### SEMESTER-I

<table>
<thead>
<tr>
<th>S. No.</th>
<th>COURSE NO.</th>
<th>TITLE</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>UCB007</td>
<td>APPLIED CHEMISTRY</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>4.5</td>
</tr>
<tr>
<td>2</td>
<td>UTA017</td>
<td>COMPUTER PROGRAMMING</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>4.0</td>
</tr>
<tr>
<td>3</td>
<td>UEC013</td>
<td>ELECTRICAL ENGINEERING</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>4.5</td>
</tr>
<tr>
<td>4</td>
<td>UEC002</td>
<td>ENERGY AND ENVIRONMENT</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3.0</td>
</tr>
<tr>
<td>5</td>
<td>UMA001</td>
<td>MATHEMATICS - I</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>3.5</td>
</tr>
<tr>
<td>6</td>
<td>UEC009</td>
<td>MECHANICS</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>2.5</td>
</tr>
</tbody>
</table>

**TOTAL CONTACT HOURS: 27.0**

### SEMESTER-II

<table>
<thead>
<tr>
<th>S. No.</th>
<th>COURSE NO.</th>
<th>TITLE</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>UPH004</td>
<td>APPLIED PHYSICS</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>4.5</td>
</tr>
<tr>
<td>2</td>
<td>UTA018</td>
<td>OBJECT ORIENTED PROGRAMMING</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>4.0</td>
</tr>
<tr>
<td>3</td>
<td>UEC001</td>
<td>ELECTRONICS ENGINEERING</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>4.5</td>
</tr>
<tr>
<td>4</td>
<td>UTA015</td>
<td>ENGINEERING DRAWING</td>
<td>2</td>
<td>0</td>
<td>4</td>
<td>4.0</td>
</tr>
<tr>
<td>5</td>
<td>UHE003</td>
<td>PROFESSIONAL COMMUNICATION</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>6</td>
<td>UMA004</td>
<td>MATHEMATICS - II</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>3.5</td>
</tr>
</tbody>
</table>

**TOTAL CONTACT HOURS: 31.0**

### SEMESTER-III

<table>
<thead>
<tr>
<th>S. No.</th>
<th>COURSE NO.</th>
<th>TITLE</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>UCE030</td>
<td>OPERATING SYSTEMS</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>4.0</td>
</tr>
<tr>
<td>2</td>
<td>UCE045</td>
<td>DISCRETE MATHEMATICAL STRUCTURES</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>3.5</td>
</tr>
<tr>
<td>3</td>
<td>UCE050</td>
<td>COMPUTER NETWORKS</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>4</td>
<td>UEC012</td>
<td>ENGINEERING MATERIALS</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>4.0</td>
</tr>
<tr>
<td>5</td>
<td>UMA007</td>
<td>NUMERICAL ANALYSIS</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>4.0</td>
</tr>
<tr>
<td>6</td>
<td>GENERIC ELECTIVE-I</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2.0</td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL CONTACT HOURS: 25.5**

### SEMESTER-IV

<table>
<thead>
<tr>
<th>S. No.</th>
<th>COURSE NO.</th>
<th>TITLE</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>UTA002</td>
<td>MANUFACTURING PROCESSES</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>2</td>
<td>UMA031</td>
<td>OPTIMIZATION TECHNIQUES</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>3.5</td>
</tr>
<tr>
<td>3</td>
<td>UCS049</td>
<td>PROBABILITY AND STATISTICS</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>4.0</td>
</tr>
<tr>
<td>4</td>
<td>UEC034</td>
<td>MEASUREMENT SCIENCE AND TECHNIQUES</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>4.0</td>
</tr>
<tr>
<td>5</td>
<td>UCE010</td>
<td>DATABASE MANAGEMENT SYSTEMS</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>4.0</td>
</tr>
<tr>
<td>6</td>
<td>UCE046</td>
<td>DATA STRUCTURES</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>4.0</td>
</tr>
</tbody>
</table>

**TOTAL CONTACT HOURS: 20.0**

### SEMESTER-V

<table>
<thead>
<tr>
<th>S. No.</th>
<th>COURSE NO.</th>
<th>TITLE</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>UCE083</td>
<td>SOFTWARE ENGINEERING</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>2</td>
<td>UCE057</td>
<td>COMPUTER ARCHITECTURE AND ORGANIZATION</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>2.5</td>
</tr>
<tr>
<td>3</td>
<td>UCE021</td>
<td>ARTIFICIAL INTELLIGENCE</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>4</td>
<td>UCE061</td>
<td>ANALYSIS AND DESIGNING OF ALGORITHMS</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>4.0</td>
</tr>
<tr>
<td>5</td>
<td>UCE051</td>
<td>THEORY OF COMPUTATION</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>3.5</td>
</tr>
<tr>
<td>6</td>
<td>ELECTIVE-I</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>3.0</td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL CONTACT HOURS: 19.0**

### SEMESTER-VI

<table>
<thead>
<tr>
<th>S. No.</th>
<th>COURSE NO.</th>
<th>TITLE</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>UCE047</td>
<td>INVENTIONS &amp; INNOVATIONS IN COMPUTING</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1.0</td>
</tr>
<tr>
<td>2</td>
<td>UCE025</td>
<td>PROFESSIONAL PRACTICES</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1.0</td>
</tr>
<tr>
<td>3</td>
<td>UCE027</td>
<td>ELC ACTIVITY (VIRTUAL SECURITY, INTERNET SECURITY &amp; SELF-EFFORT HOURS)</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>1</td>
</tr>
</tbody>
</table>

**TOTAL CONTACT HOURS: 24.0**

### SEMESTER-VII

<table>
<thead>
<tr>
<th>S. No.</th>
<th>COURSE NO.</th>
<th>TITLE</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>UCE084</td>
<td>OFFICE MANAGER</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>2</td>
<td>UCE082</td>
<td>STORAGE CONSTRUCTION</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>3</td>
<td>UHE005</td>
<td>HUMANITIES FOR ENGINEERS</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>4</td>
<td>ELECTIVE-I</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>3.0</td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL CONTACT HOURS: 17.0**

### SEMESTER-VIII

<table>
<thead>
<tr>
<th>S. No.</th>
<th>COURSE NO.</th>
<th>TITLE</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>UCE055</td>
<td>PROJECT SEMESTER**</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>15.0</td>
</tr>
</tbody>
</table>

**TOTAL CONTACT HOURS: 15.0**

*To be carried out in Industry/Research Institution*

### SEMESTER-IX

<table>
<thead>
<tr>
<th>S. No.</th>
<th>COURSE NO.</th>
<th>TITLE</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>UCE096</td>
<td>PROJECT SEMESTER III**</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>5.0</td>
</tr>
</tbody>
</table>

**TOTAL CONTACT HOURS: 5.0**

*Based on Hands on Work on Innovations and Entrepreneurship*
### Elective I

<table>
<thead>
<tr>
<th>S. N.</th>
<th>Course No.</th>
<th>Title</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>UCS608</td>
<td>Parallel &amp; Distributed Computing</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>2</td>
<td>UCS522</td>
<td>Computer Vision</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>3</td>
<td>UML501</td>
<td>Machine Learning</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>4</td>
<td>UCS523</td>
<td>Computer &amp; Network Security</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>5</td>
<td>UCS524</td>
<td>Engineering Software as a Service</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>6</td>
<td>UCS526</td>
<td>Mathematic Modeling and Simulation</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>3.0</td>
</tr>
</tbody>
</table>

### Elective II

<table>
<thead>
<tr>
<th>S. N.</th>
<th>Course No.</th>
<th>Title</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>UCS631</td>
<td>GPL Computing</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>2</td>
<td>UCS632</td>
<td>3D Modelling and Animation</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>3</td>
<td>UCS633</td>
<td>Data Analytics &amp; Visualization</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>4</td>
<td>UCS634</td>
<td>Secure Coding</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>5</td>
<td>USE401</td>
<td>Software Metrics and Quality Management</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>6</td>
<td>UCS618</td>
<td>Matrix Computation</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>3.0</td>
</tr>
</tbody>
</table>

### Elective III

<table>
<thead>
<tr>
<th>S. N.</th>
<th>Course No.</th>
<th>Title</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>UCS641</td>
<td>Cloud Computing</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>2</td>
<td>UCS642</td>
<td>Augmented and Virtual Reality</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>3</td>
<td>UML602</td>
<td>Natural Language Processing</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>4</td>
<td>UCS643</td>
<td>Cyber Forensics</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>5</td>
<td>UCS644</td>
<td>Software Verification and Validation</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>6</td>
<td>UCS619</td>
<td>Financial Mathematics</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>3.0</td>
</tr>
</tbody>
</table>

### Elective IV

<table>
<thead>
<tr>
<th>S. N.</th>
<th>Course No.</th>
<th>Title</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>UCS741</td>
<td>Simulation &amp; Modelling</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>2</td>
<td>UCS731</td>
<td>Game Design &amp; Development</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>3</td>
<td>UCS742</td>
<td>Deep Learning</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>4</td>
<td>UCS743</td>
<td>Advanced Computer Networks</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>5</td>
<td>UCS709</td>
<td>Advanced Topics in Software Engineering</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>6</td>
<td>UCS712</td>
<td>Computational Number Theory</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>3.0</td>
</tr>
</tbody>
</table>

### Generic Elective-I

<table>
<thead>
<tr>
<th>S. N.</th>
<th>Course No.</th>
<th>Title</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>UHU007</td>
<td>Employability Development Skill</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2.0</td>
</tr>
<tr>
<td>2</td>
<td>UHU006</td>
<td>Introductory Course in French/German/ Spanish</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2.0</td>
</tr>
<tr>
<td>3</td>
<td>UHU009</td>
<td>Introduction to Cognitive Science</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2.0</td>
</tr>
<tr>
<td>4</td>
<td>UHU008</td>
<td>Introduction to Corporate Finance</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2.0</td>
</tr>
<tr>
<td>5</td>
<td>UEN004</td>
<td>Technologies for Sustainable Development</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2.0</td>
</tr>
<tr>
<td>6</td>
<td>UBT509</td>
<td>Biology for Engineers</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2.0</td>
</tr>
<tr>
<td>7</td>
<td>UHU005</td>
<td>Astronomy and Astrophysics</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2.0</td>
</tr>
<tr>
<td>8</td>
<td>UHU006</td>
<td>Intellectual Property Rights</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2.0</td>
</tr>
<tr>
<td>9</td>
<td>UHU007</td>
<td>Total Quality Management</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2.0</td>
</tr>
<tr>
<td>10</td>
<td>UHU008</td>
<td>Introduction to Indian Constitution</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2.0</td>
</tr>
<tr>
<td>11</td>
<td>UHU009</td>
<td>Economics for Decision Making</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2.0</td>
</tr>
</tbody>
</table>

### Generic Elective-II

<table>
<thead>
<tr>
<th>S. N.</th>
<th>Course No.</th>
<th>Title</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>FINE ARTS</td>
<td></td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>2.0</td>
</tr>
<tr>
<td>2</td>
<td>FASHION DESIGN</td>
<td></td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>2.0</td>
</tr>
<tr>
<td>3</td>
<td>MASS COMMUNICATION</td>
<td></td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>2.0</td>
</tr>
<tr>
<td>4</td>
<td>YOGA AND SCIENCE</td>
<td></td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>2.0</td>
</tr>
<tr>
<td>5</td>
<td>THEATER/ DRAMA</td>
<td></td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>2.0</td>
</tr>
<tr>
<td>6</td>
<td>CULINARY ARTS</td>
<td></td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>2.0</td>
</tr>
<tr>
<td>7</td>
<td>PHOTOGRAPHY AND FILM MAKING</td>
<td></td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>2.0</td>
</tr>
<tr>
<td>8</td>
<td>SOUND DESIGNING</td>
<td></td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>2.0</td>
</tr>
</tbody>
</table>

### Semester Wise Credits for BE: Computer Engineering

<table>
<thead>
<tr>
<th>Nature of Course</th>
<th>Credits to be Earned (As per Choice Based Credit System)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Semesters</td>
</tr>
<tr>
<td>Core-Foundation Courses</td>
<td>22</td>
</tr>
<tr>
<td>Core-Professional Courses</td>
<td>0</td>
</tr>
<tr>
<td>Professional &amp; Generic Electives</td>
<td>0</td>
</tr>
<tr>
<td>Project Based Courses</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Total</td>
</tr>
</tbody>
</table>

**Colour Scheme**

- Core-Foundation Courses: Blue
- Core-Professional Courses: Orange
- Generic Electives: Yellow
- Professional Electives: Green
- Project Based Courses: Red
Elective Focus

B.E. Computer Engineering Program is designed to offer elective focus as soon as student clears semester IV of the program. Student has to choose EF (Elective Focus) out of the following six choices and shall continue with this group till his study at Thapar Institute of Engineering & Technology. Choices are:

I. High Performance Computing
II. Computer Animation and Gaming
III. Data Analytics and Machine Learning
IV. Information and Cyber Security
V. Software Engineering
VI. Math and Computing