### ANNA UNIVERSITY, CHENNAI

**AFFILIATED INSTITUTIONS**

**R - 2008**

**B.TECH. TEXTILE TECHNOLOGY**

**II – VIII SEMESTERS CURRICULA AND SYLLABI**

**SEMESTER II**

(Common to all B. E. / B. Tech. Degree Programmes except B. E. – Marine Engineering)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Course Code</th>
<th>Course Title</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>HS2161</td>
<td>Technical English – II*</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>2.</td>
<td>MA2161</td>
<td>Mathematics – II*</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>3.</td>
<td>PH2161</td>
<td>Engineering Physics – II*</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>4.</td>
<td>CY2161</td>
<td>Engineering Chemistry – II*</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>5. a</td>
<td>ME2151</td>
<td>Engineering Mechanics (For non-circuit branches)</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>5. b</td>
<td>EE2151</td>
<td>Circuit Theory (For branches under Electrical Faculty)</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>5. c</td>
<td>EC2151</td>
<td>Electric Circuits and Electron Devices (For branches under I &amp; C Faculty)</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>6. a</td>
<td>GE2151</td>
<td>Basic Electrical &amp; Electronics Engineering (For non-circuit branches)</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>6. b</td>
<td>GE2152</td>
<td>Basic Civil &amp; Mechanical Engineering (For circuit branches)</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
</tbody>
</table>

### PRACTICALS

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Course Code</th>
<th>Course Title</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.</td>
<td>GE2155</td>
<td>Computer Practice Laboratory-II*</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>8.</td>
<td>GS2165</td>
<td>Physics &amp; Chemistry Laboratory - II*</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>9. a</td>
<td>ME2155</td>
<td>Computer Aided Drafting and Modeling Laboratory (For non-circles branches)</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>9. b</td>
<td>EE2155</td>
<td>Electrical Circuits Laboratory (For branches under Electrical Faculty)</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>9. c</td>
<td>EC2155</td>
<td>Circuits and Devices Laboratory (For branches under I &amp; C Faculty)</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

**TOTAL : 28 CREDITS**

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Course Code</th>
<th>Course Title</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.</td>
<td></td>
<td>English Language Laboratory +</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>-</td>
</tr>
</tbody>
</table>
A. CIRCUIT BRANCHES

I Faculty of Electrical Engineering

1. B.E. Electrical and Electronics Engineering
2. B.E. Electronics and Instrumentation Engineering
3. B.E. Instrumentation and Control Engineering

II Faculty of Information and Communication Engineering

1. B.E. Computer Science and Engineering
2. B.E. Electronics and Communication Engineering
3. B.E. Bio Medical Engineering
4. B.Tech. Information Technology

B. NON–CIRCUIT BRANCHES

I Faculty of Civil Engineering

1. B.E. Civil Engineering

II Faculty of Mechanical Engineering

1. B.E. Aeronautical Engineering
2. B.E. Automobile Engineering
3. B.E. Marine Engineering
4. B.E. Mechanical Engineering
5. B.E. Production Engineering

III Faculty of Technology

1. B.Tech. Chemical Engineering
2. B.Tech. Biotechnology
3. B.Tech. Polymer Technology
4. B.Tech. Textile Technology
5. B.Tech. Textile Technology (Fashion Technology)
7. B.Tech. Plastics Technology
## SEMESTER – III
(Applicable to the students admitted from the Academic year 2008 – 2009 onwards)

<table>
<thead>
<tr>
<th>CODE NO.</th>
<th>COURSE TITLE</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>TT 2201</td>
<td>Electrical Engineering</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>GE 2211</td>
<td>Environmental Science and Engineering</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>MA 2211</td>
<td>Transforms and Partial Differential Equations</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>CH 2202</td>
<td>Mechanics of Solids</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>TT 2202</td>
<td>Mechanical Engineering</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>TT 2203</td>
<td>Spun Yarn Technology I</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
</tbody>
</table>

### PRACTICALS
<table>
<thead>
<tr>
<th>CODE NO.</th>
<th>COURSE TITLE</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>TT 2207</td>
<td>Electrical Engineering Lab</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>TT 2208</td>
<td>Mechanical Engineering Lab</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>TT 2209</td>
<td>Spun Yarn Technology Lab I</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

**TOTAL** 19 1 9 26

## SEMESTER – IV
(Applicable to the students admitted from the Academic year 2008 – 2009 onwards)

<table>
<thead>
<tr>
<th>CODE NO.</th>
<th>COURSE TITLE</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>TT 2251</td>
<td>Chemistry for textiles</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>TT 2252</td>
<td>Electronics and Instrumentation</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>TT 2253</td>
<td>Fabric Manufacture I</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>MA 2263</td>
<td>Probability and Statistics</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>TT 2254</td>
<td>Spun Yarn Technology II</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>TT 2255</td>
<td>Structure and properties of Fibres</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

### PRACTICALS
<table>
<thead>
<tr>
<th>CODE NO.</th>
<th>COURSE TITLE</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>TT 2257</td>
<td>Electronics and Instrumentation Lab</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>TT 2258</td>
<td>Fabric Manufacture Lab I</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>TT 2259</td>
<td>Spun Yarn Technology Lab II</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

**TOTAL** 18 1 9 25

## SEMESTER – V

<table>
<thead>
<tr>
<th>CODE NO.</th>
<th>COURSE TITLE</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>GE 2025</td>
<td>Professional Ethics in Engineering</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>TT 2301</td>
<td>Knitting Technology</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>TT 2302</td>
<td>Process and Quality Control in Spinning</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>TT 2303</td>
<td>Fabric Manufacture II</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>TT 2304</td>
<td>Textile Chemical Processing I</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>TT 2305</td>
<td>Textile Quality Evaluation</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

### PRACTICALS
<table>
<thead>
<tr>
<th>CODE NO.</th>
<th>COURSE TITLE</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>GE 2321</td>
<td>Communication Skills Laboratory</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>TT 2306</td>
<td>Fabric Manufacture Lab II</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>TT 2307</td>
<td>Textile Quality Evaluation Lab.</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

**TOTAL** 18 0 10 24
# Semester – VI

<table>
<thead>
<tr>
<th>CODE NO.</th>
<th>COURSE TITLE</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>THEORY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TT 2351</td>
<td>Quality assurance in Fabric Manufacture and Garment Production</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>TT 2352</td>
<td>Textile Chemical Processing II</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>TT 2353</td>
<td>Garment Technology</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>TT 2354</td>
<td>Woven Fabric Structure</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Elective I</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Elective II</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>PRACTICALS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TT 2355</td>
<td>Knitting and Garment Lab</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>TT 2356</td>
<td>Cloth Analysis Lab</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>TT 2357</td>
<td>Textile Chemical Processing Lab</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>18</td>
<td>0</td>
<td>9</td>
<td>24</td>
</tr>
</tbody>
</table>

# Semester – VII

<table>
<thead>
<tr>
<th>CODE NO.</th>
<th>COURSE TITLE</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>THEORY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MG2351</td>
<td>Principles of Management</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>TT 2401</td>
<td>Quality assurance in Chemical Processing</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>TT 2402</td>
<td>Mechanics of Textile Machinery</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>TT 2403</td>
<td>Bonded Fabrics</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Elective III</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Elective IV</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>PRACTICALS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TT 2405</td>
<td>Production Process Lab</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>TT 2406</td>
<td>Mini Project</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>18</td>
<td>0</td>
<td>6</td>
<td>22</td>
</tr>
</tbody>
</table>

# Semester – VIII

<table>
<thead>
<tr>
<th>CODE NO.</th>
<th>COURSE TITLE</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>THEORY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GE 2022</td>
<td>Total Quality Management</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Elective V</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>PRACTICALS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TT2452</td>
<td>Project Work</td>
<td>0</td>
<td>0</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>TT2453</td>
<td>Comprehension</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>6</td>
<td>0</td>
<td>14</td>
<td>13</td>
</tr>
</tbody>
</table>
# LIST OF ELECTIVES

## ELECTIVE I

<table>
<thead>
<tr>
<th>CODE NO.</th>
<th>COURSE TITLE</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>TT 2021</td>
<td>Textured Yarn Technology</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>TT 2022</td>
<td>Silk Yarn Technology</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>TT 2023</td>
<td>Mechanics of Textile Structures</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

## ELECTIVE II

<table>
<thead>
<tr>
<th>CODE NO.</th>
<th>COURSE TITLE</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>TT 2031</td>
<td>Fashion art and Design</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>TT 2032</td>
<td>Textile Machinery Maintenance</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>TT 2033</td>
<td>Industrial Engineering in Textile Manufacture</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

## ELECTIVE III

<table>
<thead>
<tr>
<th>CODE NO.</th>
<th>COURSE TITLE</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>TT 2041</td>
<td>Apparel Product Engineering and Plant Layout</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>TT 2042</td>
<td>Technical Textiles</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>TT 2043</td>
<td>Garment Production Machinery and Equipment</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

## ELECTIVE IV

<table>
<thead>
<tr>
<th>CODE NO.</th>
<th>COURSE TITLE</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>TT 2071</td>
<td>Apparel Production and Control</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>TT 2072</td>
<td>Apparel Marketing and Merchandising</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>FT 2026</td>
<td>Creativity, Innovation and New Product Development</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

## ELECTIVE V

<table>
<thead>
<tr>
<th>CODE NO.</th>
<th>COURSE TITLE</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>TT 2081</td>
<td>Export Documentation &amp; Global Marketing</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>TT 2082</td>
<td>Textile Costing</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>TT 2083</td>
<td>CAD / CAM for Apparel Products</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>
AIM
To encourage students to actively involve in participative learning of English and to help them acquire Communication Skills.

OBJECTIVES
- To help students develop listening skills for academic and professional purposes.
- To help students acquire the ability to speak effectively in English in real-life situations.
- To inculcate reading habit and to develop effective reading skills.
- To help students improve their active and passive vocabulary.
- To familiarize students with different rhetorical functions of scientific English.
- To enable students write letters and reports effectively in formal and business situations.

UNIT I
Technical Vocabulary - meanings in context, sequencing words, Articles- Prepositions, intensive reading & predicting content, Reading and interpretation, extended definitions, Process description

Suggested activities:
1. Exercises on word formation using the prefix ‘self’ - Gap filling with preposition.
2. Exercises - Using sequence words.
3. Reading comprehension exercise with questions based on inference – Reading headings
4. and predicting the content – Reading advertisements and interpretation.
5. Writing extended definitions – Writing descriptions of processes – Writing paragraphs based on discussions – Writing paragraphs describing the future.

UNIT II

Suggested activities:
1. Reading comprehension exercises with questions on overall content – Discussions analyzing stylistic features (creative and factual description) - Reading comprehension exercises with texts including graphic communication - Exercises in interpreting non-verbal communication.
2. Listening comprehension exercises to categorise data in tables.
3. Writing formal letters, quotations, clarification, complaint – Letter seeking permission for Industrial visits – Writing analytical paragraphs on different debatable issues.

UNIT III
Cause and effect expressions – Different grammatical forms of the same word - Speaking – stress and intonation, Group Discussions - Reading – Critical reading - Listening, - Writing – using connectives, report writing – types, structure, data collection, content, form, recommendations.
Suggested activities:
1. Exercises combining sentences using cause and effect expressions – Gap filling exercises using the appropriate tense forms – Making sentences using different grammatical forms of the same word. (Eg: object – verb / object – noun)
2. Speaking exercises involving the use of stress and intonation – Group discussions – analysis of problems and offering solutions.
3. Reading comprehension exercises with critical questions, Multiple choice question.

UNIT IV
Numerical adjectives – Oral instructions – Descriptive writing – Argumentative paragraphs – Letter of application - content, format (CV / Bio-data) - Instructions, imperative forms - Checklists, Yes/No question form – E-mail communication.

Suggested Activities:
1. Rewriting exercises using numerical adjectives.
2. Reading comprehension exercises with analytical questions on content – Evaluation of content.
3. Listening comprehension – entering information in tabular form, intensive listening exercise and completing the steps of a process.
4. Speaking - Role play – group discussions – Activities giving oral instructions.

UNIT V
Speaking - Discussion of Problems and solutions - Creative and critical thinking – Writing an essay, Writing a proposal.

Suggested Activities:
1. Case Studies on problems and solutions
2. Brain storming and discussion
3. Writing Critical essays
4. Writing short proposals of 2 pages for starting a project, solving problems, etc.
5. Writing advertisements.

TOTAL: 60 PERIODS

TEXT BOOK

REFERENCES

Extensive Reading:

Note:
The book listed under Extensive Reading is meant for inculcating the reading habit of the students. They need not be used for testing purposes.
UNIT I  ORDINARY DIFFERENTIAL EQUATIONS  12
Higher order linear differential equations with constant coefficients – Method of variation of parameters – Cauchy’s and Legendre’s linear equations – Simultaneous first order linear equations with constant coefficients.

UNIT II  VECTOR CALCULUS  12

UNIT III  ANALYTIC FUNCTIONS  12
Functions of a complex variable – Analytic functions – Necessary conditions, Cauchy – Riemann equation and Sufficient conditions (excluding proofs) – Harmonic and orthogonal properties of analytic function – Harmonic conjugate – Construction of analytic functions – Conformal mapping : w= z+c, cz, 1/z, and bilinear transformation.

UNIT IV  COMPLEX INTEGRATION  12

UNIT V  LAPLACE TRANSFORM  12

Definition of Inverse Laplace transform as contour integral – Convolution theorem (excluding proof) – Initial and Final value theorems – Solution of linear ODE of second order with constant coefficients using Laplace transformation techniques.

TOTAL : 60 PERIODS

TEXT BOOKS

REFERENCES
UNIT I  CONDUCTING MATERIALS  9

UNIT II  SEMICONDUCTING MATERIALS  9

UNIT III  MAGNETIC AND SUPERCONDUCTING MATERIALS  9

UNIT IV  DIELECTRIC MATERIALS  9

UNIT V  MODERN ENGINEERING MATERIALS  9

TOTAL : 45 PERIODS

TEXT BOOKS
2. Charles P. Poole and Frank J.Ownen, ‘Introduction to Nanotechnology’, Wiley India(2007) (for Unit V)

REFERENCES
AIM
To impart a sound knowledge on the principles of chemistry involving the different application oriented topics required for all engineering branches.

OBJECTIVES
• The student should be conversant with the principles electrochemistry, electrochemical cells, emf and applications of emf measurements.
• Principles of corrosion control
• Chemistry of Fuels and combustion
• Industrial importance of Phase rule and alloys
• Analytical techniques and their importance.

UNIT I ELECTROCHEMISTRY
Electrochemical cells – reversible and irreversible cells – EMF – measurement of emf – Single electrode potential – Nernst equation (problem) – reference electrodes – Standard Hydrogen electrode - Calomel electrode – Ion selective electrode – glass electrode and measurement of pH – electrochemical series – significance – potentiometer titrations + (redox - Fe²⁺ vs dichromate and precipitation – Ag⁺ vs Cl⁻ titrations) and conduct metric titrations (acid-base – HCl vs, NaOH) titrations,

UNIT II CORROSION AND CORROSION CONTROL

UNIT III FUELS AND COMBUSTION

UNIT IV PHASE RULE AND ALLOYS

UNIT V ANALYTICAL TECHNIQUES

TOTAL: 45 PERIODS
TEXT BOOKS

REFERENCES

ME2151 ENGINEERING MECHANICS

OBJECTIVE
At the end of this course the student should be able to understand the vectorial and scalar representation of forces and moments, static equilibrium of particles and rigid bodies both in two dimensions and also in three dimensions. Further, he should understand the principle of work and energy. He should be able to comprehend the effect of friction on equilibrium. He should be able to understand the laws of motion, the kinematics of motion and the interrelationship. He should also be able to write the dynamic equilibrium equation. All these should be achieved both conceptually and through solved examples.

UNIT I BASICS & STATICS OF PARTICLES

UNIT II EQUILIBRIUM OF RIGID BODIES

UNIT III PROPERTIES OF SURFACES AND SOLIDS
UNIT IV  DYNAMICS OF PARTICLES  12

UNIT V  FRICTION AND ELEMENTS OF RIGID BODY DYNAMICS  12
Translation and Rotation of Rigid Bodies – Velocity and acceleration – General Plane motion.

TEXT BOOK

REFERENCES

EE2151  CIRCUIT THEORY  L T P C
(Common to EEE, EIE and ICE Branches)  3 1 0 4

UNIT I  BASIC CIRCUITS ANALYSIS  12

UNIT II  NETWORK REDUCTION AND NETWORK THEOREMS FOR DC AND AC CIRCUITS:  12
Network reduction: voltage and current division, source transformation – star delta conversion.
Thevenins and Novton & Theorem – Superposition Theorem – Maximum power transfer theorem – Reciprocity Theorem.

UNIT III  RESONANCE AND COUPLED CIRCUITS  12
Series and paralled resonance – their frequency response – Quality factor and Bandwidth - Self and mutual inductance – Coefficient of coupling – Tuned circuits – Single tuned circuits.

UNIT IV  TRANSIENT RESPONSE FOR DC CIRCUITS  12
Transient response of RL, RC and RLC Circuits using Laplace transform for DC input and A.C. with sinusoidal input.
UNIT V  ANALYSING THREE PHASE CIRCUITS

Three phase balanced / unbalanced voltage sources – analysis of three phase 3-wire and 4-wire circuits with star and delta connected loads, balanced & unbalanced – phasor diagram of voltages and currents – power and power factor measurements in three phase circuits.

TOTAL : 60 PERIODS

TEXT BOOKS

REFERENCES

EC2151  ELECTRIC CIRCUITS AND ELECTRON DEVICES  L T P C
(For ECE, CSE, IT and Biomedical Engg. Branches)  3 1 0 4

UNIT I  CIRCUIT ANALYSIS TECHNIQUES  12

UNIT II  TRANSIENT RESONANCE IN RLC CIRCUITS  12

UNIT III  SEMICONDUCTOR DIODES  12

UNIT IV  TRANSISTORS  12
Principle of operation of PNP and NPN transistors – study of CE, CB and CC configurations and comparison of their characteristics – Breakdown in transistors – operation and comparison of N-Channel and P-Channel JFET – drain current equation – MOSFET – Enhancement and depletion types – structure and operation – comparison of BJT with MOSFET – thermal effect on MOSFET.
UNIT V    SPECIAL SEMICONDUCTOR DEVICES  (Qualitative Treatment only)  12
Tunnel diodes – PIN diode, varactor diode – SCR characteristics and two transistor
equivalent model – UJT – Diac and Triac – Laser, CCD, Photodiode, Phototransistor,
Photoconductive and Photovoltaic cells – LED, LCD.

TOTAL : 60 PERIODS

TEXT BOOKS
2. S. Salivahanan, N. Suresh kumar and A. Vallavanraj, “Electronic Devices and
(2008).

REFERENCES

GE2151    BASIC ELECTRICAL AND ELECTRONICS ENGINEERING    L T P C
(Common to branches under Civil, Mechanical and Technology faculty)  4 0 0 4

UNIT I    ELECTRICAL CIRCUITS & MEASURMENTS                      12
Ohm’s Law – Kirchhoff’s Laws – Steady State Solution of DC Circuits – Introduction to AC
Circuits – Waveforms and RMS Value – Power and Power factor – Single Phase and
Three Phase Balanced Circuits.

Operating Principles of Moving Coil and Moving Iron Instruments (Ammeters and
Voltmeters), Dynamometer type Watt meters and Energy meters.

UNIT II    ELECTRICAL MECHANICS                                   12
Construction, Principle of Operation, Basic Equations and Applications of DC
Generators, DC Motors, Single Phase Transformer, single phase induction Motor.

UNIT III   SEMICONDUCTOR DEVICES AND APPLICATIONS                  12
Characteristics of PN Junction Diode – Zener Effect – Zener Diode and its
Characteristics – Half wave and Full wave Rectifiers – Voltage Regulation.

Bipolar Junction Transistor – CB, CE, CC Configurations and Characteristics –
Elementary Treatment of Small Signal Amplifier.

UNIT IV    DIGITAL ELECTRONICS                                    12
Binary Number System – Logic Gates – Boolean Algebra – Half and Full Adders – Flip-
Flops – Registers and Counters – A/D and D/A Conversion (single concepts)
UNIT V  FUNDAMENTALS OF COMMUNICATION ENGINEERING  12
Communication Systems: Radio, TV, Fax, Microwave, Satellite and Optical Fibre (Block Diagram Approach only).

TOTAL : 60 PERIODS

TEXT BOOKS

REFERENCES

GE2152  BASIC CIVIL & MECHANICAL ENGINEERING  L  T  P  C
(Common to branches under Electrical and I & C Faculty)  4  0  0  4

A – CIVIL ENGINEERING

UNIT I  SURVEYING AND CIVIL ENGINEERING MATERIALS  15


UNIT II  BUILDING COMPONENTS AND STRUCTURES  15
Foundations: Types, Bearing capacity – Requirement of good foundations.


TOTAL: 30 PERIODS

B – MECHANICAL ENGINEERING

UNIT III  POWER PLANT ENGINEERING  10
UNIT IV  IC ENGINES
Internal combustion engines as automobile power plant – Working principle of Petrol and Diesel Engines – Four stroke and two stroke cycles – Comparison of four stroke and two stroke engines – Boiler as a power plant.

UNIT V  REFRIGERATION AND AIR CONDITIONING SYSTEM

TOTAL: 30 PERIODS

REFERENCES

GE2155  COMPUTER PRACTICE LABORATORY – II

<table>
<thead>
<tr>
<th>L</th>
<th>T</th>
<th>P</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

LIST OF EXPERIMENTS

1. UNIX COMMANDS
   Study of Unix OS - Basic Shell Commands - Unix Editor
   
2. SHELL PROGRAMMING
   Simple Shell program - Conditional Statements - Testing and Loops
   
3. C PROGRAMMING ON UNIX
   Dynamic Storage Allocation-Pointers-Functions-File Handling
   
TOTAL : 45 PERIODS

HARDWARE / SOFTWARE REQUIREMENTS FOR A BATCH OF 30 STUDENTS

Hardware

   . 1 UNIX Clone Server
   . 33 Nodes (thin client or PCs)
   . Printer – 3 Nos.

Software

   . OS – UNIX Clone (33 user license or License free Linux)
   . Compiler - C
LIST OF EXPERIMENTS

1. Determination of Young’s modulus of the material – non uniform bending.
2. Determination of Band Gap of a semiconductor material.
3. Determination of specific resistance of a given coil of wire – Carey Foster Bridge.
5. Spectrometer dispersive power of a prism.
6. Determination of Young’s modulus of the material – uniform bending.

- A minimum of FIVE experiments shall be offered.
- Laboratory classes on alternate weeks for Physics and Chemistry.
- The lab examinations will be held only in the second semester.

LIST OF EXPERIMENTS

1. Conduct metric titration (Simple acid base)
2. Conduct metric titration (Mixture of weak and strong acids)
3. Conduct metric titration using BaCl\(_2\) vs Na\(_2\)SO\(_4\)
4. Potentiometric Titration (Fe\(^{2+}\) / KMnO\(_4\) or K\(_2\)Cr\(_2\)O\(_7\))
5. PH titration (acid & base)
6. Determination of water of crystallization of a crystalline salt (Copper sulphate)
7. Estimation of Ferric iron by spectrophotometry.

- A minimum of FIVE experiments shall be offered.
- Laboratory classes on alternate weeks for Physics and Chemistry.
- The lab examinations will be held only in the second semester.

List of Exercises using software capable of Drafting and Modeling

1. Study of capabilities of software for Drafting and Modeling – Coordinate systems (absolute, relative, polar, etc.) – Creation of simple figures like polygon and general multi-line figures.
2. Drawing of a Title Block with necessary text and projection symbol.
3. Drawing of curves like parabola, spiral, involute using Bspline or cubic spline.
4. Drawing of front view and top view of simple solids like prism, pyramid, cylinder, cone, etc, and dimensioning.
5. Drawing front view, top view and side view of objects from the given pictorial views (eg. V-block, Base of a mixie, Simple stool, Objects with hole and curves).
6. Drawing of a plan of residential building (Two bed rooms, kitchen, hall, etc.)
7. Drawing of a simple steel truss.
8. Drawing sectional views of prism, pyramid, cylinder, cone, etc,
10. Creation of 3-D models of simple objects and obtaining 2-D multi-view drawings from 3-D model.

TOTAL: 45 PERIODS

Note: Plotting of drawings must be made for each exercise and attached to the records written by students.

List of Equipments for a batch of 30 students:

1. Pentium IV computer or better hardware, with suitable graphics facility - 30 No.
2. Licensed software for Drafting and Modeling. – 30 Licenses
3. Laser Printer or Plotter to print / plot drawings – 2 No.

EE2155 ELECTRICAL CIRCUIT LABORATORY L T P C
(Common to EEE, EIE and ICE) 0 0 3 2

LIST OF EXPERIMENTS
1. Verification of ohm’s laws and kirchoff’s laws.
2. Verification of Thevemin’s and Norton’s Theorem
3. Verification of superposition Theorem
4. Verification of maximum power transfer theorem.
5. Verification of reciprocity theorem
6. Measurement of self inductance of a coil
7. Verification of mesh and nodal analysis.
8. Transient response of RL and RC circuits for DC input.
10. Frequency response of single tuned coupled circuits.

TOTAL: 45 PERIODS

EC2155 CIRCUITS AND DEVICES LABORATORY L T P C
0 0 3 2

1. Verification of KVL and KCL
2. Verification of Thevenin and Norton Theorems.
3. Verification of superposition Theorem.
4. Verification of Maximum power transfer and reciprocity theorems.
5. Frequency response of series and parallel resonance circuits.
6. Characteristics of PN and Zener diode
7. Characteristics of CE configuration
8. Characteristics of CB configuration
9. Characteristics of UJT and SCR
10. Characteristics of JFET and MOSFET

TOTAL: 45 PERIODS
1. **Listening:**
   - Listening & answering questions – gap filling – Listening and Note taking- Listening to telephone conversations

2. **Speaking:**
   - Pronouncing words & sentences correctly – word stress – Conversation practice.

**Classroom Session**

1. **Speaking:** Introducing oneself, Introducing others, Role play, Debate-Presentations: Body language, gestures, postures. 
   - Group Discussions etc
2. **Goal setting** – interviews – stress time management – situational reasons

**Evaluation**

1. **Lab Session – 40 marks**
   - Listening – 10 marks
   - Speaking – 10 marks
   - Reading – 10 marks
   - Writing – 10 marks

2. **Classroom Session – 60 marks**
   - Role play activities giving real life context – 30 marks
   - Presentation – 30 marks

**Note on Evaluation**

1. Examples for role play situations:
   - a. Marketing engineer convincing a customer to buy his product.
   - b. Telephone conversation – Fixing an official appointment / Enquiry on availability of flight or train tickets / placing an order. etc.

2. Presentations could be just a Minute (JAM activity) or an Extempore on simple topics or visuals could be provided and students could be asked to talk about it.

**REFERENCES**


**LAB REQUIREMENTS**

1. Teacher – Console and systems for students
2. English Language Lab Software
3. Tape Recorders.
TT2201  ELECTRICAL ENGINEERING  L T P C  3 0 0 3
(Common to Textile & Fashion Technology)

AIM
To introduce the principles of Electrical Engineering and the concepts of DC and AC machines.

OBJECTIVES
After the completion of this course, students gain knowledge in fundamentals of Electrical Engineering and the operational and design aspects of DC and AC motors and drives.

UNIT I

UNIT II

UNIT III
Principle of operation of DC machines - emf equation – types of generators – Magnetization and Load characteristics of DC generators – types and characteristics of DC motors – torque equation – DC motor starters (three point) – Efficiency calculation and Swimburne’s test O Speed control.

UNIT IV

UNIT V
Basic principles of indicating instruments – moving coil and moving iron instruments – dynamometer type wattmeters – induction types energy meter – measurement of single and three phase power.

TOTAL : 45 PERIODS

TEXT BOOKS

REFERENCES
1. Electrical technology – Edward Hughes.
2. Introduction to electrical Engineering – Naidu & Kamakshaiah
5. Electrical Technology – Vincent Del toro
OBJECTIVES

- To create an awareness on the various environmental pollution aspects and issues.
- To give a comprehensive insight into natural resources, ecosystem and biodiversity.
- To educate the ways and means to protect the environment from various types of pollution.
- To impart some fundamental knowledge on human welfare measures.

UNIT I INTRODUCTION TO ENVIRONMENTAL STUDIES AND NATURAL RESOURCES

Definition, scope and importance – need for public awareness – forest resources: use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their ground water, floods, drought, conflicts over water, dams-benefits and problems – mineral resources: use effects on forests and tribal people – water resources: use and over-utilization of surface and exploitation, environmental effects of extracting and using mineral resources, case studies – food resources: world food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies – energy resources: growing energy needs, renewable and non renewable energy sources, use of alternate energy sources. Case studies – land resources: land as a resource, land degradation, man induced landslides, soil erosion and desertification – role of an individual in conservation of natural resources – equitable use of resources for sustainable lifestyles.

Field study of local area to document environmental assets – river / forest / grassland / hill / mountain.

UNIT II ECOSYSTEMS AND BIODIVERSITY

Concept of an ecosystem – structure and function of an ecosystem – producers, consumers and decomposers – energy flow in the ecosystem – ecological succession – food chains, food webs and ecological pyramids – introduction, types, characteristic features, structure and function of the (a) forest ecosystem (b) grassland ecosystem (c) desert ecosystem (d) aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries) – introduction to biodiversity – definition: genetic, species and ecosystem diversity – biogeographical classification of India – value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values – biodiversity at global, national and local levels – India as a mega-diversity nation – hot-spots of biodiversity – threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts – endangered and endemic species of India – conservation of biodiversity: in-situ and ex-situ conservation of biodiversity.

Field study of common plants, insects, birds
Field study of simple ecosystems – pond, river, hill slopes, etc.

UNIT III ENVIRONMENTAL POLLUTION

Definition – causes, effects and control measures of: (a) air pollution (b) water pollution (c) soil pollution (d) marine pollution (e) noise pollution (f) thermal pollution (g) nuclear hazards – solid waste management: causes, effects and control measures of urban and industrial wastes – role of an individual in prevention of pollution – pollution case studies – disaster management: floods, earthquake, cyclone and landslides.

Field study of local polluted site – urban / rural / industrial / agricultural
UNIT IV  SOCIAL ISSUES AND THE ENVIRONMENT  7

UNIT V  HUMAN POPULATION AND THE ENVIRONMENT  6

TOTAL : 45 PERIODS

TEXT BOOKS

REFERENCES

MA2211  TRANSFORMS AND PARTIAL DIFFERENTIAL EQUATIONS  L T P C
3 1 0 4
(Common to all branches of BE / B.Tech Programmes)

OBJECTIVES
The course objective is to develop the skills of the students in the areas of Transforms and Partial Differential Equations. This will be necessary for their effective studies in a large number of engineering subjects like heat conduction, communication systems, electro-optics and electromagnetic theory. The course will also serve as a prerequisite for post graduate and specialized studies and research.
UNIT I  FOURIER SERIES  9 + 3

UNIT II  FOURIER TRANSFORMS  9 + 3

UNIT III  PARTIAL DIFFERENTIAL EQUATIONS  9 +3
Formation of partial differential equations – Lagrange’s linear equation – Solutions of standard types of first order partial differential equations - Linear partial differential equations of second and higher order with constant coefficients.

UNIT IV  APPLICATIONS OF PARTIAL DIFFERENTIAL EQUATIONS  9 + 3
Solutions of one dimensional wave equation – One dimensional equation of heat conduction – Steady state solution of two-dimensional equation of heat conduction (Insulated edges excluded) – Fourier series solutions in cartesian coordinates.

UNIT V  Z-TRANSFORMS AND DIFFERENCE EQUATIONS  9 + 3

TOTAL: 60 PERIODS

TEXT BOOKS

REFERENCES

CH 2202  MECHANICS OF SOLIDS  L T P C  3 0 0 3
(Common to Chemical & Textile Technology)

AIM
To impart knowledge on structural, Mechanical properties of Beams and columns.

OBJECTIVES
The students will be able to design the support column, beams, pipelines, storage tanks and reaction columns and tanks after undergoing this course. This is precursor for the study on process equipment design and drawing.
UNIT I  STRESS, STRAIN AND DEFORMATION OF SOLIDS  9

UNIT II  TRANSVERSE LOADING ON BEAMS  9

UNIT III  DEFLECTIONS OF BEAMS  9
Double integration method – Macaulay’s method – Area – moment theorems for computation of slopes and deflections in beams – conjugate beam method

UNIT IV  STRESSES IN BEAMS  9

UNIT V  TORSION  9
Torsion of circular shafts – derivation of torsion equation (T/J = C/R = G0/L) – stress and deformation in circular and hollow shafts – stepped shafts – shafts fixed at both ends – stresses in helical springs – deflection of springs – spring constant

COLUMNS
Axially loaded short columns – columns of unsymmetrical sections – Euler’s theory of long columns – critical loads for prismatic columns with different end conditions – effect of eccentricity.

TOTAL : 45 PERIODS

TEXT BOOKS

REFERENCES

TT2202  MECHANICAL ENGINEERING  L T P C
3 0 0 3
(Common to Textile Technology & Fashion Technology)

AIM
To introduce the Mechanical Engineering Fundamentals.

OBJECTIVES
Students gain knowledge in the application of Mechanical and Thermodynamic principles in the design and operation of Equipments and machineries.
UNIT I  LAWS OF THERMODYNAMICS
Basic concepts and hints; Zeroth law; First Law of Thermodynamics – Statement and application; Steady flow energy equation; Second law of Thermodynamics—Statement; Limitations Heat Engine; Heat Pump, Available energy, Kelvin—Plank statement and Clausius statement; Equivalence entropy; Reversibility: Entropy charts; Third law of Thermodynamics—Statement.

UNIT II  HEATING AND EXPANSION OF GASES
Expressions for; work done; Internal energy, Hyperbolic and polytropic processes; Free expansion and Throttling.

UNIT III  AIR STANDARD EFFICIENCY
Carnot cycle; Stirlings Cycle: Joule Cycle; Otto Cycle; Diesel Cycle; Dual combustion Cycle.

UNIT IV  I.C. ENGINES
Engine nomenclature and classifications; SI Engine: CI Engine; Four Stroke cycle Two stroke cycle; Performance of I.C. Engine; Brake thermal efficiency; Indicated Thermal Efficiency, Specific fuel consumption.

UNIT V  STEAM AND ITS PROPERTIES
Properties of steam; Dryness fraction; latent heat; Total heat of wet steam; Superheated steam. Use of steam tables; volume of wet steam; Volume of superheated steam; External work of evaporation; Internal energy; Entropy of vapour, Expansion of vapour, Rankine cycle; Modified Rankine cycle.

UNIT VI  STEAM ENGINES AND TURBINES
Hypothetical indicator diagram of steam engine; Working of a simple steam engine; steam turbines—Impulse and Reaction types—Principles of operation.

UNIT VII  SIMPLE MECHANISM
Kinematic Link, Kinematic Pair Kinematic Chain; Slider Crank mechanism and inversions; Double slider crank mechanism and inversions.

UNIT VIII  FLY WHEEL
Turning moment Diagram; Fluctuation of Energy; Design of fly wheel.

UNIT IX  DRIVES
Belt and rope drives; Velocity ratio; slip; Ratio of tensions; Length of belt; Maximum HP; simple, compound and Epicyclic gear trains.

UNIT X  BALANCING
Balancing of rotating masses in same plane; Balancing of masses rotating in different planes.

TOTAL : 45 PERIODS

TEXT BOOKS

REFERENCES
AIM
To impart basic knowledge of various preparatory processes in Yarn manufacture.

OBJECTIVES
Students will be familiar with
Mechanism, Working and implication of Ginning process
The operation and manipulation of process parameters in
- Opening and Cleaning machines
- Card
- Draw Frame
- Comber
- Speed frame

UNIT I  GINNING AND BLOWROOM  12
Objectives of ginning, Study of working of different gins – Knife roller gin, Saw gin.
Objectives of blowroom. Principle and description of Opening, Cleaning and Blending
machines. Concepts of Opening intensity and Cleaning efficiency. Settings and speeds
of various Openers/cleaners. Sequence of machines in modern blowroom line.
Blowroom line for cotton and man-made fibres and their blends. Dust extractors, Filters,

UNIT II  CARDING  12
Objectives of carding. Basics of Opening, Cleaning and fibre individualisation. Study of
working of semi high production, high production cards. Speeds and setting of functional
elements. Concept of auto levelling in carding. Drives, Card clothing and Production
calculation. Concept of Cylinder loading and the factors influencing it. Latest
developments in carding to increase production and sliver quality.

UNIT III  DRAWFRAME  12
Basic principles of doubling and drafting. Description of working of various drafting
systems. Concept of roller flutes, roller setting, roller pressure, web condensation and
roller lapping. Study of stop motions. Draft and production calculation. Effect of roller
defects, roller setting, roller pressure, break draft and draft distribution on sliver quality.
Process parameters for processing cotton, man-made fibres and blends. Working of
autoleveller on drawframe. Developments in drawframe machines. Influence of
drawframe sliver quality on yarn characteristics.

UNIT IV  COMBER  12
Requirement and objectives of comber preparatory process. Methods of lap preparation
– lap doubling process, sliver doubling process, their merits and limitations. Objectives
and principles of combing. Working of comber – sequence and timing of operations in
combing. Types of feeding – concurrent feed and counter feed, Degree of combing.
Combing efficiency. Concept of piecing waves, asymmetric web condensation. Comber
waste in relation to pre-comber draft, direction of fibre hooks, type of feed, top comb
setting. Settings and production calculation. Determining optimum level of comber waste
for different mixings and yarn counts. Introduction to modern combers.
UNIT V  SPEEDFRAME

TOTAL : 60 PERIODS

TEXTBOOKS

REFERENCES

TT2207  ELECTRICAL ENGINEERING LAB  L T P C
(0 0 3 2)
(Common to Chemical & Textile Technology)

AIM
To experimentally determine the load characteristics on various types of AC/DC Motors and also study on the generator and alternators circuit arrangement.

OBJECTIVES
After the completion of this course students gain knowledge in fundamentals of Electrical Engineering and the operational and design aspects of DC and AC motors and drivers.

LIST OF EXPERIMENTS
1. Open circuit characteristics of D.C. shunt generator.
2. Load characteristics of D.C. shunt generator
3. Load characteristics of D.C. compound generaor
4. Load test on D.C. shunt motor
5. Study of D.C. motor starters
6. O.C. and S.C. tests on single phase transformer
7. Load test on single phase transformer
8. Load test on 3-phase squirrel cage induction motor
9. Study of 3-phase induction motor starters
10. Load test on 3-phase slip ring induction motor
11. O.C. and S.C. tests on 3-phase alternator
12. Synchronization and V-curves of alternator

LIST OF EQUIPMENTS

1. D.C. shunt generator
2. D.C. shunt generator
3. Compound generator
4. D.C. shunt motor
5. D.C. motor starters
6. Single phase transformer
7. 3-phase squirrel cage induction motor
8. 3-phase induction motor starters
9. 3-phase slip ring induction motor
10. 3-phase alternator
11. Alternator

TOTAL: 45 PERIODS

AIM
To introduce the Mechanical Engineering fundamentals to the petroleum engineering students.

OBJECTIVES
Students gain knowledge in the application of Mechanical and Thermodynamics principles in the design and operation of Equipments and Machineries of Petroleum Industries.

LIST OF EXPERIMENTS

1. Heat balance on Diesel engine
2. Mechanical load test on petrol engine
3. Morse test on multi cylinder petrol engine
4. Volumetric efficiency on Diesel engine
5. Volumetric efficiency on two state reciprocating compressor
6. COP in compression refrigeration cycle
7. Test on Air conditioning system
8. Viscosity Index, Flash and Fire point of Lubricant
9. Valve timing diagram in Diesel engine
10. Port timing diagram
LIST OF EQUIPMENTS

1. Diesel Alternator Set
2. Diesel Engines
3. Petrol Engines
4. Multi Cylinder Petrol engine
5. Two stroke Reciprocating Compressor
6. Compression Refrigeration Cycle
7. Air Conditioning System
8. Viscosity, Flash and Fire point apparatus
9. Steam power plant
10. Two stroke engines
11. Bomb calorimeter
12. Orsat apparatus
13. Gas calorimeter

TOTAL : 45 PERIODS

TT 2209 SPUN YARN TECHNOLOGY LAB I L T P C
0 0 3 2

AIM
To provide a practical knowledge of various preparatory processes in yarn manufacture.

OBJECTIVES
Students will be familiar with
The operation and manipulation of process parameters in
  - Opening and Cleaning machines
  - Card
  - Drawframe
  - Comber
  - Speedframe

Experiments:
(Minimum of Ten Experiments shall be offered)
1. Study of ginning machine
2. Study of blowroom machinery
3. Settings and production calculations in blowroom
4. Card - Draft and production calculations
5. Card - Settings
6. Construction details of Drawframe
7. Draft calculation in Drawframe
8. Study of comber preparatory machines
9. Construction details of comber
10. Draft calculation in comber
11. Construction details of speedframe
12. Draft calculation in speedframe
13. Twist calculation in speedframe
14. Study of builder motion mechanism in speedframe

TOTAL : 45 PERIODS
LIST OF MACHINERY REQUIRED

- Lab model Ginning machine
- Miniature Blowroom line
- Carding machine
- Drawframe
- Comber Preparatory machines
- Comber
- Speedframe

TT 2251 CHEMISTRY FOR TEXTILES

AIM
To impart a sound knowledge of theoretical aspects of Carbohydrates, Aminoacids and Proteins, Oils, Fats and Waxes, Bleaching agents, Dyes.

OBJECTIVES
- Students should be conversant with:
  - Structure and properties of cellulose
  - Chemical composition, properties (chemical and physical) of different fibres
  - Methods of Bleaching and Dyeing techniques

UNIT I CARBOHYDRATES

UNIT II AMINOACIDS AND PROTEINS, OILS, FATS AND WAXES
Classification of proteins, test for proteins, denaturation. Wool and silk - chemical composition, properties (chemical and physical), structural aspects and application. Analysis of oils and fats- Classification of waxes. Fatty, waxy/gummy and protein materials present in natural fibres (cotton, silk, wool etc) and their removal.

UNIT III BLEACHING AGENTS
Oxidative (chlorite, hypochlorite and hydrogen peroxide) and reductive (borohy-drides, sulphites, hydrosulphites etc) bleaching agents and their mechanism of action in textile bleaching.

Heterocyclic compounds
Furan, thiophene, pyrrole, pyridine and indole- their important derivatives.

UNIT IV DYES
Classification of dyes and intermediates viz, azines, oxazines, thiazone, acridine, thiazole, eqinoline, cyanide dyes, diphenyl and triphenyl methane dyes. Structure and synthesis of important azo dyes (methyl orange, congo red and methyl red), diphenyl methane dyes (malachite green, para rosaniline) and anthraquinone dyes (alizarin).

UNIT V THEORY OF DYEING


TOTAL : 45 PERIODS

TEXT BOOKS

REFERENCES

TT 2252 ELECTRONICS AND INSTRUMENTATION

AIM
To introduce the basic principles of Electronics and its application in constructing Instruments for Textile machineries.

OBJECTIVES
Students will be in a position to understand and practice the basic electronic principles and connected devises. They will gain knowledge in selecting and applying suitable electronic devices to operate and control Textile machineries.

UNIT I
UNIT II 7

UNIT III 7

UNIT IV 9

UNIT V 8
Speed measurement and event counting using photo electric and reluctance principles – Proximity sensors. Instrumentation specific to Textile processing industry. Indicating and recording devices – Basic analog and digital meters – Standards and calibration. Cathode ray oscilloscopes and xy plotters and digital printers and plotters – magnetic disc and tape storage – Data loggers.

UNIT VI 7

TOTAL : 45 PERIODS

TEXT BOOKS

REFERENCES
AIM
To impart basic of different processes in the sequence of fabric manufacture like cone winding, warping, sizing, drawing in and pirn winding.

OBJECTIVE
- To know the objectives of different processes.
- To get thorough knowledge in the concepts involved in these processes.
- To study the mechanism involved in the different processes.
- To get exposure to the latest developments in these processes.

UNIT I
9
Classification of winders – Characteristics of parallel winding cross winding and precision winding. Types and working principles of yarn clearers, knotters and splicers – Classification of yarn faults - Types of tensioners, guides- cop unwinding characteristics – stop motions – cone defects, causes and rectification.

UNIT II
9

UNIT III
9

UNIT IV
9

UNIT V
9

Need for drawing-in operation, working principles of manual, semiautomatic and automatic drawing in machines – knotting, pinning machines.

TEXT BOOKS
REFERENCES

MA2263 PROBABILITY AND STATISTICS 3 1 0 4
(Common to Biotech, Chemical, Fashion, Petroleum, Polymer, Plastic)

OBJECTIVES
At the end of the course, the students would

- Acquire skills in handling situations involving more than one random variable and functions of random variables.
- Be introduced to the notion of sampling distributions and have acquired knowledge of statistical techniques useful in making rational decision in management problems.
- Be exposed to statistical methods designed to contribute to the process of making scientific judgments in the face of uncertainty and variation.

UNIT I RANDOM VARIABLES 9 + 3
Discrete and continuous random variables - Properties- Moments - Moment generating functions and their properties. Binomial, Poisson, Geometric, Negative binomial, Uniform, Exponential, Gamma, and Weibull distributions.

UNIT II TWO DIMENSIONAL RANDOM VARIABLES 9 + 3
Joint distributions - Marginal and conditional distributions – Covariance - Correlation and Regression – function of a random variable-Transformation of random variables - Central limit theorem.

UNIT III TESTING OF HYPOTHESIS 9 + 3
Sampling distributions – Testing of hypothesis for mean, variance, proportions and differences using Normal, t, Chi-square and F distributions - Tests for independence of attributes and Goodness of fit.

UNIT IV DESIGN OF EXPERIMENTS 9 + 3

UNIT V RELIABILITY AND QUALITY CONTROL 9 + 3
Concepts of reliability-hazard functions-Reliability of series and parallel systems- control charts for measurements (x and R charts) – control charts for attributes (p, c and np charts)
Note: Use of approved statistical table is permitted in the examination.

TOTAL : 60 PERIODS
TEXT BOOKS

REFERENCES

TT 2254 SPUN YARN TECHNOLOGY II L T P C 3 0 0 3

AIM
To impart a sound knowledge in conventional and modern methods of yarn manufacture with latest developments.

OBJECTIVE
- To enhance the latest know how of Ring spinning, Rotor spinning, Friction spinning and Jet spinning
- To improve the technology in the newer methods of spinning

UNIT I RING SPINNING
Condensed yarn spinning – principle of compacting drafted fibre strand, different methods of condensed yarn manufacture, condensed yarn properties vis-à-vis conventional ring-spun yarn properties, benefits and limitations of condensed yarn spinning.

UNIT II Rotor Spinning
speed and wire profile, rotor diameter, rotor speed, groove design, profile of doffing tube, Yarn characteristics – strength and extension, unevenness and imperfections, hairiness, flexural rigidity, abrasion resistance, Latest developments in rotor spinning, Economic benefits, Technological and economic limitations for production of finer yarns, End uses of rotor-spun yarns.

UNIT III  FRICITON SPINNING  9

UNIT IV  AIR-JET SPINNING  9
Introduction to false twisting, Basic principles and methods of fasciated yarn manufacture – Dupont’s rotofil process, Toray air-jet spinning process, Murata jet spinning, Murata vortex spinning, Importance of fibre characteristics for optimum spinning performance and yarn quality, Classification of fasciated yarn structure, Yarn properties, Yarn quality in relation to various process parameters – air pressure, draft, delivery rate, ribbon width, feed ratio, Developments in air-jet spinning – 5-line high drafting system, Murata twin spinning, Murata roller jet spinning, Murata vortex spinning – MVS 851, MVS 861. Applications of air-jet spun yarns.

UNIT V  OTHER SPINNING METHODS  9
Wrap spinning – principle of operation, raw materials for core and wrapper, yarn structure and properties, spinning limits, applications of yarns.

Double-rove spinning – operating principle, process monitor, spinning geometry, effect of strand spacing on spinning performance and yarn quality, process limitation, Introduction to solo-spun technology, difference between siro spinning and solo spinning, end uses of siro-spun and solo-spun yarns.

Core yarn spinning – basic principle and requirements of core yarn spinning, different methods of core yarn production – manufacture of core yarn in ring spinning, rotor spinning, friction spinning, air-jet spinning, raw materials for core yarn spinning, applications of core-spun yarns.

Twistless and Self-twist spinning – basic principles of yarn manufacture, yarn characteristics and end uses, latest developments.

TOTAL : 45 PERIODS

TEXT BOOKS

REFERENCES

AIM
To provide a sound knowledge of the fibre structure and their important physical properties

OBJECTIVE
- To study the fibre structure and its important characterisation methods
- To study the important fibre properties such as moisture absorption, mechanical properties, optical and frictional properties, electrical and thermal properties.

UNIT I STRUCTURE OF FIBRES

UNIT II MOISTURE ABSORPTION PROPERTIES OF FIBRES

UNIT III MECHANICAL PROPERTIES OF FIBRES
Tensile testing of fibres – cotton, viscose, acetate, modal, lyocel, polyester, polyamide, polyacrylonitrile, polyethylene, polypropylene, jute and flax fibres Definitions of terms – load, elongation, breaking strength, breaking extension, tensile stress, tensile strain, mass specific stress, yield point, initial modulus, work of rupture and work factor. Stress-strain curves for various textile fibres and their significance. Influence of fibre structure, humidity and temperature on stress-strain characteristics of fibres. Methods of tensile
testing – constant rate of loading and constant rate of extension, differences between
the two methods of test. Elastic properties – elasticity, elastic recovery and its relation to
stress and strain, work recovery, typical values of elastic recovery and work recovery for
various textile fibres. Mechanical conditioning of fibres – advantages. Time effects –
stress relaxation and creep phenomena. Dynamic tensile testing of fibres. Torsional
rigidity – its relation to other fibre properties, measurement techniques. Flexural rigidity –
its relation to other fibre properties, measurement techniques.

UNIT IV OPTICAL AND FRICTIONAL PROPERTIES 9
Refractive index of fibres – definition, factors influencing and measurement.
Birefringence – measurement techniques, effect of factors like fibre orientation, density
and regain. Optical orientation factor, its relation with refractive index and birefringence.
Reflection of light – specular and diffused reflection, lustre, lustre index, factors
influencing lustre. Absorption of light – dichroism, dichroic ratio. Introduction to fibre
friction. Theories of friction – Amonton’s law, Bowden’s adhesion shearing mechanism,
Lincoln’s law. Measurement of friction – friction between single fibres, friction between
fibre assemblies. Factors influencing fibre friction. Role of friction in fibre processing.
Friction in wool – directional frictional effect, felting.

UNIT V ELECTRICAL AND THERMAL PROPERTIES 9
Definition of electrical resistance, electrical resistance of fibres, measurement of
resistance in fibres, factors influencing electrical resistance. Dielectric properties, factors
influencing dielectricity. Static electricity – generation of static charge and measurement,
problems encountered during processing, elimination techniques. Thermal properties –
specific heat, thermal conductivity, thermal expansion and contraction, structural
changes in fibres on heating, thermal transitions – glass transition and melting, heat
setting. Flammability characteristics of fibres.

TOTAL : 45 PERIODS

TEXT BOOKS
Institute, Manchester, U.K., 1993.

REFERENCES
1986.
PRACTICAL SCHEDULE
1. Introduction to measuring and testing instruments – multimeter and oscilloscope.
2. Circuit practice on 741 op-amp applications – I
3. Circuit practice on 741 op-amp applications – II
4. Building timer based circuits using 555 IC.
5. Power supplies – building basic rectifier supplies.
6. Using TTL counter ICS to build event counters.
7. LDR transducer for displacement sensing
8. Strain guage transducer – mounting and wiring
10. Inductive pick up- Piezoelectric pick up.
11. Photoelectric and variable reluctance pick up.
12. thermo couple – use and calibration.
13. experiments on RTD – Thermistor and expansion gauges.
   study of 8085 and 8031 microprocessor kits – their functions
15. Data loggers – Computerized data acquisition and data processing.

A minimum of 10 Experiments shall be offered.

TOTAL : 45 PERIODS

LIST OF EQUIPMENTS
1. Multimeter and oscilloscope.
2. TTL counter
3. LDR transducer
4. LDR transducer
5. Strain guage transducer
6. Displacement transducer
7. pH meters
8. Discharge meters
9. anemometers
10. 8085 and 8031 microprocessor kits
11. Data loggers

AIM
To develop the skills among the students in the operation and maintenance of preparatory machines.

OBJECTIVES
- To study the mechanism/settings in cone winders, pirn winders
- To develop skills in the operation and maintenance of the above machines.
LIST OF EXPERIMENTS

(Minimum of 10 experiments shall be offered)
Specification, Mechanism Settings, Drives and Assembly of parts of the following machines
- Conventional Cone Winder
- Automatic cone Winder
- Conventional/Automatic Pirn Winder
- Sectional/Beam Warping machine
- Study of Knotters/Splicers
- Study of yarn unwinding from cop and yarn tensioner
- Preparation of size paste and measurement of its characteristics
- Measurement of Adhesive Power of size (Roving method)
- Hank/Single end sizing of cotton warp
- Study of cone characteristics
- Study of pirn characteristics
- Mechanisms for regulating pirn dimensions & characteristics

List of machines required:
- Drum winding machine
- Pirn winding machine
- Sizing chemicals
- Warping machine

TOTAL : 45 PERIODS

AIM
To impart practical knowledge of process and technology for conversion of fibre into yarn

OBJECTIVE
Students will be familiar with:
- Construction details and technical specifications of different makes/models of ringframes
- Two-For-One twister (TFO)
- Production of fancy yarns
- Production and twist calculation in rotor spinning

LIST OF EXPERIMENTS
1. Study of construction details and technical specifications of different makes/models of ring frames
2. Speed and draft calculations in ring frame
3. Study of various settings on ring frame
4. Twist and production calculations in ring frame
5. Study of builder motion mechanism in ring frame
6. Production and twist calculation of Two-For-One twister (TFO)
7. Studies on influence of TFO process variables on two-fold yarn quality
8. Production and quality characterization of two-fold spun and blended yarns
9. Production of fancy yarns on TFO
10. Production and twist calculation in rotor spinning

TOTAL : 45 PERIODS

List of machinery required:
- Ring frame (lab model)
- TFO (lab model - Desirable)
- Rotor spinning machine (lab model - Desirable)

GE2025  PROFESSIONAL ETHICS IN ENGINEERING  L T P C  3 0 0 3

UNIT I  ENGINEERING ETHICS  9

UNIT II  ENGINEERING AS SOCIAL EXPERIMENTATION  9
Engineering as Experimentation – Engineers as responsible Experimenters – Research Ethics - Codes of Ethics – Industrial Standards - A Balanced Outlook on Law – The Challenger Case Study

UNIT III  ENGINEER’S RESPONSIBILITY FOR SAFETY  9

UNIT IV  RESPONSIBILITIES AND RIGHTS  9

UNIT V  GLOBAL ISSUES  9

TOTAL: 45 PERIODS

TEXT BOOKS
REFERENCES

TT2301  KNITTING TECHNOLOGY  L T P C
3 0 0 3

AIM
To impart basic knowledge in knitting technology

OBJECTIVES
- To study the differences between weaving and knitting processes
- To get thorough knowledge of the concepts involved in weft knitting.
- To study the mechanism involved in warp knitting.
- To get exposure to the latest developments in knitted fabric production

UNIT I

UNIT II

UNIT III

UNIT IV
Warp knitting fundamentals. Basic Warp knitted structures, closed lap and Open lap stitches. Classification of Warp Knitting Machines – Knitting elements of Rachel and Tricot knitting machine, Points of difference between Rachel and Tricot knitting machine. Representation of Warp – Knit structure.
UNIT V
Basic Yarn Properties for Weft and Warp Knitting – Defects in weft and Warp Knitted fabrics, causes and remedies – Test for Weft Knit quality – Knitting Calculations for Weft Knits and Warp Knits.

TOTAL : 45 PERIODS

TEXT BOOKS

REFERENCES

TT2302 PROCESS AND QUALITY CONTROL IN SPINNING L T P C
3 0 0 3

AIM
To provide an in-depth knowledge of theoretical concepts and the modern technological aspects of process and quality control in spinning

OBJECTIVES
• To make the student to be conversant with following studies of process and quality control in spinning
  Scope of process control and statistical application
  Control of raw material quality, waste generation, yarn quality and productivity

UNIT I PROCESS CONTROL CONCEPT AND STATISTICAL APPLICATION
Scope of process control in spinning - Identification of process variables and product characteristics to control process in the blow room, card, draw frame, comber, speed frame and yarn spinning - Concepts of developing norms and standards for spinning process. Application of statistical techniques in process and quality control

UNIT II CONTROL OF RAW MATERIAL QUALITY
Quality control of mixing quality through fibre quality characteristics - Concept of fibre quality index and its application – Prediction of spinnability and yarn quality - Blending irregularity. Causes of nep generation –.nep removal in carding and combing machines. Online monitoring and control of neps on modern cards

UNIT III CONTROL OF YARN REALIZATION AND WASTE
Estimation of yarn realization – Determination of trash content and cleaning efficiency in blow room and carding – Determination of comber noil and combing efficiency - Control of waste in blow room, carding and comber - Control of hard waste.

UNIT IV YARN QUALITY CONTROL
UNIT V PRODUCTION CONTROL


TOTAL: 45 PERIODS

TEXT BOOKS

REFERENCES

TT2303 FABRIC MANUFACTURE – II L T P C 3 0 0 3

AIM
To impart basic knowledge in different aspects and methods of fabric manufacture.

OBJECTIVES
- To know the objective of different processes.
- To get thorough knowledge in the concepts involved in these processes.
- To study the mechanism involved in the different processes.
- To get exposure in the latest developments in fabric production

UNIT I 9
Basic Weaving motions – Warp Let-off, shedding, filling insertion, Beat-Up, Take-Up Auxiliary functions. Classification of looms. Loom timing diagram for different motions, Negative and Positive Cam shedding - Negative and Positive Dobby shedding – Cross border Dobby - Pick finding device and dobbey pegging.

UNIT II 9
Jacquard shedding – Single Lift, Single Cylinder, Double Lift, Single Cylinder, Double Lift, Double Cylinder jacquards, Electronic jacquards - Card Cutting Lasing. Cone overpick, Side leverpick, Cone underpick, Ruti Underpick, swell checking, check straps, hydraulic Swell checking, Check Straps, Hydraulic checking - 4 bar 6 bar linkage, beat up mechanism, crank arm types.

UNIT III 9
Weaving Accessories -Types and Selection of Heald Wires, Heald Frames, Reeds, Shuttles, Picking Accessories, Drop Wires, and Temples. Negative let off and Positive Let off, Five and Seven Wheel take up motions, Continuous take up motion, Loose Reed and Fast Reed Mechanisms, Types of Warp Stop Motions, Multiple Box Motions, Pick at will motion.
UNIT IV

UNIT V
Multiphase looms, quick style changes, Weaving of rotor spun yarns, blended yarns, filament yarns – denim – Warp preparation and weaving of Terry fabrics- Improving productivity.

TOTAL: 45 PERIODS

TEXT BOOKS

REFERENCES

TT2304 TEXTILE CHEMICAL PROCESSING – I
L T P C
3 0 0 3

AIM
To impart basic knowledge in the area of textile wet processing of fabrics and garments.

OBJECTIVES
- To study the various processes involved in chemical processing
- To understand the processes of scouring, bleaching, mercerizing
- To study the fundamental aspects of dyeing- methods and machines.

UNIT I

UNIT II
UNIT III

UNIT IV

UNIT V

TOTAL: 45 PERIODS

TEXT BOOKS

REFERENCES

TT2305  TEXTILE QUALITY EVALUATION  L T P C
3 0 0 3

AIM
To impart fundamental knowledge in the area of fiber, yarn and fabric quality evaluation

OBJECTIVES
- To study the aims of quality evaluation
- To understand the techniques of design of experiments and their role in quality evaluation
- To know in detail the various aspects of fiber properties, yarn properties, and fabric properties

UNIT I  INTRODUCTION

UNIT II  STATISTICAL EVALUATION
Measures of central tendency and dispersion, Determination of number of tests, Types of error, Sources of error, Design of experiments – Factorial designs, Response surface designs, Taguchi designs. Repeatability, Reproducibility.
UNIT III FIBRE QUALITY EVALUATION

UNIT IV YARN QUALITY EVALUATION

UNIT V FABRIC QUALITY EVALUATION

TOTAL: 45 PERIODS

TEXT BOOKS

REFERENCES

GE2321 COMMUNICATION SKILLS LABORATORY L T P C (Fifth / Sixth Semester) 0 0 4 2

Globalization has brought in numerous opportunities for the teeming millions, with more focus on the students’ overall capability apart from academic competence. Many students, particularly those from non-English medium schools, find that they are not preferred due to their inadequacy of communication skills and soft skills, despite possessing sound knowledge in their subject area along with technical capability. Keeping in view their pre-employment needs and career requirements, this course on Communication Skills Laboratory will prepare students to adapt themselves with ease to the industry environment, thus rendering them as prospective assets to industries. The course will equip the students with the necessary communication skills that would go a long way in helping them in their profession.

OBJECTIVES
- To equip students of engineering and technology with effective speaking and listening skills in English.
To help them develop their soft skills and interpersonal skills, which will make the transition from college to workplace smoother and help them excel in their job.

To enhance the performance of students at Placement Interviews, Group Discussions and other recruitment exercises.

<table>
<thead>
<tr>
<th>I. PC based session (Weightage 40%) 24 periods</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. ENGLISH LANGUAGE LAB (18 Periods)</td>
</tr>
<tr>
<td>1. LISTENING COMPREHENSION: (6)</td>
</tr>
<tr>
<td>Listening and typing – Listening and sequencing of sentences – Filling in the blanks - Listening and answering questions.</td>
</tr>
<tr>
<td>2. READING COMPREHENSION: (6)</td>
</tr>
<tr>
<td>Filling in the blanks - Close exercises – Vocabulary building - Reading and answering questions.</td>
</tr>
<tr>
<td>3. SPEAKING: (6)</td>
</tr>
<tr>
<td>Phonetics: Intonation – Ear training - Correct Pronunciation – Sound recognition exercises – Common Errors in English. Conversations: Face to Face Conversation – Telephone conversation – Role play activities (Students take on roles and engage in conversation)</td>
</tr>
<tr>
<td>B. DISCUSSION OF AUDIO-VISUAL MATERIALS (6 PERIODS)</td>
</tr>
<tr>
<td>(Samples are available to learn and practice)</td>
</tr>
<tr>
<td>1. RESUME / REPORT PREPARATION / LETTER WRITING (1)</td>
</tr>
<tr>
<td>Structuring the resume / report - Letter writing / Email Communication - Samples.</td>
</tr>
<tr>
<td>2. PRESENTATION SKILLS: (1)</td>
</tr>
<tr>
<td>Elements of effective presentation – Structure of presentation - Presentation tools – Voice Modulation – Audience analysis - Body language – Video samples</td>
</tr>
<tr>
<td>3. SOFT SKILLS: (2)</td>
</tr>
<tr>
<td>Time management – Articulateness – Assertiveness – Psychometrics – Innovation and Creativity - Stress Management &amp; Poise - Video Samples</td>
</tr>
<tr>
<td>4. GROUP DISCUSSION: (1)</td>
</tr>
<tr>
<td>Why is GD part of selection process? - Structure of GD – Moderator – led and other GDs - Strategies in GD – Team work - Body Language - Mock GD -Video samples</td>
</tr>
</tbody>
</table>
5. INTERVIEW SKILLS:

Kinds of interviews – Required Key Skills – Corporate culture – Mock interviews – Video samples.

<table>
<thead>
<tr>
<th>II. Practice Session</th>
<th>(Weightage – 60%)</th>
<th>24 periods</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Resume / Report Preparation / Letter writing: Students prepare their own resume and report.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Presentation Skills: Students make presentations on given topics.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Group Discussion: Students participate in group discussions.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Interview Skills: Students participate in Mock Interviews</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

REFERENCES

LAB REQUIREMENT
1. Teacher console and systems for students.
2. English Language Lab Software
3. Career Lab Software

Guidelines for the course

GE2321 COMMUNICATION SKILLS LABORATORY

A batch of 60 / 120 students is divided into two groups – one group for the PC-based session and the other group for the Classroom session.

The English Lab (2 Periods) will be handled by a faculty member of the English Department. The Career Lab (2 Periods) may be handled by any competent teacher, not necessarily from English Department.

Record Notebook: At the end of each session of English Lab, review exercises are given for the students to answer and the computer evaluated sheets are to be compiled as record notebook. Similar exercises for the career lab are to be compiled in the record notebook.

Internal Assessment: The 15 marks (the other 5 marks for attendance) allotted for the internal assessment will be based on the record notebook compiled by the candidate. 10 marks may be allotted for English Lab component and 5 marks for the Career Lab component.

End semester Examination: The end-semester examination carries 40% weightage for English Lab and 60% weightage for Career Lab.

Each candidate will have separate sets of questions assigned by the teacher using the teacher-console enabling PC-based evaluation for the 40% of marks allotted.
The Career Lab component will be evaluated for a maximum of 60% by a local examiner & an external examiner drafted from other Institutions, similar to any other lab examination conducted by Anna University.

### Requirement for a batch of 60 students

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Description of Equipment</th>
<th>Quantity required</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><strong>Server</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>o PIV system</td>
<td></td>
</tr>
<tr>
<td></td>
<td>o 1 GB RAM / 40 GB HDD</td>
<td></td>
</tr>
<tr>
<td></td>
<td>o OS: Win 2000 server</td>
<td></td>
</tr>
<tr>
<td></td>
<td>o Audio card with headphones (with mike)</td>
<td>1 No.</td>
</tr>
<tr>
<td></td>
<td>o JRE 1.3</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td><strong>Client Systems</strong></td>
<td>60 No.</td>
</tr>
<tr>
<td></td>
<td>o PIII or above</td>
<td></td>
</tr>
<tr>
<td></td>
<td>o 256 or 512 MB RAM / 40 GB HDD</td>
<td></td>
</tr>
<tr>
<td></td>
<td>o OS: Win 2000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>o Audio card with headphones (with mike)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>o JRE 1.3</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td><strong>Handicam Video Camera (with video lights and mic input)</strong></td>
<td>1 No.</td>
</tr>
<tr>
<td>4.</td>
<td>Television - 29&quot;</td>
<td>1 No.</td>
</tr>
<tr>
<td>5.</td>
<td>Collar mike</td>
<td>1 No.</td>
</tr>
<tr>
<td>6.</td>
<td>Cordless mikes</td>
<td>1 No.</td>
</tr>
<tr>
<td>7.</td>
<td>Audio Mixer</td>
<td>1 No.</td>
</tr>
<tr>
<td>8.</td>
<td>DVD Recorder / Player</td>
<td>1 No.</td>
</tr>
</tbody>
</table>

**TT2306**  
**FABRIC MANUFACTURE LAB II**  
**L T P C**  
**0 0 3 2**

**AIM**
To develop the skills among students in the operation and maintenance of the various machines suitable for fabric production.

**OBJECTIVES**
- To study the mechanism / settings in cone winding machines, pirm winding and non-auto loom and effect of altering the various parameters.
- To develop skills in the operation and maintenance of all the above machines.
- To improve skills also in the operation and maintenance of the various attachments like dobbies, jacquards, etc on non-automatic loom.

**LIST OF EXPERIMENTS**
(Minimum of ten experiments shall be offered)
To study the mechanism, setting & operation of the following loom motions.
Tappet Shedding
Dobby and method of pegging.
Side Weft Fork Mechanism
Loose Reed
Fast Reed
Loom Brake and Clutch Mechanism
4x1 Drop Box Mechanism
4 x 4 Drop Box Mechanism and Pick at will Motion
Positive Let off
Warp Stop Motion
Automatic Pirn Changing
Centre Weft Fork Motion
Shuttleless Loom

**EQUIPMENT REQUIRED**

1. Tappet shedding – positive / negative - 1 each
2. Shuttle picking mechanism – Over pick or under pick - 1 each
3. Beat up mechanism - 1
4. Take up mechanism (Five wheel or Seven wheel) - 1 each
5. Negative let-off mechanism - 1
6. Positive let-off mechanism - 1
7. Warp protector mechanism – loose reed and fast reed - 1 each
8. Weft fork mechanism - 1
9. Automatic pirn changing mechanism (Desirable) - 1
10. Automatic warp stop motion (Desirable) - 1
11. Drop box loom - 1
12. Terry fabric weaving (Desirable) - 1
13. Plain, Interlock and Rib knitting machines (Desirable) - 1 each

**TOTAL: 45 PERIODS**

**TT 2307**

**TEXTILE QUALITY EVALUATION LAB**

**Aim**
To impart practical knowledge in the area of evaluation of fiber, yarn and fabric properties

**Objective**
- To study the evaluation procedures for determining various fibre, yarn and fabric properties

**List of Experiments**
(Minimum of 10 experiments shall be offered)
Measurement of Fibre Length.
Measurement of Fibre Strength.
Measurement of Fibre Fineness.
Measurement of Fibre Maturity.
Measurement of Fibre Trash & Lint.
Measurement of Fibre Nep content.
Measurement of Fibre Linear density of sliver, roving and yarn.
Measurement of single yarn and ply yarn twist.
Measurement of single yarn strength and Lea strength.
Measurement of Yarn Evenness.
Measurement of Yarn Impact Strength.
Measurement of Fabric thickness, Stiffness and Crease recovery.
Measurement of Fabric Tensile Strength.
Measurement of Fabric Bursting strength and Color fastness.
Measurement of Abrasion Resistance.
Measurement of Fabric Pilling.
Crimp study, GSM study in Fabric and Fabric engineering.

TESTING EQUIPMENT REQUIRED
Baer Sorter.
Fibre Bundle Strength Tester.
Fibre Fineness Tester.
Trash Analyzer.
Nep Count Template.
Wrap Reel.
Electronic Twist Tester.
Single Yarn Strength Tester.
Ballistic tester.
Thickness Tester.
Stiffness Tester.
Crease Recovery Tester.
Bursting Strength Tester.
Martindale Abrasion Resistance Tester.
Crock meter.

TOTAL: 45 PERIODS

TT2351 QUALITY ASSURANCE IN FABRIC MANUFACTURE AND GARMENT PRODUCTION

AIM
To impart basic knowledge in the area of Quality Assurance in Fabric Manufacture and Garment Production

OBJECTIVES
- To study the concepts of Quality Assurance
- To study the Process and Quality Control Parameters in Fabric and Garment Production
- To know in detail the various aspects of Quality Management related to Garment Production

UNIT I
UNIT II

UNIT III
Types of control forms—basic production systems—principles for choosing a production system—evaluating systems—flow process and grid charts—flow process grid for production control—scheduling calculations—graph method—schedules for producing many styles simultaneously—producing many styles continuously in one line.

UNIT IV

UNIT V
Tolerance and quality standards for fabrics, processing, cutting, stitching in garment industry, tolerances and quality standard for finished garments—quality control and inspection agencies—Government and private agencies—AEPC, Textiles Committee Quality control system and standards for packing and packed goods, ware housing & shipping—cost of quality—cost of conformance-cost of non-conformance.

TOTAL: 45 PERIODS

TEXT BOOKS

REFERENCES
2. Sammel Eliou, “Production Planning & Control”, Wiley Eastern Pvt. Ltd

TT2352 TEXTILE CHEMICAL PROCESSING - II L T P C 3 0 0 3

AIM
To impart an in depth knowledge in the area of textile wet processing of fabrics and garments.

OBJECTIVES
- To study the various processes involved in Chemical Processing
- To understand the processes of Printing, Finishing
- To study the fundamental aspects of ecofriendly processing in Textile Finishing
UNIT I

UNIT II

UNIT III

UNIT IV

UNIT V

TOTAL: 45 PERIODS

TEXT BOOKS

REFERENCES
AIM
To provide a broad conceptual and theoretical perspective of apparel manufacturing for future apparel professionals.

OBJECTIVES
- To create awareness among the students about:
  - Aspects of the apparel business that make it unique
  - The terminology as used by the apparel manufacturing industry.
  - Nature of the global textile and apparel industry as a source for materials and production capacity
  - Effect of equipment on product quality and performance

UNIT I

UNIT II

UNIT III

UNIT IV

UNIT V
TEXT BOOKS

REFERENCES

TT2354 WOVEN FABRIC STRUCTURE L T P C
3 0 0 3

AIM
To impart basic knowledge of woven fabric structures, like plain, Twill, Satin, Bedford cord, Double cloth, Swivel and Lappet designs, pile fabrics and Lenos, mechanisms of the machines producing these structures and colour theory.

OBJECTIVES
- To study the fabric structure in depth.
- To understand the concepts of production of fabrics with these structures.
- To know the characteristics and application/end uses of the fabric with these structures.
- To impart exposure about colour theory which is relevant in production of fabrics with various colour combinations and designs
- To study the mechanism or motions of the loom, loom attachments, like dobby/jacquard for the production of fabrics with these structures.

UNIT I

UNIT II

UNIT III
Colour theory – Light and Pigment Theory – Modification of colour – Application of colours – Colour and weave effects Extra warp and Extra weft figuring – with two colours.
UNIT IV
Double cloth: Classification – types of stitches-wadded double cloth – warp and weft wadded double cloth – centre warp and weft stitched double cloth.

UNIT V

TOTAL: 45 PERIODS

TEXT BOOKS

REFERENCES

TT2355 KNITTING AND GARMENT LAB

AIM
To impart practical knowledge in the field of Knitting and Garment construction

OBJECTIVES
• To study the mechanism and settings of knitting machines
• To develop the knowledge in the field of Pattern making, stitching, embroidery, etc.

LIST OF EXPERIMENTS
1. To study the working Principle of Circular Weft Knitting machine
2. To study the features of various types of Knitting needles
3. Effect of Stitch length on Knitted fabric quality
4. Setting of various machine parameters on Circular Knitting machine
5. Preparing samples for different types of basic hand stitches
6. Preparing samples for seams and seam finishes
7. Developing patterns for children’s wear
8. Developing pattern for ladies wear.
10. Development of embroidery designs – hand and sewing machine

LIST OF EQUIPMENTS
1. Single jersey knitting machine
2. Sewing machine
3. Embroidery circular wooden frame
4. Hand sewing needles
5. Steel scales, Brown sheets, Measuring tapes, Scissors
6. Skein threads, Machine embroidery threads, marking chalk

TOTAL: 45 PERIODS
AIM
To impart the knowledge of analyzing the woven fabric structures, like Plain, Twill, Satin, Bedford cord, Double cloth, Pile fabrics and Lenos

OBJECTIVES
- To analyse the fabric structure.
- To understand the concepts of production of fabrics with these structures.
- To know the characteristics and application/end uses of the fabric with these structures.
- To impart exposure about colour theory which is relevant in production of fabrics with various colour combinations and designs

LIST OF EXPERIMENTS
(Minimum of Ten Experiments shall be offered)
Construction Details – Design, Draft, Peg Plan, Warp and Weft particulars and Loom requirements and Knitting machine particulars for the following.

Plain / Twill / Satin / Sateen Weaves.
Honey comb weave.
Huck-a-Back weave.
Extra Warp / Extra Weft.
Pile Fabrics (Warp & Weft)
Welts and Pique.
Backed Fabrics.
Gauze and Leno.
Double cloth.
Crepe.
Tapestry.
Mock Leno.
Bedford cords.
Colour and Weave Effects.

LIST OF EQUIPMENT REQUIRED

<table>
<thead>
<tr>
<th>S.No</th>
<th>Description</th>
<th>Quantity required</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Counting glass</td>
<td>Students must bring</td>
</tr>
<tr>
<td>2.</td>
<td>Electronic balance (0.01g to 300g)</td>
<td>1</td>
</tr>
<tr>
<td>3.</td>
<td>GSM cutter</td>
<td>1</td>
</tr>
<tr>
<td>4.</td>
<td>Beesley balance</td>
<td>1</td>
</tr>
</tbody>
</table>

TOTAL: 45 PERIODS
AIM
To develop the practical skills among the students in chemical processing

OBJECTIVES
- To study the various methods of pretreatment of yarns, fabrics.
- To study the various dyeing methods.

LIST OF EXPERIMENTS

(Minimum of Ten Experiments shall be offered)
Identification of dyes on fibre
Scouring of cotton fabrics
Bleaching of cotton using hypochlorite
Bleaching of cellulosic fibres using hydrogen peroxide
Yarn and fabric mercerisation.
Dyeing of cotton / viscose yarns using direct dyes
Dyeing of cotton yarn using vat dyes
Dyeing of cotton yarn using reactive dyes
Dyeing of cotton fabric with reactive dyes pad-batch methods
Dyeing of polyester using carrier
Dyeing of polyester / cotton blends
Dyeing of silk, wool with acid, reactive dyes

LIST OF EQUIPMENTS REQUIRED

1. Stainless vats (500 ml)
2. Water bath, Thermometers
3. Stirrer
4. Steam ager, Pilot padding mangle
5. HTHP Beaker dyeing machine
6. Pilot curing chamber
7. Fastness tester for Washing, Rubbing

TOTAL: 45 PERIODS

MG2351 PRINCIPLES OF MANAGEMENT
(Common to all Branches) L T P C
3 0 0 3

OBJECTIVE
Knowledge on the principles of management is essential for all kinds of people in all kinds of organizations. After studying this course, students will be able to have a clear understanding of the managerial functions like planning, organizing, staffing, leading and controlling. Students will also gain some basic knowledge on international aspect of management.

UNIT I OVERVIEW OF MANAGEMENT
UNIT II PLANNING

UNIT III ORGANIZING

UNIT IV DIRECTING
Creativity and Innovation - Motivation and Satisfaction - Motivation Theories Leadership - Leadership theories - Communication - Hurdles to effective communication - Organization Culture - Elements and types of culture - Managing cultural diversity.

UNIT IV CONTROLLING
Process of controlling - Types of control - Budgetary and non-budgetary control techniques - Managing Productivity - Cost Control - Purchase Control - Maintenance Control - Quality Control - Planning operations.

TOTAL : 45 PERIODS

TEXT BOOKS

REFERENCES

TT2401 QUALITY ASSURANCE IN CHEMICAL PROCESSING

AIM
To impart knowledge to the students in wet processing of textile materials

OBJECTIVES
- To study the importance of process and quality control in textile finishing
- To understand the various quality control techniques in Bleaching, Dyeing and Printing
- To create awareness in the latest developments in Fabric and Garment Processing With respective to quality
UNIT I

UNIT II

UNIT III
Evaluation of bleaching – degree of whiteness, change in mechanical properties, presence of carboxyl groups and aldehyde groups, fluidity, ash content, uniformity of grey preparation. Evaluation of mercerisation – deconvolution count, lustre, change in mechanical properties, barium activity number, change in dye absorbency.

UNIT IV
Quality evaluation of dyed / printed materials, colour fastness to washing, light, crock (dry and wet), perspiration, bleaching, sublimation, uniformity of dyeing, shade matching. Quality evaluation of finished fabric for water repellancy, air permeability, stiffness, crease, flame resistance, anti static and soil release.

UNIT V

TOTAL: 45 PERIODS

TEXTBOOKS

REFERENCE

TT 2402 MECHANICS OF TEXTILE MACHINERY L T P C
3 0 0 3

UNIT I MACHINE DESIGN
Equations of forces, motion and energy; design of cams; gear trains and draft calculations; principles of clutches and brakes - practical application in textile machines

UNIT II ROTARY MOTION
Equations of rotary motion; energy stored in rotating masses; power transmitted by rope and belt drives; friction calculations; balancing of rotating masses
UNIT III SPINNING MACHINERY
Differentials and variable speed drives – principles, application in textile machines; design of cone drums – piano feed regulation, speed frame builder mechanism; balloon and traveller dynamics.

UNIT IV WEAVING MACHINERY
Design of winder drums; kinematics of shedding; picking – cams, torsion bars and other mechanisms; beat up; back rest.

UNIT V PRINCIPLE OF MOMENTS
Kinetic and potential energy calculation in Textile Machines, principle of moments – ring frames a top arm loading, forces in heald reversing system.

TOTAL : 45 PERIODS

REFERENCES

TT 2403 BONDED FABRICS L T P C
UNIT I INTRODUCTION
Definitions and classification of bonded fabrics; fibres and their characteristics for the production of bonded fabrics, uses; production methods and consumption of non-wovens

UNIT II WEB FORMING
Production of staple-fibre web by dry and wet methods; web laying methods and its influence on fabric properties; manufacture of web from filaments; uniformity and quality control of web

UNIT III BONDING
Bonded fabric production by needling, stitching, water jet consolidation, thermal and chemical methods; production of bonded fabrics by spun bonding and melt blown process; effect of processing parameters on fabric properties

UNIT IV FINISHING
Dry finishing – shrinkage, wrenching and creping, calendaring, perforating, slitng and splitting; wet finishing – washing, dyeing, printing; softening, flame proofing; coating; laminating; flocking

UNIT V EVALUATION
Various end uses of bonded fabrics; evaluation of non-woven fabrics; structure- property relationship in bonded fabrics

TOTAL : 45 PERIODS
REFERENCES

TT2405 PRODUCTION PROCESS LAB L T P C
0 0 3 2

AIM
To impart practical knowledge to the students in the area of process technology aspects of textile product manufacturing

OBJECTIVES
- To study the practical aspects of process technology used in production of various yarns.
- To study the practical aspects of production of defect free pirns, and manufacturing of technical textile fabrics
- To study the trouble shooting in warping and sizing, various techniques for effluent treatment, influence of enzymes in textile chemical processing
- To study about garment washing and effect of various finishes on woven and knitted fabrics.

LIST OF EXPERIMENTS
(Minimum of 10 experiments shall be offered)
1. Studies on determination of cylinder load and transfer efficiency in carding
2. Studies on influence of process variables on ring-spun yarn quality
3. Studies on productivity improvement in ring spinning
4. Studies on influence of process variables on rotor-spun yarn quality
5. Studies on productivity improvement in rotor spinning
6. Studies on influence of process variables on siro-spun and siro-fil yarns
7. Studies on production of mélangé yarns
8. Studies of production of core-spun yarns
9. Studies on influence of process important variables on air-jet-spun yarn quality
10. Studies on influence of important process variables on friction-spun yarn quality
12. Studies on production of defect free pirns with cotton, pc bended and polyester filament yarns
13. Study on troubleshooting in warping and sizing
14. Studies on manufacturing of special fabrics – denims and fabrics for technical Textiles
15. Studies on productivity improvement in weaving
16. Studies on various techniques for effluent treatment
17. Studies on influence of enzymes textile chemical processing
18. Studies on garment washing process
19. Studies on effect of aesthetic and functional finishes on woven fabrics
20. Studies on effect of aesthetic and functional finishes on knitted fabrics

TOTAL: 45 PERIODS

LIST OF EQUIPMENTS REQUIRED
The equipments / machineries listed for the Spun Yarn Technology Lab I & II, Fabric Manufacturing Lab I & II, Textile Quality Evaluation Lab and Textile Chemical processing Lab can be used.

GE2022 TOTAL QUALITY MANAGEMENT L T P C
3 0 0 3

UNIT I INTRODUCTION

UNIT II TQM PRINCIPLES
Leadership – Strategic quality planning, Quality statements - Customer focus – Customer orientation, Customer satisfaction, Customer complaints, Customer retention - Employee involvement – Motivation, Empowerment, Team and Teamwork, Recognition and Reward, Performance appraisal - Continuous process improvement – PDSA cycle, 5s, Kaizen - Supplier partnership – Partnering, Supplier selection, Supplier Rating.

UNIT III TQM TOOLS & TECHNIQUES I

UNIT IV TQM TOOLS & TECHNIQUES II

UNIT V QUALITY SYSTEMS

TOTAL : 45 PERIODS

TEXT BOOK

REFERENCES

TT2021 TEXTURED YARN TECHNOLOGY L T P C 3 0 0 3

AIM
To study about the technology of textured yarn production.

OBJECTIVE
- To impart knowledge about technological aspects textured yarn production.

UNIT I 9
Need for bulking of synthetic fibres – texturing – basic definition and classifications – developments in high speed spinning – POY.

UNIT II 9

UNIT III 9

UNIT IV 9
Basics of air jet texturing – types of yarns produced – feed material structure and properties of air-jet texturing machines, nozzles, evaluation of air-jet textured yarn vis-à-vis spun and filament false twist textured yarns.

UNIT V 9
Stuffer box and edge crimping methods – principles, limitations, and applications – knit-de-knit and gear crimping methods Bi-component filament texturing – texturing of polypropylene and jute fibres – Chemo-mechanical and thermo-mechanical texturing

TOTAL: 45 PERIODS

TEXTBOOKS
REFERENCES

TT2022 SILK YARN TECHNOLOGY

AIM
To study the various technological aspects of silk

OBJECTIVE
- To impart knowledge on various issues related to silk production technology.

UNIT I
Overview of the silk industry and the features of silk, Present day silk industry, Varieties of silk. Mulberry leaf varieties and production, Biology of the silkworm, Silkworm rearing, Harvesting. Characteristics of the cocoon – Physical characteristics, Composition of the cocoon, Properties of silk. Cocoon quality, Factors influencing cocoon quality, Classification of cocoons, Cocoon testing and grading.

UNIT II

UNIT III
Re-reeling and Finishing: Re-reeling, Re-reeling machine and apparatus, How to re-reel raw silk, Re-reeling efficiency, Silk end tying and skein lacing, Booking and packing, Storage of silk. Factory Planning: Annual requirement of cocoons, Equipment for installation, Location and space, Quality and quantity of filature water, Selection of proper machinery.

UNIT IV
UNIT V  

TOTAL: 45 PERIODS

TEXT BOOKS

TT2023 MECHANICS OF TEXTILE STRUCTURES L T P C 3 0 0 3

AIM
To study the fundamentals of mechanics of textile structures.

OBJECTIVE
- To impart the fundamental knowledge about yarn geometry, fibre migration, mechanics of staple-fibre and filament yarns, and fabric geometry related issues concerning textile structures.

UNIT I  YARN GEOMETRY

UNIT II  FIBRE MIGRATION

UNIT III  MECHANICS OF STAPLE FIBRE YARNS

UNIT IV  MECHANICS OF FILAMENT YARNS
Theory of extension of continuous filament yarns, Analysis of tensile forces, Stress-strain relations of the filaments, Effects of large extensions, Filament behaviour at large extensions, Prediction of breakage, Load-Extension curve near break, Tenacity, Breaking extension, Initial modulus, Work of rupture.
UNIT V  FABRIC GEOMETRY AND DEFORMATION


TOTAL : 45 PERIODS

TEXT BOOKS

REFERENCES

TT2031  FASHION ART AND DESIGN

AIM
To study about various aspects related to fashion art and design.

OBJECTIVE
• To impart the fundamental knowledge of fashion art and design.

UNIT I
9
Origin of clothing – Grouping of dress out of painting, cutting and other methods. Role of costumes as a status symbol, sex appeal, Fashion and seasons. Costumes of ancient civilizations - Egypt, Greece, Roman, English, French empires during Renaissance 1500 - 1600 AD.

UNIT II
9
Costumes of India. History of Indian costumes up to Mughal period, History of Indian costumes post Mughal period. Traditional costumes of different states. Factors influencing costumes changes in India – Accessories and Garments used in India. Costumes of Pakistan, Srilanka, Burma, China and Japan.

UNIT III
9

UNIT IV
9
UNIT V
Study of Dacca Muslin, Jamdhani, Himrus & Amrus, carpets, Kashmir shawls, Kancheepuram and Baluchari saris, Paithani saris, Bandhani, Patola, Ikkat, Kalamkari & other styles of printing and dyeing textiles. Factors determining changes in costumes from period to period.

TOTAL : 45 PERIODS

TEXT BOOKS
1. Russel Gillow, Nicholas Barnard, “Traditional Indian Textiles”, Thames and Hudson Ltd.

REFERENCES

TT2032 TEXTILE MACHINERY MAINTENANCE

AIM
To study the maintenance aspects of textile machinery

OBJECTIVE
• To impart complete knowledge about maintenance aspects of textile machinery

UNIT I

UNIT II

UNIT III

UNIT IV 9

UNIT V 9

TOTAL : 45 PERIODS

TEXT BOOKS
2. “Maintenance Management in Spinning”, SITRA, Coimbatore

REFERENCES
1. “Maintenance Schedules, Practices and Checkpoints in Spinning”, BTRA, Bombay

TT 2033 INDUSTRIAL ENGINEERING IN TEXTILE MANUFACTURE L T P C
3 0 0 3

UNIT I 5
Industrial Engineering - evolution, functions, role of industrial engineer

UNIT II 13
Methods study – introduction, techniques of recording; method analysis techniques; principles of motion economy; method study in garment manufacture; ergonomics-importance, workplace design, fatigue

UNIT III 13
Work measurement – introduction; time study – equipment and procedure; standard data; predetermined time standards; work sampling techniques; incentive wage system; work measurement applied to garment industry

UNIT IV 5
Site selection for textile industry; plant layout - types of layouts suitable for textile industry, methods to construct layout; line balancing

UNIT V 9
Statistical Process Control – data collection; concept of AQL, control charts in quality control; process capability

TOTAL : 45 PERIODS
REFERENCES

TT2041   APPAREL PRODUCT ENGINEERING AND PLANT LAYOUT      L T P C
                          3 0 0 3

AIM
To study the plant layout and engineering aspects of apparel products.

OBJECTIVE
- To impart knowledge regarding the various aspects of apparel product engineering, including time and motion study, and plant layout.

UNIT I    PRODUCT ANALYSIS
Relationship between quality and construction of a sewn product, geometric principles of draping, drafting and industrial patterns product specifications.

UNIT II   PRODUCTION CONTROL AND ENGINEERING
Industrial engineering concepts-development and application of standard data for pre-costing and factory scheduling-basic production systems - production control charts. Manufacturing information system: systems and procedures.

UNIT III  PRODUCTION MANAGEMENT ANALYSIS
Analysis of techniques for material utilization and cutting of raw materials for all types of sewn products, principles and methods of costing, evaluation of equipment for examining, spreading, cutting, marking and ticketing - solution of production problems in spreading, cutting and cost control.
UNIT IV  PLANT LAYOUT  9
Definition-Types of production layout, criteria for evaluation of a plant layout, determining minimum space requirement, calculation grid, plant size location, basic production line layout, Government regulations for plant layout.

UNIT V  TIME AND MOTION STUDY  9
General approach for making a time and motion study, preliminary data for time and motion study sheet, sewing work study, principles of work cycle timing methods, objectives of time study, statistical approaches – statistical calculation of time study. Operator efficiency distributions. Evaluating motion study data principles for improving sewing and pressing operations.

TOTAL: 45 PERIODS

TEXT BOOKS

REFERENCES

TT2042  TECHNICAL TEXTILES  L T P C
3 0 0 3

AIM
To study in detail about various aspects of technical textiles.

OBJECTIVE
• To impart the knowledge of various technological aspects of technical textiles.

UNIT I  9
Technical Textiles – An Overview: Definition and scope of technical textiles, Milestones in the development of technical textiles, Textile processes, applications, Globalization of technical textiles, Future of the technical textiles industry.

Technical Fibres: Introduction, High strength and high modulus organic fibres, High chemical- and combustion-resistant organic fibres, High performance inorganic fibres, Ultra-fine and novelty fibres, Fibres used in Civil and agricultural engineering, Automotive and aeronautics, Medical and hygiene applications, Protection and defence applications.

UNIT II  9
**Textiles in Filtration:** Introduction, Dust collection, Fabric construction, Finishing treatments, Yarn types and fabric constructions, Fabric constructions and properties, Production equipment, Finishing treatments, Fabric test procedures.

**UNIT III**

**Textiles in Civil Engineering:** Geosynthetics, Geotextiles, Essential properties of geotextiles, Engineering properties of geotextiles, Geotextile structure, Frictional resistance of geotextiles.

**Medical Textiles:** Introduction, Fibres used, Non-implantable materials, Extra-corporeal devices, Implantable materials, Healthcare / hygiene products.

**UNIT IV**

**Textiles in Defence:** Introduction, Historical background, Criteria for modern military textile materials, Textiles for environmental protection, Thermal insulation materials, Water vapour permeable and waterproof materials, Military combat clothing systems, Camouflage concealment and deception, Flame-retardant, heat protective textiles, Ballistic protective materials, Biological and chemical warfare protection.

**UNIT V**


**TOTAL : 45 PERIODS**

**TEXT BOOKS**

**REFERENCES**

**TT2043 GARMENT PRODUCTION MACHINERY AND EQUIPMENT**

**AIM**
To study the production aspects of garments and the equipment used in producing them.

**OBJECTIVE**
- To impart the knowledge of various steps that the fabric undergoes during the garment manufacturing process.
UNIT I
Introduction to spreading machines and cutting machines – types and functions. History of sewing machines and development. Sewing machinery – classification according to bed types, stitch types (hook or looper), material wise (extra light to heavy weight).

UNIT II
Major parts of sewing machinery and functions. Adjustment of major parts of single needle lock stitch machine: Non-UBT: stand height, pedal, presser foot, height of needle bar, needle to hook relationship, height of feed dog, normal and reverse feed stitch length, feed timing, presser foot pressure, needle and bobbin thread tension, bobbin winding assembly, belt tension. Sewing machine safety regulations.

UNIT III
Sewing needle and sewing thread, thread consumption, thread routing. Adjustment on SNLS – UBT: Needle stop position, wiper, thread timing sequence, timing of thread trimmer cam, positioning the moving knife, installation, sharpening, replacing moving knives, adjusting the floating amount of the auxiliary tension disk.

UNIT IV
Parts, functions and adjustments of over lock: Needle height, feed dog height, differential feed ratio, tilt of the feed dog, position of the upper and lower knives, sharpening of knife and loopers, trouble shooting in over lock.

UNIT V
Work-aids and attachments, functions of pullers, guides and folders compensating presser foots- left, right, double; feller, hemmer, etc. Collar turning machines, folding machinery, fusing and pressing machinery. Computer controlled cutting, sewing and folding machinery.

TOTAL : 45 PERIODS

TEXT BOOKS

REFERENCE

TT2071 APPAREL PRODUCTION AND CONTROL

AIM
To study the various aspects of apparel production control.

OBJECTIVE
- To impart knowledge of various control mechanisms involved in apparel production.
UNIT I

UNIT II
Operation sequence development: Garment breakdown with machine and attachment details, development of production grid for garment construction, development of production flowchart.

UNIT III
Bundle tickets: Guidelines for bundle ticket design, functions of bundle tickets, bundle ticket control. Different manufacturing systems: Make through and Assembly line manufacturing - advantages and disadvantages. Lay lot planning: Numerical exercises on lay lot planning to optimize cutting cost, bundling, ticketing and cutting room control formats.

UNIT IV
Production planning and control: Capacity calculation for cutting, sewing and finishing. Determination of machine requirements for new factory. Line balancing: determination and allocation of manpower, machine for balanced production in existing plant for a given target.

UNIT V
Quality in product development: Quality assurance during product development – methods to avoid problems during pattern making, garment construction and other areas. Inspection procedures. Work-study in garment industry – methods to control time and cost.

TOTAL: 45 PERIODS

TEXT BOOKS

TT2072 APPAREL MARKETING AND MERCHANDISING  L T P C
3 0 0 3

AIM
To study the various concepts involved in apparel marketing and merchandising.

OBJECTIVE
- To impart the knowledge of organization, marketing, merchandising, sourcing and documentation aspects of apparel business.

UNIT I
Organization of the Apparel Business: Introduction to apparel industry – Organization of the apparel industry – Types of exporters – Business concepts applied to the apparel industry International trade.
UNIT II

UNIT III

UNIT IV

UNIT V
Documentation: Order confirmation, various types of export documents, pre-shipment post-shipment documentation, terms of sale, payment, shipment, etc. Export incentives: Duty drawback, DEPB, I/E license-exchange control regulation- foreign exchange regulation acts-export management risk-export finance. WTO / GATT / MFA – functions and objectives, successes and failures

TOTAL : 45 PERIODS

TEXT BOOKS

REFERENCES

FT2026 CREATIVITY, INNOVATION AND NEW PRODUCT DEVELOPMENT L T P C 3 0 0 3

AIM
To study the various issues related to Creativity, Innovation and New Product Development.

OBJECTIVES
- To impart the knowledge of various aspects of Creativity, Innovation and New Product Development

UNIT I INTRODUCTION
The process of technological innovation - factors contributing to successful technological innovation - the need for creativity and innovation - creativity and problem solving - brainstorming - different techniques

76
UNIT II   PROJECT SELECTION AND EVALUATION  
Collection of ideas and purpose of project - Selection criteria - screening ideas for new products (evaluation techniques)  

UNIT III   NEW PRODUCT DEVELOPMENT  

UNIT IV   NEW PRODUCT PLANNING  
Design of prototype - testing - quality standards - marketing research - introducing new products  

UNIT V   MODEL PREPARATION & EVALUATION  
Creative design - Model Preparation - Testing - Cost evaluation - Patent application  

TOTAL: 45 PERIODS  

TEXT BOOKS  

REFERENCES  

TT2081 EXPORT DOCUMENTATION & GLOBAL MARKETING  
A L T P C  
3 0 0 3  

AIM  
To study about the various issues related to export documentation and global marketing.  

OBJECTIVE  
- To impart the knowledge of various aspects of export documentation and global marketing  

UNIT I  
Export credit - short term, anticipatory letter of credit, and packing of credit. Negotiation of bills, source of short-term credit, medium-term and long-term export credits, methods, roll of terms of payment in international marketing, Factors responsible for counter trade growth.  

UNIT II  
Domestic trade Vs international trade, Regional trade blocks. Foreign exchange market – Nature of foreign exchange market, Main functions Business and environment – Social environment, Logical environment, Business ethics
UNIT III
Balance of payment, deficit in balance of payment, debits & credits, foreign exchange market, commercial bank credit for export trade

UNIT IV
Standard policies - Indian trade police, India's foreign trade policy, exports and imports policy.

UNIT V
Major documents for exports – International codes for products and services – principal documents, auxiliary documents, documents for claiming export assistance.

TOTAL: 45 PERIODS

TEXT BOOKS

TT2082 TEXTILE COSTING

AIM
To study about various costing aspects involved in apparel products manufacturing.

OBJECTIVE
- To impart the knowledge of costing techniques used in manufacturing of apparel products.

UNIT I
Introduction to costing, Aims of costing, Types of costing, Aims of estimation, Difference between Estimation and Costing, Types of estimates.

UNIT II

UNIT III

UNIT IV
UNIT V

TOTAL: 45 PERIODS

TEXT BOOKS

TT2083 CAD / CAM FOR APPAREL PRODUCTS L T P C
3 0 0 3

AIM
To study computer aided design and computer aided manufacture of apparel products.

OBJECTIVE
- To impart skills in computer aided design and computer aided manufacture of apparels.

UNIT I
Introduction to computer - Concepts of CAD / CAM CAM in garment manufacturing complete pattern design system in preparation for grading, marker making and pattern manipulation

UNIT II
Computerized production pattern making - Hardware, software and system programming to produce a sample production pattern Computer aided manipulation of pattern pieces to create individual styles. Operation of garment CAD software. Computer used for purchase, inventory control and sales, computerization in quality control and production control. Computer aided production planning in garment manufacturing.

UNIT III
Introduction to finite scheduling concept and fast react software. Creating product and order planning, updating. Eliminate late deliveries – General set up, allowances and matrices – Analyzing loan balancing in different departments – control mechanisms – critical path and timetables.

UNIT IV
Computer controlled machinery for garment manufacturing – automated layout planning by various techniques – Algorithm for computer production garment parts – intelligent systems – 3D scanning technology. Use of microcomputers for production control in garment industry Imaging techniques for various designs Development of robotics for CAM.
UNIT V
Management Information System in garment industry – EDI in garment technology
Concept of Enterprise Resource Planning (ERP) and computerization in exports /
documentation

TOTAL: 45 PERIODS

TEXT BOOKS
1. Stephen Gray, "CAD/CAM in Clothing and Textiles", Gower Publishing Limited,
2. Compilation of Papers Presented at the Annual World Conference, “Computers in

REFERENCES