

# Department of Textile Engineering

## UNDERGRADUATE COURSES

### Curriculum for the Degree of Bachelor of Science in Textile Engineering: Textile Technology Engineering

| COURSE CODE                     | COURSE TITLE                             | CREDITS |
|---------------------------------|--|---------|
| <b>Semester I<br/>(Fall)</b>    | Calculus (I)                             | 3       |
|                                 | Physics (I)                              | 3       |
|                                 | Physics Laboratory (I)                   | 1       |
|                                 | General Chemistry                        | 3       |
|                                 | Laboratory of General Chemistry          | 1       |
|                                 | General Courses                          | 5       |
| <b>Semester II<br/>(Spring)</b> | Calculus (II)                            | 3       |
|                                 | Physics (II)                             | 3       |
|                                 | Static                                   | 3       |
|                                 | Organic Chemistry                        | 3       |
|                                 | Polymer and Fiber Science                | 3       |
|                                 | Fiber Science Laboratory                 | 1       |
|                                 | Physical Education (I)                   | 1       |
|                                 | General Courses                          | 2       |
| <b>Semester III<br/>(Fall)</b>  | Differential Equations                   | 3       |
|                                 | Strength of Materials (I)                | 3       |
|                                 | Applied Thermodynamic                    | 3       |
|                                 | Fluid Mechanics                          | 3       |
|                                 | Technology of Fibers Production          | 2       |
|                                 | Physical Education (II)                  | 1       |
|                                 | Physics of Electricity Laboratory        | 1       |
|                                 | General Courses                          | 3       |
| <b>Semester IV<br/>(Spring)</b> | Probability and Statistics For Engineers | 3       |
|                                 | Dynamic                                  | 3       |
|                                 | Textile Physical Chemistry               | 2       |
|                                 | Dyeing Process                           | 2       |
|                                 | Welding and Plating Workshop             | 1       |
|                                 | Fibers Physics                           | 2       |
|                                 | Fibers Physics Laboratory                | 1       |
|                                 | Engineering Drawing I                    | 2       |
|                                 | General Courses                          | 2       |

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|                                 |                                     |   |
|---------------------------------|-------------------------------------|---|
| <b>Semester V<br/>(Fall)</b>    | Electrical Engineering Fundamentals | 3 |
|                                 | Computer Programming                | 3 |
|                                 | Engineering Mathematics             | 3 |
|                                 | Spinning (I)                        | 2 |
|                                 | Spinning Workshop (I)               | 1 |
|                                 | Weaving Preparation                 | 2 |
|                                 | Weaving Preparation Workshop        | 1 |
|                                 | Dyeing Process Laboratory           | 1 |
|                                 | General Courses                     | 2 |
| <b>Semester VI<br/>(Spring)</b> | Spinning (II)                       | 3 |
|                                 | Spinning Workshop (II)              | 1 |
|                                 | Knitting (I)                        | 2 |
|                                 | Knitting Workshop (I)               | 1 |
|                                 | Mechatronics                        | 2 |
|                                 | Conditioning in Textiles Production | 2 |
|                                 | Weaving (I)                         | 2 |
|                                 | Weaving Workshop (I)                | 1 |
|                                 | General Courses                     | 2 |
| <b>Semester VII<br/>(Fall)</b>  | Woven Fabric Design and Analysis    | 3 |
|                                 | Finishing Processes                 | 2 |
|                                 | Knitting (II)                       | 2 |
|                                 | Knitting Workshop (II)              | 1 |
|                                 | Weaving (II)                        | 2 |
|                                 | Weaving Workshop (II)               | 1 |
|                                 | Nonwoven Fabrics                    | 2 |
|                                 | General Courses                     | 2 |
|                                 | Project                             | 3 |
| <b>Semester VIII(Spring)</b>    | New Spinning Systems                | 2 |
|                                 | Quality Control in Textile          | 2 |
|                                 | Quality Control Lab                 | 1 |
|                                 | Factory Planning and Design         | 2 |
|                                 | Long Staple Spinning                | 2 |
|                                 | General Courses                     | 2 |
|                                 | Elective Courses                    | 2 |
|                                 | Elective Courses                    | 2 |
|                                 | Internship                          | 1 |

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|                             |                                   |   |
|-----------------------------|-----------------------------------|---|
| <b>Elective<br/>Courses</b> | Mechanical Engineering Design     | 3 |
|                             | Production Management             | 2 |
|                             | Nonwovens Workshop                | 1 |
|                             | Medical Textile                   | 2 |
|                             | Nanofibers Science and Technology | 2 |
|                             | Dyehouse Color Management         | 2 |
|                             | Motion and Time Study             | 2 |

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## Curriculum for the Degree of Bachelor of Science in Textile Engineering:

### Textile Chemistry Engineering

| COURSE CODE                     | COURSE TITLE                             | CREDITS |
|---------------------------------|--|---------|
| <b>Semester I<br/>(Fall)</b>    | Calculus (I)                             | 3       |
|                                 | Physics (I)                              | 3       |
|                                 | Physics Laboratory (I)                   | 1       |
|                                 | General Chemistry                        | 3       |
|                                 | Laboratory of General Chemistry          | 1       |
|                                 | General Courses                          | 5       |
| <b>Semester II<br/>(Spring)</b> | Calculus (II)                            | 3       |
|                                 | Physics (II)                             | 3       |
|                                 | Static                                   | 3       |
|                                 | Organic Chemistry                        | 3       |
|                                 | Polymer and Fiber Science                | 3       |
|                                 | Fiber Science Laboratory                 | 1       |
|                                 | Physical Education (I)                   | 1       |
|                                 | General Courses                          | 2       |
| <b>Semester III<br/>(Fall)</b>  | Differential Equations                   | 3       |
|                                 | Strength of Materials (I)                | 3       |
|                                 | Applied Thermodynamic                    | 3       |
|                                 | Fluid Mechanics                          | 3       |
|                                 | Technology of Fibers Production          | 2       |
|                                 | Physical Education (II)                  | 1       |
|                                 | Physics of Electricity Laboratory        | 1       |
|                                 | General Courses                          | 3       |
| <b>Semester IV<br/>(Spring)</b> | Probability and Statistics For Engineers | 3       |
|                                 | Dynamic                                  | 3       |
|                                 | Textile Physical Chemistry               | 2       |
|                                 | Dyeing Process                           | 2       |
|                                 | Welding and Plating Workshop             | 1       |
|                                 | Fibers Physics                           | 2       |
|                                 | Fibers Physics Laboratory                | 1       |
|                                 | Engineering Drawing I                    | 2       |
|                                 | General Courses                          | 2       |

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|                                 |                                     |   |
|---------------------------------|-------------------------------------|---|
| <b>Semester V<br/>(Fall)</b>    | Electrical Engineering Fundamentals | 3 |
|                                 | Computer Programming                | 3 |
|                                 | Polymer Chemistry                   | 3 |
|                                 | Dyeing Process Laboratory           | 1 |
|                                 | Spinning process                    | 2 |
|                                 | Spinning Workshop                   | 1 |
|                                 | Color Science                       | 2 |
|                                 | General Courses                     | 2 |
| <b>Semester VI<br/>(Spring)</b> | Engineering Mathematics             | 3 |
|                                 | Weaving Processes                   | 2 |
|                                 | Weaving Processes Workshop          | 1 |
|                                 | Textile Finishing (I)               | 2 |
|                                 | Analytical Chemistry                | 3 |
|                                 | Principles of Dyeing                | 2 |
|                                 | Principles of Dyeing Laboratory     | 1 |
|                                 | Fibre Chemistry                     | 2 |
|                                 | Fibre Chemistry laboratory          | 1 |
|                                 | General Courses                     | 2 |
| <b>Semester VII<br/>(Fall)</b>  | Principle of Chemical Engineering   | 3 |
|                                 | Knitting Process                    | 2 |
|                                 | Knitting Process Workshop           | 1 |
|                                 | Textile Finishing (II)              | 2 |
|                                 | Printing                            | 2 |
|                                 | Printing Workshop                   | 1 |
|                                 | Nonwoven Fabrics                    | 2 |
|                                 | General Courses                     | 2 |
|                                 | Project                             | 3 |
| <b>Semester VIII(Spring)</b>    | Principles of Dyes Chemistry        | 2 |
|                                 | Textile Finishing Laboratory        | 1 |
|                                 | Effluents                           | 2 |
|                                 | Dyehouse Color Management           | 2 |
|                                 | Elective Courses                    | 2 |
|                                 | Elective Courses                    | 2 |
|                                 | General Courses                     | 2 |
|                                 | Internship                          | 1 |

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|                             |                                       |   |
|-----------------------------|---------------------------------------|---|
| <b>Elective<br/>Courses</b> | Production Management                 | 2 |
|                             | Medical Textile                       | 2 |
|                             | Nanofibers Science and Technology     | 2 |
|                             | Factory Planning and Design           | 2 |
|                             | Woven Fabric Analysis and Calculation | 2 |
|                             | Recycling and Reuse of Fiber Waste    | 2 |
|                             | Conditioning in Textiles Production   | 2 |

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## Curriculum for the Degree of Bachelor of Science in Textile Engineering:

### Fiber Engineering

| COURSE CODE                     | COURSE TITLE                             | CREDITS |
|---------------------------------|--|---------|
| <b>Semester I<br/>(Fall)</b>    | Calculus (I)                             | 3       |
|                                 | Physics (I)                              | 3       |
|                                 | Physics Laboratory (I)                   | 1       |
|                                 | General Chemistry                        | 3       |
|                                 | Laboratory of General Chemistry          | 1       |
|                                 | General Courses                          | 5       |
| <b>Semester II<br/>(Spring)</b> | Calculus (II)                            | 3       |
|                                 | Physics (II)                             | 3       |
|                                 | Static                                   | 3       |
|                                 | Organic Chemistry                        | 3       |
|                                 | Polymer and Fiber Science                | 3       |
|                                 | Fiber Science Laboratory                 | 1       |
|                                 | Physical Education (I)                   | 1       |
|                                 | General Courses                          | 2       |
| <b>Semester III<br/>(Fall)</b>  | Differential Equations                   | 3       |
|                                 | Strength of Materials (I)                | 3       |
|                                 | Applied Thermodynamic                    | 3       |
|                                 | Fluid Mechanics                          | 3       |
|                                 | Technology of Fibers Production          | 2       |
|                                 | Physical Education (II)                  | 1       |
|                                 | Physics of Electricity Laboratory        | 1       |
|                                 | General Courses                          | 3       |
| <b>Semester IV<br/>(Spring)</b> | Probability and Statistics For Engineers | 3       |
|                                 | Dynamic                                  | 3       |
|                                 | Textile Physical Chemistry               | 2       |
|                                 | Dyeing Process                           | 2       |
|                                 | Welding and Plating Workshop             | 1       |
|                                 | Fibers Physics                           | 2       |
|                                 | Fibers Physics Laboratory                | 1       |
|                                 | Engineering Drawing I                    | 2       |
|                                 | General Courses                          | 2       |

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|                                 |   |   |
|---------------------------------|---|---|
| <b>Semester V<br/>(Fall)</b>    | Computer Programming                    | 3 |
|                                 | Engineering Mathematics                 | 3 |
|                                 | Fiber Structure                         | 2 |
|                                 | Polymer Chemistry                       | 3 |
|                                 | Fibre Chemistry                         | 2 |
|                                 | Fibre Chemistry laboratory              | 1 |
|                                 | Polymer Chemistry Laboratory            | 1 |
|                                 | Dyeing Process Laboratory               | 1 |
|                                 | General Courses                         | 2 |
| <b>Semester VI<br/>(Spring)</b> | Electrical Engineering Fundamentals     | 3 |
|                                 | Spinning process                        | 2 |
|                                 | Spinning Workshop                       | 1 |
|                                 | Principles of Polymer Rheology          | 2 |
|                                 | Physical Chemistry of Polymer Solutions | 2 |
|                                 | Principle of Chemical Engineering       | 3 |
|                                 | Analytical Chemistry                    | 3 |
|                                 | General Courses                         | 2 |
| <b>Semester VII<br/>(Fall)</b>  | Weaving Processes                       | 2 |
|                                 | Weaving Processes Workshop              | 1 |
|                                 | Knitting Process                        | 2 |
|                                 | Knitting Process Workshop               | 1 |
|                                 | Finishing Processes                     | 2 |
|                                 | Textile Fibers Production Technology    | 3 |
|                                 | Analytical Chemistry Laboratory         | 1 |
|                                 | General Courses                         | 2 |
|                                 | Project                                 | 3 |
| <b>Semester VIII(Spring)</b>    | Texturizing                             | 2 |
|                                 | Nonwoven Fabrics                        | 2 |
|                                 | Effluents                               | 2 |
|                                 | Production Management                   | 2 |
|                                 | Elective Courses                        | 2 |
|                                 | Elective Courses                        | 2 |
|                                 | General Courses                         | 2 |
|                                 | Internship                              | 1 |



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|                             |                                       |   |
|-----------------------------|---------------------------------------|---|
| <b>Elective<br/>Courses</b> | Dyehouse Color Management             | 2 |
|                             | Medical Textile                       | 2 |
|                             | Nanofibers Science and Technology     | 2 |
|                             | Factory Planning and Design           | 2 |
|                             | Woven Fabric Analysis and Calculation | 2 |
|                             | Recycling and Reuse of Fiber Waste    | 2 |
|                             | Conditioning in Textiles Production   | 2 |

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### Curriculum for the Degree of Bachelor of Science in Textile Engineering:

#### Apparel Engineering

| COURSE CODE                     | COURSE TITLE                             | CREDITS |
|---------------------------------|--|---------|
| <b>Semester I<br/>(Fall)</b>    | Calculus (I)                             | 3       |
|                                 | Physics (I)                              | 3       |
|                                 | Physics Laboratory (I)                   | 1       |
|                                 | General Chemistry                        | 3       |
|                                 | Laboratory of General Chemistry          | 1       |
|                                 | General Courses                          | 5       |
| <b>Semester II<br/>(Spring)</b> | Calculus (II)                            | 3       |
|                                 | Physics (II)                             | 3       |
|                                 | Static                                   | 3       |
|                                 | Organic Chemistry                        | 3       |
|                                 | Polymer and Fiber Science                | 3       |
|                                 | Fiber Science Laboratory                 | 1       |
|                                 | Physical Education (I)                   | 1       |
|                                 | General Courses                          | 2       |
| <b>Semester III<br/>(Fall)</b>  | Differential Equations                   | 3       |
|                                 | Strength of Materials (I)                | 3       |
|                                 | Applied Thermodynamic                    | 3       |
|                                 | Fluid Mechanics                          | 3       |
|                                 | Technology of Fibers Production          | 2       |
|                                 | Physical Education (II)                  | 1       |
|                                 | Physics of Electricity Laboratory        | 1       |
|                                 | General Courses                          | 3       |
| <b>Semester IV<br/>(Spring)</b> | Probability and Statistics For Engineers | 3       |
|                                 | Dynamic                                  | 3       |
|                                 | Textile Physical Chemistry               | 2       |
|                                 | Dyeing Process                           | 2       |
|                                 | Welding and Plating Workshop             | 1       |
|                                 | Fibers Physics                           | 2       |
|                                 | Fibers Physics Laboratory                | 1       |
|                                 | Engineering Drawing I                    | 2       |
|                                 | General Courses                          | 2       |

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|                                 |   |   |
|---------------------------------|---|---|
| <b>Semester V<br/>(Fall)</b>    | Electrical Engineering Fundamentals                       | 3 |
|                                 | Computer Programming                                      | 3 |
|                                 | Spinning process  | 2 |
|                                 | Spinning Workshop   | 1 |
|                                 | Fundamentals of Clothing Design                           | 1 |
|                                 | CAD for Clothing Design                                   | 1 |
|                                 | Dyeing Process Laboratory                                 | 1 |
|                                 | Color Physics and Psychology                              | 2 |
|                                 | General Courses   | 2 |
| <b>Semester VI<br/>(Spring)</b> | Weaving Processes   | 2 |
|                                 | Weaving Processes Workshop                                | 1 |
|                                 | Knitting Process  | 2 |
|                                 | Knitting Process Workshop                                 | 1 |
|                                 | Engineering Mathematics                                   | 3 |
|                                 | Finishing Processes                                       | 2 |
|                                 | Technology of Garment Manufacturing (I)                   | 3 |
|                                 | Technology of Garment Manufacturing Lab (I)               | 1 |
|                                 | Clothing Construction                                     | 2 |
| <b>Semester VII<br/>(Fall)</b>  | General Courses   | 2 |
|                                 | Technology of Garment Manufacturing (II)                  | 3 |
|                                 | Technology of Garment Manufacturing Lab (II)              | 1 |
|                                 | Finishing Textile Products Lab                            | 1 |
|                                 | Clothing Comfort  | 2 |
|                                 | Mechanical Properties of Textile Materials in Clothing    | 2 |
|                                 | Laboratory of Properties of Textile Materials in Clothing | 1 |
|                                 | Production Management                                     | 2 |
|                                 | General Courses   | 2 |
| <b>Semester VIII(Spring)</b>    | Project   | 3 |
|                                 | Woven Fabric Analysis and Calculation                     | 2 |
|                                 | Printing  | 2 |
|                                 | Printing Workshop   | 1 |
|                                 | Motion and Time Study                                     | 3 |
|                                 | Elective Courses  | 2 |
|                                 | Elective Courses  | 2 |
|                                 | Elective Courses  | 2 |
|                                 | General Courses   | 2 |
| <b>Semester VIII(Spring)</b>    | Internship  | 1 |

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|                             |                                     |   |
|-----------------------------|-------------------------------------|---|
| <b>Elective<br/>Courses</b> | Nonwoven Fabrics                    | 2 |
|                             | Apparel Costing                     | 2 |
|                             | Dyehouse Color Management           | 2 |
|                             | Medical Textile                     | 2 |
|                             | Nanofibers Science and Technology   | 2 |
|                             | Factory Planning and Design         | 2 |
|                             | Conditioning in Textiles Production | 2 |
|                             | Mechatronics                        | 2 |

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### Curriculum for the Degree of Bachelor of Science in Textile Engineering:

### Technical Textile Engineering

| COURSE CODE                     | COURSE TITLE                             | CREDITS |
|---------------------------------|--|---------|
| <b>Semester I<br/>(Fall)</b>    | Calculus (I)                             | 3       |
|                                 | Physics (I)                              | 3       |
|                                 | Physics Laboratory (I)                   | 1       |
|                                 | General Chemistry                        | 3       |
|                                 | Laboratory of General Chemistry          | 1       |
|                                 | General Courses                          | 5       |
| <b>Semester II<br/>(Spring)</b> | Calculus (II)                            | 3       |
|                                 | Physics (II)                             | 3       |
|                                 | Static                                   | 3       |
|                                 | Organic Chemistry                        | 3       |
|                                 | Polymer and Fiber Science                | 3       |
|                                 | Fiber Science Laboratory                 | 1       |
|                                 | Physical Education (I)                   | 1       |
|                                 | General Courses                          | 2       |
| <b>Semester III<br/>(Fall)</b>  | Differential Equations                   | 3       |
|                                 | Strength of Materials (I)                | 3       |
|                                 | Applied Thermodynamic                    | 3       |
|                                 | Fluid Mechanics                          | 3       |
|                                 | Technology of Fibers Production          | 2       |
|                                 | Physical Education (II)                  | 1       |
|                                 | Physics of Electricity Laboratory        | 1       |
|                                 | General Courses                          | 3       |
| <b>Semester IV<br/>(Spring)</b> | Probability and Statistics For Engineers | 3       |
|                                 | Dynamic                                  | 3       |
|                                 | Textile Physical Chemistry               | 2       |
|                                 | Dyeing Process                           | 2       |
|                                 | Welding and Plating Workshop             | 1       |
|                                 | Fibers Physics                           | 2       |
|                                 | Fibers Physics Laboratory                | 1       |
|                                 | Engineering Drawing I                    | 2       |
|                                 | General Courses                          | 2       |

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|                                  |  |   |
|----------------------------------|--|---|
| <b>Semester V<br/>(Fall)</b>     | Electrical Engineering Fundamentals                      | 3 |
|                                  | Computer Programming                                     | 3 |
|                                  | Technical Fibers Production Technology                   | 2 |
|                                  | Spinning process   | 2 |
|                                  | Spinning Workshop  | 1 |
|                                  | Dyeing Process Laboratory                                | 1 |
|                                  | Resin Properties   | 2 |
|                                  | General Courses  | 2 |
| <b>Semester VI<br/>(Spring)</b>  | Engineering Mathematics                                  | 3 |
|                                  | Weaving Processes  | 2 |
|                                  | Weaving Processes Workshop                               | 1 |
|                                  | Knitting Process   | 2 |
|                                  | Knitting Process Workshop                                | 1 |
|                                  | Technical Textiles (I)                                   | 3 |
|                                  | Mechanics of Fibrous Composites                          | 2 |
|                                  | Composites Workshop                                      | 1 |
|                                  | General Courses  | 2 |
| <b>Semester VII<br/>(Fall)</b>   | Chemistry of Technical Textiles (I)                      | 2 |
|                                  | Finishing Processes                                      | 2 |
|                                  | Technical Textiles (II)                                  | 2 |
|                                  | Medical Textile  | 2 |
|                                  | Woven Fabric Analysis and Calculation                    | 2 |
|                                  | Technical Clothing                                       | 2 |
|                                  | Nonwoven Fabrics   | 2 |
|                                  | General Courses  | 2 |
|                                  | Project  | 3 |
| <b>Semester<br/>VIII(Spring)</b> | Chemistry of Technical Textiles (II)                     | 2 |
|                                  | Elective Courses   | 2 |
|                                  | Elective Courses   | 2 |
|                                  | Coloration of Technical Textiles                         | 2 |
|                                  | Fibrous Filters  | 2 |
|                                  | Physical and Mechanical Properties of Technical Textiles | 2 |
|                                  | Technical Textiles Finishing                             | 2 |
|                                  | General Courses  | 2 |
|                                  | Internship   | 1 |

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|                             |                                       |   |
|-----------------------------|---------------------------------------|---|
| <b>Elective<br/>Courses</b> | Production Management                 | 2 |
|                             | Dyehouse Color Management             | 2 |
|                             | Nanofibers Science and Technology     | 2 |
|                             | Factory Planning and Design           | 2 |
|                             | Conditioning in Textiles Production   | 2 |
|                             | Medical Textile                       | 2 |
|                             | Woven Fabric Analysis and Calculation | 2 |