 4                                | 0        | 0         | 0                          | 0         | 100        | 0          | 100           | 100        |
| T8000                              | 0705210502  | Service Learning                       | HS     |                                  | 0                                | 0        | 8         | 100                        | 0         | 0          | 0          | 100           | 100        |
| T7908                              | 0705210503  | Computer Networks                      | PC     |                                  | 3                                | 0        | 0         | 0                          | 0         | 30         | 45         | 75            | 75         |
| T7482                              | 0705210504  | Computer Networks Lab                  | PC     |                                  | 0                                | 0        | 2         | 10                         | 15        | 0          | 0          | 25            | 25         |
| T7907                              | 0705210505  | Database Management Systems            | PC     |                                  | 3                                | 0        | 0         | 0                          | 0         | 30         | 45         | 75            | 75         |
| T7487                              | 0705210506  | Data Base Management Systems Lab       | PC     |                                  | 0                                | 0        | 4         | 20                         | 30        | 0          | 0          | 50            | 50         |
| TE7299                             | 0705210507  | Theory of Computation                  | PC     |                                  | 3                                | 0        | 0         | 0                          | 0         | 30         | 45         | 75            | 75         |
| T6774                              | 0705210508  | Principles of Economics                | HS     |                                  | 2                                | 0        | 0         | 0                          | 0         | 50         | 0          | 50            | 50         |
| <b>Total</b>                       |             |  |        |                                  | <b>15</b>                        | <b>0</b> | <b>14</b> | <b>130</b>                 | <b>45</b> | <b>240</b> | <b>135</b> | <b>22</b>     | <b>550</b> |
| <b>Open Elective Courses Group</b> |             |  |        |                                  |                                  |          |           |                            |           |            |            |               |            |
| T7393                              | 0705210509  | Computer Based Statistical Packages    | OE     | Computer Science and Engineering | 3                                | 0        | 0         | 0                          | 0         | 30         | 45         | 3             | 75         |
| T7499                              | 0705210510  | Java                                   | OE     | Computer Science and Engineering | 3                                | 0        | 0         | 0                          | 0         | 30         | 45         | 3             | 75         |

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| Catalog Course Code                      | Course Code | Course Title                                | Nature | Specialization/ Area/ Department | Teaching Scheme (Hours Per Week) |          |          | Examination Scheme (Marks) |          |            |           | Total Credits | Total      |
|--|-------------|---|--------|----------------------------------|----------------------------------|----------|----------|----------------------------|----------|------------|-----------|---------------|------------|
|  |             |   |        |                                  | L                                | T        | La<br>b  | Practical                  |          | Theory     |           |               |            |
|  |             |   |        |                                  |                                  |          |          | CA                         | ESE      | CA         | ESE       |               |            |
| TE7263                                   | 0705210511  | Introduction to AI and Machine Learning     | OE     | Computer Science and Engineering | 3                                | 0        | 0        | 0                          | 0        | 30         | 45        | 3             | 75         |
| TE7265                                   | 0705210512  | Introduction to Data Science                | OE     | Computer Science and Engineering | 3                                | 0        | 0        | 0                          | 0        | 30         | 45        | 3             | 75         |
| <b>Total Required Credits</b>            |             |   |        |                                  |                                  |          |          | <b>0</b>                   | <b>0</b> | <b>30</b>  | <b>45</b> | <b>3</b>      | <b>75</b>  |
| <b>Semester : 6</b>                      |             |   |        |                                  |                                  |          |          |                            |          |            |           |               |            |
| <b>Generic Core Courses</b>              |             |   |        |                                  |                                  |          |          |                            |          |            |           |               |            |
| TE7008                                   | 0705210601  | Distributed Systems and Resource Management | PC     |                                  | 3                                | 0        | 0        | 0                          | 0        | 30         | 45        | 75            | 75         |
| F7082                                    | 0705210602  | Competitive Programming                     | PC     |                                  | 3                                | 0        | 0        | 0                          | 0        | 75         | 0         | 75            | 75         |
| T6749                                    | 0705210603  | Design Thinking                             | HS     |                                  | 2                                | 0        | 0        | 0                          | 0        | 50         | 0         | 50            | 50         |
| T7674                                    | 0705210604  | Cyber Security                              | PC     |                                  | 2                                | 0        | 0        | 0                          | 0        | 50         | 0         | 50            | 50         |
| TE7291                                   | 0705210605  | Project Based Learning-II                   | PIS    |                                  | 0                                | 0        | 4        | 50                         | 0        | 0          | 0         | 50            | 50         |
| T7802                                    | 0705210606  | Capstone Course                             | PC     |                                  | 2                                | 0        | 0        | 0                          | 0        | 50         | 0         | 50            | 50         |
| <b>Total</b>                             |             |   |        |                                  | <b>12</b>                        | <b>0</b> | <b>4</b> | <b>50</b>                  | <b>0</b> | <b>255</b> | <b>45</b> | <b>14</b>     | <b>350</b> |
| <b>Generic Elective Courses Group- I</b> |             |   |        |                                  |                                  |          |          |                            |          |            |           |               |            |
| TE7255                                   | 0705210607  | Data Warehousing and Mining                 | PE     |                                  | 3                                | 0        | 0        | 0                          | 0        | 30         | 45        | 3             | 75         |
| TE7101                                   | 0705210608  | Internet of Things                          | PE     |                                  | 3                                | 0        | 0        | 0                          | 0        | 30         | 45        | 3             | 75         |
| TE7328                                   | 0705210609  | Image Processing                            | PE     |                                  | 3                                | 0        | 0        | 0                          | 0        | 30         | 45        | 3             | 75         |

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| Catalog Course Code                        | Course Code | Course Title                    | Nature | Specialization/ Area/ Department | Teaching Scheme (Hours Per Week) |   |         | Examination Scheme (Marks) |           |           |           | Total Credits | Total     |
|--|-------------|---------------------------------|--------|----------------------------------|----------------------------------|---|---------|----------------------------|-----------|-----------|-----------|---------------|-----------|
|  |             |                                 |        |                                  | L                                | T | La<br>b | Practical                  |           | Theory    |           |               |           |
|  |             |                                 |        |                                  |                                  |   |         | CA                         | ESE       | CA        | ESE       |               |           |
| <b>Total Required Credits</b>              |             |                                 |        |                                  |                                  |   |         | <b>0</b>                   | <b>0</b>  | <b>30</b> | <b>45</b> | <b>3</b>      | <b>75</b> |
| <b>Generic Elective Courses Group- II</b>  |             |                                 |        |                                  |                                  |   |         |                            |           |           |           |               |           |
| TE7013                                     | 0705210610  | Data Warehousing and Mining Lab | PE     |                                  | 0                                | 0 | 2       | 10                         | 15        | 0         | 0         | 1             | 25        |
| T7528                                      | 0705210611  | Internet of Things Lab          | PE     |                                  | 0                                | 0 | 2       | 10                         | 15        | 0         | 0         | 1             | 25        |
| TE7329                                     | 0705210612  | Image Processing Lab            | PE     |                                  | 0                                | 0 | 2       | 10                         | 15        | 0         | 0         | 1             | 25        |
| <b>Total Required Credits</b>              |             |                                 |        |                                  |                                  |   |         | <b>10</b>                  | <b>15</b> | <b>0</b>  | <b>0</b>  | <b>1</b>      | <b>25</b> |
| <b>Generic Elective Courses Group- III</b> |             |                                 |        |                                  |                                  |   |         |                            |           |           |           |               |           |
| T7473                                      | 0705210613  | Artificial Intelligence         | PE     |                                  | 3                                | 0 | 0       | 0                          | 0         | 30        | 45        | 3             | 75        |
| TE7259                                     | 0705210614  | Human Computer Interface        | PE     |                                  | 3                                | 0 | 0       | 0                          | 0         | 30        | 45        | 3             | 75        |
| TE7243                                     | 0705210615  | Advanced Algorithms             | PE     |                                  | 3                                | 0 | 0       | 0                          | 0         | 30        | 45        | 3             | 75        |
| <b>Total Required Credits</b>              |             |                                 |        |                                  |                                  |   |         | <b>0</b>                   | <b>0</b>  | <b>30</b> | <b>45</b> | <b>3</b>      | <b>75</b> |
| <b>Generic Elective Courses Group- IV</b>  |             |                                 |        |                                  |                                  |   |         |                            |           |           |           |               |           |
| TE7014                                     | 0705210616  | Artificial Intelligence Lab     | PE     |                                  | 0                                | 0 | 2       | 10                         | 15        | 0         | 0         | 1             | 25        |
| TE7260                                     | 0705210617  | Human Computer Interface Lab    | PE     |                                  | 0                                | 0 | 2       | 10                         | 15        | 0         | 0         | 1             | 25        |
| TE7244                                     | 0705210618  | Advanced Algorithms Lab         | PE     |                                  | 0                                | 0 | 2       | 0                          | 0         | 10        | 15        | 1             | 25        |
| <b>Total Required Credits</b>              |             |                                 |        |                                  |                                  |   |         | <b>10</b>                  | <b>15</b> | <b>0</b>  | <b>0</b>  | <b>1</b>      | <b>25</b> |
| <b>Open Elective Courses Group</b>         |             |                                 |        |                                  |                                  |   |         |                            |           |           |           |               |           |
| T7474                                      | 0705210619  | Basics of Database              | OE     | Computer Science and Engineering | 3                                | 0 | 0       | 0                          | 0         | 30        | 45        | 3             | 75        |

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| Catalog Course Code                       | Course Code | Course Title                      | Nature | Specialization/ Area/ Department | Teaching Scheme (Hours Per Week) |          |           | Examination Scheme (Marks) |           |            |           | Total Credits | Total      |
|---|-------------|-----------------------------------|--------|----------------------------------|----------------------------------|----------|-----------|----------------------------|-----------|------------|-----------|---------------|------------|
|   |             |                                   |        |                                  | L                                | T        | La<br>b   | Practical                  |           | Theory     |           |               |            |
|   |             |                                   |        |                                  |                                  |          |           | CA                         | ESE       | CA         | ESE       |               |            |
| NPTL001                                   | 0705210620  | Introduction to Machine Learning  | OE     | Computer Science and Engineering | 3                                | 0        | 0         | 0                          | 0         | 75         | 0         | 3             | 75         |
| T7509                                     | 0705210621  | Open Source Technologies          | OE     | Computer Science and Engineering | 3                                | 0        | 0         | 0                          | 0         | 30         | 45        | 3             | 75         |
| TE7264                                    | 0705210622  | Introduction to BIGDATA           | OE     | Computer Science and Engineering | 3                                | 0        | 0         | 0                          | 0         | 30         | 45        | 3             | 75         |
| <b>Total Required Credits</b>             |             |                                   |        |                                  |                                  |          |           | <b>0</b>                   | <b>0</b>  | <b>30</b>  | <b>45</b> | <b>3</b>      | <b>75</b>  |
| <b>Semester : 7</b>                       |             |                                   |        |                                  |                                  |          |           |                            |           |            |           |               |            |
| <b>Generic Core Courses</b>               |             |                                   |        |                                  |                                  |          |           |                            |           |            |           |               |            |
| T7804                                     | 0705210701  | Project                           | PIS    |                                  | 0                                | 0        | 8         | 40                         | 60        | 0          | 0         | 100           | 100        |
| T7477                                     | 0705210702  | Compiler Construction             | PC     |                                  | 3                                | 0        | 0         | 0                          | 0         | 30         | 45        | 75            | 75         |
| T7478                                     | 0705210703  | Compiler Construction Lab         | PC     |                                  | 0                                | 0        | 2         | 10                         | 15        | 0          | 0         | 25            | 25         |
| F7094                                     | 0705210704  | Generative AI                     | PC     |                                  | 3                                | 0        | 0         | 0                          | 0         | 75         | 0         | 75            | 75         |
| <b>Total</b>                              |             |                                   |        |                                  | <b>6</b>                         | <b>0</b> | <b>10</b> | <b>50</b>                  | <b>75</b> | <b>105</b> | <b>45</b> | <b>11</b>     | <b>275</b> |
| <b>Generic Elective Courses Group- I</b>  |             |                                   |        |                                  |                                  |          |           |                            |           |            |           |               |            |
| T2585                                     | 0705210705  | Organizational Behaviour          | GE     |                                  | 2                                | 0        | 0         | 0                          | 0         | 50         | 0         | 2             | 50         |
| TE7438                                    | 0705210706  | History of Science and Technology | GE     |                                  | 2                                | 0        | 0         | 0                          | 0         | 50         | 0         | 2             | 50         |
| <b>Total Required Credits</b>             |             |                                   |        |                                  |                                  |          |           | <b>0</b>                   | <b>0</b>  | <b>50</b>  | <b>0</b>  | <b>2</b>      | <b>50</b>  |
| <b>Generic Elective Courses Group- II</b> |             |                                   |        |                                  |                                  |          |           |                            |           |            |           |               |            |

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| Catalog Course Code                        | Course Code | Course Title                               | Nature | Specialization/ Area/ Department | Teaching Scheme (Hours Per Week) |   |         | Examination Scheme (Marks) |           |           |           | Total Credits | Total     |
|--|-------------|--|--------|----------------------------------|----------------------------------|---|---------|----------------------------|-----------|-----------|-----------|---------------|-----------|
|  |             |  |        |                                  | L                                | T | La<br>b | Practical                  |           | Theory    |           |               |           |
|  |             |  |        |                                  |                                  |   |         | CA                         | ESE       | CA        | ESE       |               |           |
| TE7253                                     | 0705210707  | Data Science                               | PE     |                                  | 3                                | 0 | 0       | 0                          | 0         | 30        | 45        | 3             | 75        |
| TE7282                                     | 0705210708  | Optimization Techniques and Algorithms     | PE     |                                  | 3                                | 0 | 0       | 0                          | 0         | 30        | 45        | 3             | 75        |
| TE7097                                     | 0705210709  | Neural Network                             | PE     |                                  | 3                                | 0 | 0       | 0                          | 0         | 30        | 45        | 3             | 75        |
| <b>Total Required Credits</b>              |             |  |        |                                  |                                  |   |         | <b>0</b>                   | <b>0</b>  | <b>30</b> | <b>45</b> | <b>3</b>      | <b>75</b> |
| <b>Generic Elective Courses Group- III</b> |             |  |        |                                  |                                  |   |         |                            |           |           |           |               |           |
| TE7254                                     | 0705210710  | Data Science Lab                           | PE     |                                  | 0                                | 0 | 2       | 10                         | 15        | 0         | 0         | 1             | 25        |
| TE7283                                     | 0705210711  | Optimization Techniques and Algorithms Lab | PE     |                                  | 0                                | 0 | 2       | 10                         | 15        | 0         | 0         | 1             | 25        |
| TE7112                                     | 0705210712  | Neural Networks Lab                        | PE     |                                  | 0                                | 0 | 2       | 10                         | 15        | 0         | 0         | 1             | 25        |
| <b>Total Required Credits</b>              |             |  |        |                                  |                                  |   |         | <b>10</b>                  | <b>15</b> | <b>0</b>  | <b>0</b>  | <b>1</b>      | <b>25</b> |
| <b>Generic Elective Courses Group- IV</b>  |             |  |        |                                  |                                  |   |         |                            |           |           |           |               |           |
| T7529                                      | 0705210713  | Machine Learning                           | PE     |                                  | 3                                | 0 | 0       | 0                          | 0         | 30        | 45        | 3             | 75        |
| T7138                                      | 0705210714  | Network Security                           | PE     |                                  | 3                                | 0 | 0       | 0                          | 0         | 30        | 45        | 3             | 75        |
| TE7103                                     | 0705210715  | Natural Language Processing                | PE     |                                  | 3                                | 0 | 0       | 0                          | 0         | 30        | 45        | 3             | 75        |
| <b>Total Required Credits</b>              |             |  |        |                                  |                                  |   |         | <b>0</b>                   | <b>0</b>  | <b>30</b> | <b>45</b> | <b>3</b>      | <b>75</b> |
| <b>Generic Elective Courses Group- V</b>   |             |  |        |                                  |                                  |   |         |                            |           |           |           |               |           |
| TE7105                                     | 0705210716  | Machine Learning Lab                       | PE     |                                  | 0                                | 0 | 2       | 10                         | 15        | 0         | 0         | 1             | 25        |
| T7506                                      | 0705210717  | Network Security Lab                       | PE     |                                  | 0                                | 0 | 2       | 10                         | 15        | 0         | 0         | 1             | 25        |
| TE7106                                     | 0705210718  | Natural Language Processing Lab            | PE     |                                  | 0                                | 0 | 2       | 10                         | 15        | 0         | 0         | 1             | 25        |

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| Catalog Course Code                       | Course Code | Course Title           | Nature | Specialization/ Area/ Department | Teaching Scheme (Hours Per Week) |          |           | Examination Scheme (Marks) |            |           |           | Total Credits | Total      |
|---|-------------|------------------------|--------|----------------------------------|----------------------------------|----------|-----------|----------------------------|------------|-----------|-----------|---------------|------------|
|   |             |                        |        |                                  | L                                | T        | La<br>b   | Practical                  |            | Theory    |           |               |            |
|   |             |                        |        |                                  |                                  |          |           | CA                         | ESE        | CA        | ESE       |               |            |
| <b>Total Required Credits</b>             |             |                        |        |                                  |                                  |          |           | <b>10</b>                  | <b>15</b>  | <b>0</b>  | <b>0</b>  | <b>1</b>      | <b>25</b>  |
| <b>Generic Elective Courses Group- VI</b> |             |                        |        |                                  |                                  |          |           |                            |            |           |           |               |            |
| TE7251                                    | 0705210719  | Computer Graphics      | PE     |                                  | 3                                | 0        | 0         | 0                          | 0          | 30        | 45        | 3             | 75         |
| TE7297                                    | 0705210720  | Software Testing Tools | PE     |                                  | 3                                | 0        | 0         | 0                          | 0          | 30        | 45        | 3             | 75         |
| T7476                                     | 0705210721  | Cloud Computing        | PE     |                                  | 3                                | 0        | 0         | 0                          | 0          | 30        | 45        | 3             | 75         |
| <b>Total Required Credits</b>             |             |                        |        |                                  |                                  |          |           | <b>0</b>                   | <b>0</b>   | <b>30</b> | <b>45</b> | <b>3</b>      | <b>75</b>  |
| <b>Semester : 8</b>                       |             |                        |        |                                  |                                  |          |           |                            |            |           |           |               |            |
| <b>Generic Core Courses</b>               |             |                        |        |                                  |                                  |          |           |                            |            |           |           |               |            |
| T7912                                     | 0705210801  | Internship             | PIS    |                                  | 0                                | 0        | 24        | 120                        | 180        | 0         | 0         | 300           | 300        |
| T7802                                     | 0705210802  | Seminar                | PIS    |                                  | 0                                | 0        | 4         | 50                         | 0          | 0         | 0         | 50            | 50         |
| <b>Total</b>                              |             |                        |        |                                  | <b>0</b>                         | <b>0</b> | <b>28</b> | <b>170</b>                 | <b>180</b> | <b>0</b>  | <b>0</b>  | <b>14</b>     | <b>350</b> |



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**Abbreviations (Nature)**

|     |                                 |
|-----|---------------------------------|
| BS  | Basic Sciences                  |
| ES  | Engineering Sciences            |
| HS  | Humanities and Social Sciences  |
| OE  | Open Electives                  |
| PC  | Professional Core               |
| PE  | Professional Elective           |
| PIS | Project, Internship, Seminar    |
| PD  | Professional Development Course |
| MC  | Mandatory Course                |
| L   | Lecture                         |
| T   | Tutorial                        |
| CA  | Continuous Assessment           |
| ESE | End Semester Examination        |
| GE  | Generic Elective                |

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| Semester       | Continuous Assessment | Term End Examination | Total Credits | Total Marks |
|----------------|-----------------------|----------------------|---------------|-------------|
| <b>Group A</b> |                       |                      |               |             |
| Semester 1     | 1                     | 17                   | 18            | 450         |
| Semester 2     | 4                     | 17                   | 21            | 525         |
| Semester 3     | 5                     | 19                   | 24            | 600         |
| Semester 4     | 8                     | 11                   | 19            | 475         |
| Semester 5     | 10                    | 15                   | 25            | 625         |
| Semester 6     | 14                    | 11                   | 25            | 625         |
| Semester 7     | 5                     | 19                   | 24            | 600         |
| Semester 8     | 2                     | 12                   | 14            | 350         |
| <b>Total</b>   | <b>49</b>             | <b>121</b>           | <b>170</b>    | <b>4250</b> |
| <b>Group B</b> |                       |                      |               |             |
| Semester 1     | 2                     | 17                   | 19            | 475         |
| Semester 2     | 3                     | 17                   | 20            | 500         |
| Semester 3     | 5                     | 19                   | 24            | 600         |
| Semester 4     | 8                     | 11                   | 19            | 475         |
| Semester 5     | 10                    | 15                   | 25            | 625         |
| Semester 6     | 14                    | 11                   | 25            | 625         |
| Semester 7     | 5                     | 19                   | 24            | 600         |
| Semester 8     | 2                     | 12                   | 14            | 350         |
| <b>Total</b>   | <b>49</b>             | <b>121</b>           | <b>170</b>    | <b>4250</b> |

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**Annexure B**  
**Optional 'Honours' Specialization**

| Catalog Course Code   | Course Code | Course Title                       | Nature | Specialization/ Area/ Department | Teaching Scheme (Hours Per Week) |          |          | Examination Scheme (Marks) |          |           |            | Total Credits | Total      |
|---|-------------|------------------------------------|--------|----------------------------------|----------------------------------|----------|----------|----------------------------|----------|-----------|------------|---------------|------------|
|   |             |                                    |        |                                  | L                                | T        | La<br>b  | Practical                  |          | Theory    |            |               |            |
|   |             |                                    |        |                                  |                                  |          |          | CA                         | ESE      | CA        | ESE        |               |            |
| <b>Semester : 5</b>   |             |                                    |        |                                  |                                  |          |          |                            |          |           |            |               |            |
| <b>Artificial Intelligence and Machine Learning<br/>Specialization Core Courses</b> |             |                                    |        |                                  |                                  |          |          |                            |          |           |            |               |            |
| TE7273  | 0705210513  | Machine Learning: Classification   | PC     |                                  | 3                                | 0        | 0        | 0                          | 0        | 30        | 45         | 3             | 75         |
| TE7274  | 0705210514  | Machine Learning: Regression       | PC     |                                  | 3                                | 0        | 0        | 0                          | 0        | 30        | 45         | 3             | 75         |
| <b>Total</b>  |             |                                    |        |                                  | <b>6</b>                         | <b>0</b> | <b>0</b> | <b>0</b>                   | <b>0</b> | <b>60</b> | <b>90</b>  | <b>6</b>      | <b>150</b> |
| <b>Semester : 5</b>   |             |                                    |        |                                  |                                  |          |          |                            |          |           |            |               |            |
| <b>Computing<br/>Specialization Core Courses</b>                                    |             |                                    |        |                                  |                                  |          |          |                            |          |           |            |               |            |
| T7476   | 0705210515  | Cloud Computing                    | PC     |                                  | 3                                | 0        | 0        | 0                          | 0        | 30        | 45         | 3             | 75         |
| TE7250  | 0705210516  | Cloud Environment in Public Model  | PC     |                                  | 3                                | 0        | 0        | 0                          | 0        | 30        | 45         | 3             | 75         |
| <b>Total</b>  |             |                                    |        |                                  | <b>6</b>                         | <b>0</b> | <b>0</b> | <b>0</b>                   | <b>0</b> | <b>60</b> | <b>90</b>  | <b>6</b>      | <b>150</b> |
| <b>Semester : 5</b>   |             |                                    |        |                                  |                                  |          |          |                            |          |           |            |               |            |
| <b>Data Science<br/>Specialization Core Courses</b>                                 |             |                                    |        |                                  |                                  |          |          |                            |          |           |            |               |            |
| TE7292  | 0705210517  | R Programming                      | PC     |                                  | 3                                | 0        | 0        | 0                          | 0        | 30        | 45         | 3             | 75         |
| TE7281  | 0705210518  | Open Source Tools for Data Science | PC     |                                  | 4                                | 0        | 0        | 0                          | 0        | 40        | 60         | 4             | 100        |
| <b>Total</b>  |             |                                    |        |                                  | <b>7</b>                         | <b>0</b> | <b>0</b> | <b>0</b>                   | <b>0</b> | <b>70</b> | <b>105</b> | <b>7</b>      | <b>175</b> |

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| Catalog Course Code  | Course Code | Course Title                     | Nature | Specialization/ Area/ Department | Teaching Scheme (Hours Per Week) |          |          | Examination Scheme (Marks) |          |           |            | Total Credits | Total      |
|--|-------------|----------------------------------|--------|----------------------------------|----------------------------------|----------|----------|----------------------------|----------|-----------|------------|---------------|------------|
|  |             |                                  |        |                                  | L                                | T        | La<br>b  | Practical                  |          | Theory    |            |               |            |
|  |             |                                  |        |                                  |                                  |          |          | CA                         | ESE      | CA        | ESE        |               |            |
| <b>Semester : 5</b>  |             |                                  |        |                                  |                                  |          |          |                            |          |           |            |               |            |
| <b>Game Design and Development Specialization Core Courses</b> |             |                                  |        |                                  |                                  |          |          |                            |          |           |            |               |            |
| TE7267   | 0705210519  | Introduction to Game Development | PC     |                                  | 3                                | 0        | 0        | 0                          | 0        | 30        | 45         | 3             | 75         |
| TE7285   | 0705210520  | Principles of Game Design        | PC     |                                  | 3                                | 0        | 0        | 0                          | 0        | 30        | 45         | 3             | 75         |
| <b>Total</b>   |             |                                  |        |                                  | <b>6</b>                         | <b>0</b> | <b>0</b> | <b>0</b>                   | <b>0</b> | <b>60</b> | <b>90</b>  | <b>6</b>      | <b>150</b> |
| <b>Semester : 5</b>  |             |                                  |        |                                  |                                  |          |          |                            |          |           |            |               |            |
| <b>Internet of Things Specialization Core Courses</b>          |             |                                  |        |                                  |                                  |          |          |                            |          |           |            |               |            |
| TE7268   | 0705210521  | Introduction to IOT              | PC     |                                  | 4                                | 0        | 0        | 0                          | 0        | 40        | 60         | 4             | 100        |
| TE7293   | 0705210522  | Raspberry Pi and Python          | PC     |                                  | 3                                | 0        | 0        | 0                          | 0        | 30        | 45         | 3             | 75         |
| <b>Total</b>   |             |                                  |        |                                  | <b>7</b>                         | <b>0</b> | <b>0</b> | <b>0</b>                   | <b>0</b> | <b>70</b> | <b>105</b> | <b>7</b>      | <b>175</b> |
| <b>Semester : 5</b>  |             |                                  |        |                                  |                                  |          |          |                            |          |           |            |               |            |
| <b>Security and Privacy Specialization Core Courses</b>        |             |                                  |        |                                  |                                  |          |          |                            |          |           |            |               |            |
| TE7301   | 0705210523  | Usable Security                  | PC     |                                  | 3                                | 0        | 0        | 0                          | 0        | 30        | 45         | 3             | 75         |
| TE7296   | 0705210524  | Software Security                | PC     |                                  | 3                                | 0        | 0        | 0                          | 0        | 30        | 45         | 3             | 75         |
| <b>Total</b>   |             |                                  |        |                                  | <b>6</b>                         | <b>0</b> | <b>0</b> | <b>0</b>                   | <b>0</b> | <b>60</b> | <b>90</b>  | <b>6</b>      | <b>150</b> |

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| Catalog Course Code   | Course Code | Course Title                              | Nature | Specialization/ Area/ Department | Teaching Scheme (Hours Per Week) |          |          | Examination Scheme (Marks) |          |           |            | Total Credits | Total      |
|---|-------------|---|--------|----------------------------------|----------------------------------|----------|----------|----------------------------|----------|-----------|------------|---------------|------------|
|   |             |   |        |                                  | L                                | T        | La<br>b  | Practical                  |          | Theory    |            |               |            |
|   |             |   |        |                                  |                                  |          |          | CA                         | ESE      | CA        | ESE        |               |            |
| <b>Semester : 6</b>   |             |   |        |                                  |                                  |          |          |                            |          |           |            |               |            |
| <b>Artificial Intelligence and Machine Learning<br/>Specialization Core Courses</b> |             |   |        |                                  |                                  |          |          |                            |          |           |            |               |            |
| TE7266  | 0705210623  | Introduction to Deep Learning             | PC     |                                  | 4                                | 0        | 0        | 0                          | 0        | 40        | 60         | 4             | 100        |
| TE7271  | 0705210624  | Machine Learning Clustering and Retrieval | PC     |                                  | 3                                | 0        | 0        | 0                          | 0        | 30        | 45         | 3             | 75         |
| <b>Total</b>  |             |   |        |                                  | <b>7</b>                         | <b>0</b> | <b>0</b> | <b>0</b>                   | <b>0</b> | <b>70</b> | <b>105</b> | <b>7</b>      | <b>175</b> |
| <b>Semester : 6</b>   |             |   |        |                                  |                                  |          |          |                            |          |           |            |               |            |
| <b>Computing<br/>Specialization Core Courses</b>                                    |             |   |        |                                  |                                  |          |          |                            |          |           |            |               |            |
| TE7246  | 0705210625  | Block Chain                               | PC     |                                  | 4                                | 0        | 0        | 0                          | 0        | 40        | 60         | 4             | 100        |
| TE7249  | 0705210626  | Cloud Computing Platforms                 | PC     |                                  | 3                                | 0        | 0        | 0                          | 0        | 30        | 45         | 3             | 75         |
| <b>Total</b>  |             |   |        |                                  | <b>7</b>                         | <b>0</b> | <b>0</b> | <b>0</b>                   | <b>0</b> | <b>70</b> | <b>105</b> | <b>7</b>      | <b>175</b> |
| <b>Semester : 6</b>   |             |   |        |                                  |                                  |          |          |                            |          |           |            |               |            |
| <b>Data Science<br/>Specialization Core Courses</b>                                 |             |   |        |                                  |                                  |          |          |                            |          |           |            |               |            |
| T2228   | 0705210627  | Business Analytics                        | PC     |                                  | 3                                | 0        | 0        | 0                          | 0        | 30        | 45         | 3             | 75         |
| TE7284  | 0705210628  | Power BI                                  | PC     |                                  | 3                                | 0        | 0        | 0                          | 0        | 30        | 45         | 3             | 75         |
| <b>Total</b>  |             |   |        |                                  | <b>6</b>                         | <b>0</b> | <b>0</b> | <b>0</b>                   | <b>0</b> | <b>60</b> | <b>90</b>  | <b>6</b>      | <b>150</b> |

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| Catalog Course Code  | Course Code | Course Title                         | Nature | Specialization/ Area/ Department | Teaching Scheme (Hours Per Week) |          |          | Examination Scheme (Marks) |          |           |            | Total Credits | Total      |
|--|-------------|--------------------------------------|--------|----------------------------------|----------------------------------|----------|----------|----------------------------|----------|-----------|------------|---------------|------------|
|  |             |                                      |        |                                  |                                  |          |          | Practical                  |          | Theory    |            |               |            |
|  |             |                                      |        |                                  | L                                | T        | La b     | CA                         | ESE      | CA        | ESE        |               |            |
| <b>Semester : 6</b>  |             |                                      |        |                                  |                                  |          |          |                            |          |           |            |               |            |
| <b>Game Design and Development Specialization Core Courses</b> |             |                                      |        |                                  |                                  |          |          |                            |          |           |            |               |            |
| TE7275   | 0705210629  | Modern Platforms in Game Development | PC     |                                  | 4                                | 0        | 0        | 0                          | 0        | 40        | 60         | 4             | 100        |
| TE7256   | 0705210630  | Entrepreneurship in Game Development | PC     |                                  | 3                                | 0        | 0        | 0                          | 0        | 30        | 45         | 3             | 75         |
| <b>Total</b>   |             |                                      |        |                                  | <b>7</b>                         | <b>0</b> | <b>0</b> | <b>0</b>                   | <b>0</b> | <b>70</b> | <b>105</b> | <b>7</b>      | <b>175</b> |
| <b>Semester : 6</b>  |             |                                      |        |                                  |                                  |          |          |                            |          |           |            |               |            |
| <b>Internet of Things Specialization Core Courses</b>          |             |                                      |        |                                  |                                  |          |          |                            |          |           |            |               |            |
| TE7269   | 0705210631  | IOT Security and Privacy             | PC     |                                  | 3                                | 0        | 0        | 0                          | 0        | 30        | 45         | 3             | 75         |
| TE7295   | 0705210632  | Software Defined Networking          | PC     |                                  | 3                                | 0        | 0        | 0                          | 0        | 30        | 45         | 3             | 75         |
| <b>Total</b>   |             |                                      |        |                                  | <b>6</b>                         | <b>0</b> | <b>0</b> | <b>0</b>                   | <b>0</b> | <b>60</b> | <b>90</b>  | <b>6</b>      | <b>150</b> |
| <b>Semester : 6</b>  |             |                                      |        |                                  |                                  |          |          |                            |          |           |            |               |            |
| <b>Security and Privacy Specialization Core Courses</b>        |             |                                      |        |                                  |                                  |          |          |                            |          |           |            |               |            |
| TE7252   | 0705210633  | Cryptography                         | PC     |                                  | 4                                | 0        | 0        | 0                          | 0        | 40        | 60         | 4             | 100        |
| TE7258   | 0705210634  | Hardware Security                    | PC     |                                  | 3                                | 0        | 0        | 0                          | 0        | 30        | 45         | 3             | 75         |
| <b>Total</b>   |             |                                      |        |                                  | <b>7</b>                         | <b>0</b> | <b>0</b> | <b>0</b>                   | <b>0</b> | <b>70</b> | <b>105</b> | <b>7</b>      | <b>175</b> |

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| Catalog Course Code   | Course Code | Course Title | Nature | Specialization/ Area/ Department | Teaching Scheme (Hours Per Week) |          |           | Examination Scheme (Marks) |            |          |          | Total Credits | Total      |
|---|-------------|--------------|--------|----------------------------------|----------------------------------|----------|-----------|----------------------------|------------|----------|----------|---------------|------------|
|   |             |              |        |                                  | L                                | T        | La<br>b   | Practical                  |            | Theory   |          |               |            |
|   |             |              |        |                                  |                                  |          |           | CA                         | ESE        | CA       | ESE      |               |            |
| <b>Semester : 7</b>   |             |              |        |                                  |                                  |          |           |                            |            |          |          |               |            |
| <b>Artificial Intelligence and Machine Learning<br/>Specialization Core Courses</b> |             |              |        |                                  |                                  |          |           |                            |            |          |          |               |            |
| T7805   | 0705210722  | Project      | PIS    |                                  | 0                                | 0        | 10        | 50                         | 75         | 0        | 0        | 5             | 125        |
| T7802   | 0705210723  | Seminar      | PIS    |                                  | 0                                | 0        | 4         | 20                         | 30         | 0        | 0        | 2             | 50         |
| <b>Total</b>  |             |              |        |                                  | <b>0</b>                         | <b>0</b> | <b>14</b> | <b>70</b>                  | <b>105</b> | <b>0</b> | <b>0</b> | <b>7</b>      | <b>175</b> |
| <b>Semester : 7</b>   |             |              |        |                                  |                                  |          |           |                            |            |          |          |               |            |
| <b>Computing<br/>Specialization Core Courses</b>                                    |             |              |        |                                  |                                  |          |           |                            |            |          |          |               |            |
| T7805   | 0705210722  | Project      | PIS    |                                  | 0                                | 0        | 10        | 50                         | 75         | 0        | 0        | 5             | 125        |
| T7802   | 0705210723  | Seminar      | PIS    |                                  | 0                                | 0        | 4         | 20                         | 30         | 0        | 0        | 2             | 50         |
| <b>Total</b>  |             |              |        |                                  | <b>0</b>                         | <b>0</b> | <b>14</b> | <b>70</b>                  | <b>105</b> | <b>0</b> | <b>0</b> | <b>7</b>      | <b>175</b> |
| <b>Semester : 7</b>   |             |              |        |                                  |                                  |          |           |                            |            |          |          |               |            |
| <b>Data Science<br/>Specialization Core Courses</b>                                 |             |              |        |                                  |                                  |          |           |                            |            |          |          |               |            |
| T7805   | 0705210722  | Project      | PIS    |                                  | 0                                | 0        | 10        | 50                         | 75         | 0        | 0        | 5             | 125        |
| T7802   | 0705210723  | Seminar      | PIS    |                                  | 0                                | 0        | 4         | 20                         | 30         | 0        | 0        | 2             | 50         |
| <b>Total</b>  |             |              |        |                                  | <b>0</b>                         | <b>0</b> | <b>14</b> | <b>70</b>                  | <b>105</b> | <b>0</b> | <b>0</b> | <b>7</b>      | <b>175</b> |

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| Catalog Course Code  | Course Code | Course Title | Nature | Specialization/ Area/ Department | Teaching Scheme (Hours Per Week) |          |           | Examination Scheme (Marks) |            |          |          | Total Credits | Total      |
|--|-------------|--------------|--------|----------------------------------|----------------------------------|----------|-----------|----------------------------|------------|----------|----------|---------------|------------|
|  |             |              |        |                                  | L                                | T        | La<br>b   | Practical                  |            | Theory   |          |               |            |
|  |             |              |        |                                  |                                  |          |           | CA                         | ESE        | CA       | ESE      |               |            |
| <b>Semester : 7</b>  |             |              |        |                                  |                                  |          |           |                            |            |          |          |               |            |
| <b>Game Design and Development<br/>Specialization Core Courses</b> |             |              |        |                                  |                                  |          |           |                            |            |          |          |               |            |
| T7805  | 0705210722  | Project      | PIS    |                                  | 0                                | 0        | 10        | 50                         | 75         | 0        | 0        | 5             | 125        |
| T7802  | 0705210723  | Seminar      | PIS    |                                  | 0                                | 0        | 4         | 20                         | 30         | 0        | 0        | 2             | 50         |
| <b>Total</b>   |             |              |        |                                  | <b>0</b>                         | <b>0</b> | <b>14</b> | <b>70</b>                  | <b>105</b> | <b>0</b> | <b>0</b> | <b>7</b>      | <b>175</b> |
| <b>Semester : 7</b>  |             |              |        |                                  |                                  |          |           |                            |            |          |          |               |            |
| <b>Internet of Things<br/>Specialization Core Courses</b>          |             |              |        |                                  |                                  |          |           |                            |            |          |          |               |            |
| T7805  | 0705210722  | Project      | PIS    |                                  | 0                                | 0        | 10        | 50                         | 75         | 0        | 0        | 5             | 125        |
| T7802  | 0705210723  | Seminar      | PIS    |                                  | 0                                | 0        | 4         | 20                         | 30         | 0        | 0        | 2             | 50         |
| <b>Total</b>   |             |              |        |                                  | <b>0</b>                         | <b>0</b> | <b>14</b> | <b>70</b>                  | <b>105</b> | <b>0</b> | <b>0</b> | <b>7</b>      | <b>175</b> |
| <b>Semester : 7</b>  |             |              |        |                                  |                                  |          |           |                            |            |          |          |               |            |
| <b>Security and Privacy<br/>Specialization Core Courses</b>        |             |              |        |                                  |                                  |          |           |                            |            |          |          |               |            |
| T7805  | 0705210722  | Project      | PIS    |                                  | 0                                | 0        | 10        | 50                         | 75         | 0        | 0        | 5             | 125        |
| T7802  | 0705210723  | Seminar      | PIS    |                                  | 0                                | 0        | 4         | 20                         | 30         | 0        | 0        | 2             | 50         |
| <b>Total</b>   |             |              |        |                                  | <b>0</b>                         | <b>0</b> | <b>14</b> | <b>70</b>                  | <b>105</b> | <b>0</b> | <b>0</b> | <b>7</b>      | <b>175</b> |



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| Semester  | Continuous Assessment | Term End Examination | Total Credits | Total Marks |
|---|-----------------------|----------------------|---------------|-------------|
| <b>Artificial Intelligence and Machine Learning</b> |                       |                      |               |             |
| Semester 1  | 0                     | 6                    | 6             | 150         |
| Semester 2  | 0                     | 7                    | 7             | 175         |
| Semester 3  | 0                     | 7                    | 7             | 175         |
| <b>Total</b>  | <b>0</b>              | <b>20</b>            | <b>20</b>     | <b>500</b>  |
| <b>Computing</b>                                    |                       |                      |               |             |
| Semester 1  | 0                     | 6                    | 6             | 150         |
| Semester 2  | 0                     | 7                    | 7             | 175         |
| Semester 3  | 0                     | 7                    | 7             | 175         |
| <b>Total</b>  | <b>0</b>              | <b>20</b>            | <b>20</b>     | <b>500</b>  |
| <b>Data Science</b>                                 |                       |                      |               |             |
| Semester 1  | 0                     | 7                    | 7             | 175         |
| Semester 2  | 0                     | 6                    | 6             | 150         |
| Semester 3  | 0                     | 7                    | 7             | 175         |
| <b>Total</b>  | <b>0</b>              | <b>20</b>            | <b>20</b>     | <b>500</b>  |
| <b>Game Design and Development</b>                  |                       |                      |               |             |
| Semester 1  | 0                     | 6                    | 6             | 150         |
| Semester 2  | 0                     | 7                    | 7             | 175         |
| Semester 3  | 0                     | 7                    | 7             | 175         |
| <b>Total</b>  | <b>0</b>              | <b>20</b>            | <b>20</b>     | <b>500</b>  |
| <b>Internet of Things</b>                           |                       |                      |               |             |
| Semester 1  | 0                     | 7                    | 7             | 175         |
| Semester 2  | 0                     | 6                    | 6             | 150         |

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|                             |          |           |           |            |
|-----------------------------|----------|-----------|-----------|------------|
| Semester 3                  | 0        | 7         | 7         | 175        |
| <b>Total</b>                | <b>0</b> | <b>20</b> | <b>20</b> | <b>500</b> |
| <b>Security and Privacy</b> |          |           |           |            |
| Semester 1                  | 0        | 6         | 6         | 150        |
| Semester 2                  | 0        | 7         | 7         | 175        |
| Semester 3                  | 0        | 7         | 7         | 175        |
| <b>Total</b>                | <b>0</b> | <b>20</b> | <b>20</b> | <b>500</b> |