

**Scheme & Syllabus of  
UNDER GRADUATE DEGREE COURSE**

**IV Semester  
(Textile Design)**



**Rajasthan Technical University, Kota**

**Effective from session: 2024-25**



# RAJASTHAN TECHNICAL UNIVERSITY, KOTA

## Scheme & Syllabus

### II Year-IV Semester: Textile Design

**Teaching and Examination Scheme: B. Des**

#### II Year – IV Semester

| <b>THEORY</b>                    |          |         |                              |                   |          |           |            |            |            |             |             |
|----------------------------------|----------|---------|------------------------------|-------------------|----------|-----------|------------|------------|------------|-------------|-------------|
| Sr. No.                          | Category | Course  |                              | Contact hrs./week |          |           |            | Marks      |            |             | Credits     |
|                                  |          | Code    | Title                        | L                 | T        | P         | Total Hrs. | IA         | E T E      | Total       |             |
| 1                                | Design   | 4BOD-01 | Yarn Technology-II           | 3                 | -        | -         | 3          | 30         | 70         | 100         | 3           |
| 2                                | Design   | 4BOD-02 | Fabric Technology-II         | 3                 | -        | -         | 3          | 30         | 70         | 100         | 3           |
| 3                                | Design   | 4BOD-03 | Home Textiles                | 3                 | -        | -         | 3          | 30         | 70         | 100         | 3           |
| 4                                | Design   | 4BOD-04 | Textile Processing-II        | 3                 | -        | -         | 3          | 30         | 70         | 100         | 3           |
| 5                                | Design   | 4BOD-05 | Industrial Management        | 3                 | -        | -         | 3          | 30         | 70         | 100         | 3           |
| <b>Sub Total</b>                 |          |         |                              | <b>15</b>         | <b>-</b> | <b>-</b>  | <b>15</b>  | <b>150</b> | <b>350</b> | <b>500</b>  | <b>15</b>   |
| <b>PRACTICAL &amp; SESSIONAL</b> |          |         |                              |                   |          |           |            |            |            |             |             |
| 6                                | Design   | 4BOD-06 | Fashion Illustration Lab-I   | -                 | -        | 4         | 4          | 60         | 40         | 100         | 2.0         |
| 7                                | Design   | 4BOD-07 | Fabric Technology Lab-II     | -                 | -        | 3         | 3          | 60         | 40         | 100         | 1.5         |
| 8.                               | Design   | 4BOD-08 | Home Textiles Lab            | -                 | -        | 3         | 3          | 60         | 40         | 100         | 1.5         |
| 9                                | Design   | 4BOD-09 | Textile Processing Lab-II    | -                 | -        | 4         | 4          | 60         | 40         | 100         | 2.0         |
| 10                               | Design   | 4BOD-10 | Computer Aided Design Lab-II | -                 | -        | 4         | 4          | 60         | 40         | 100         | 2.0         |
| 11                               | Design   | FECxx   | Foundation Course            | -                 | -        | -         | -          | -          | -          | 100         | 0.5         |
| <b>Sub Total</b>                 |          |         |                              | <b>-</b>          | <b>-</b> | <b>18</b> | <b>18</b>  | <b>300</b> | <b>200</b> | <b>600</b>  | <b>9.5</b>  |
| <b>TOTAL OF IV SEMESTER</b>      |          |         |                              | <b>15</b>         | <b>-</b> | <b>18</b> | <b>33</b>  | <b>450</b> | <b>550</b> | <b>1100</b> | <b>24.5</b> |

**L:** Lecture, **T:** Tutorial, **P:** Practical.

**ETE:** End Term Exam, **IA:** Internal Assessment

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Scheme & Syllabus of II Year IV sem. Textile Design for students admitted in Session 2023-24 onwards.



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## Scheme & Syllabus

### II Year-IV Semester: Textile Design

#### 4BOD-01: Yarn Technology-II

**Credit: 3**  
**3L+T+0P**

**Maximum Marks: 100 (IA: 30, ETE: 70)**  
**End Term Exam: 3 Hours**

| Sr. no. | Topic   | No. of Hours |
|---------|---|--------------|
| 1.      | Objectives of speed frame, important parts of speed frame and their functioning, Mechanism involved in drafting, twisting, and winding, different types of roller drafting systems, Common defects in roving package.   | 6            |
| 2.      | Introduction and objective of ring frame, important parts of ring frame and their functions, principle and mechanism involved in drafting, twisting and winding, Spinning Geometry, Types of rings and travelers, mechanism of cop formation, common package size,  | 8            |
| 3.      | Control in yarn faults, ring frame calculations pertaining to TPI, production and draft, Doubling - Objects and terminology, study of ring doublers, TFO  | 6            |
| 4.      | Wool-shearing, clipping and grading. Impurities present in wool and their removal, wool scouring and carbonization. Various systems of wool fibre spinning- woollen and semi worsted - Flow chart,  | 6            |
| 5.      | Objectives of combing, system of lap preparation, configuration of fibre feed and process sequence in comber with working principle, Important parts of comber and their functioning, Combing cycle, concept of forward and backward feed, concept of comber waste, calculation pertaining to production and noil percentage. | 8            |

#### Reference Books:

- A Practical Guide to Spinning (Individual book for each unit) by W. Kiein.
- Spinning of man-made and blends on cotton systems by K. R. Salhotra.
- Manual of cotton spinning by Frank Fharnley.
- Technology of carding by R. Chattopadhyay.

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## Scheme & Syllabus

### II Year-IV Semester: Textile Design

#### 4BOD-02: Fabric Technology-II

**Credit: 3**  
**3L+0T+0P**

**Maximum Marks: 100 (IA: 30, ETE: 70)**  
**End Term Exam: 3 Hours**

| Sr. no. | Topic  | No. of Hours |
|---------|--|--------------|
| 1.      | Types of shuttle looms; Hand loom and power loom of various types. Classification of various loom mechanism and their objects, Passage of the warp. Drive to various parts of Loom and production calculation.   | 6            |
| 2.      | Types of shed and classification of shedding mechanism. Tappet shedding, drive to tappet shedding. Negative and Positive tappet shedding mechanism. Limitation of tappet shedding Dobby shedding: Negative and positive doobby, working principle of climax and keighly doobby, Rotary cam doobby, electronic doobby.  | 7            |
| 3.      | Mechanical jacquard - Classification Figuring capacity, Harness ties, designing and card cutting-lacing Fundamental jacquards: SLSC, DLSC & DLDC, working principle, drive to various parts, Timing diagram. Brief study of Other fancy jacquard- self twilling, cross border jacquard.  | 7            |
| 4.      | Mechanism of over pick and under pick motion; drive & timing diagram, Multiple box motion. Warp protector mechanism. Beat up mechanism, Sley beat up mechanism, sley eccentricity and its effect on fabric properties.   | 8            |
| 5.      | Take up motion- 5 wheel & seven wheel intermittent take up mechanisms- timing and setting. Let off- negative, semi positive mechanical and electronic let off mechanisms- timing and setting Warp stop motion- mechanical & electrical type its setting Weft stop motion- side and center weft fork motion- its timing and setting. Selvedge motion and Temples. | 7            |

#### Reference Books:

- Principles of weaving by Marks & Robinson.
- Weaving mechanism Vol.1 & II by N.N. Banarjee.
- Weaving calculation by R. Sen Gupta.
- Weaving Mechanism (Fox).
- Mechanism/Weaving machine (TALUKDAR)

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### II Year-IV Semester: Textile Design

#### 4BOD-03: Home Textiles

**Credit: 3**  
**3L+0T+0P**

**Maximum Marks: 100 (IA: 60, ETE: 40)**  
**End Term Exam: 3 Hours**

| Sr. no. | Topic   | No. of Hours |
|---------|---|--------------|
| 1.      | <b>Furnishings</b> -Developments in Textile Furnishing; Type of Furnishings Materials Woven and non-woven, Factors affecting selection of Home Furnishings.   | 4            |
| 2.      | <b>Floor Coverings</b> -Recent Developments in manufacturing of floor coverings. Hard Floor Coverings, Resilient Floor Coverings, Soft Floor Coverings, Carpet, Rugs, Cushion and Pads; Care of floor coverings                               | 10           |
| 3.      | <b>Curtains and Draperies</b> -Advances in Home decoration, Draperies, Choice of Fabrics, Curtains. Developments in Finishing of Draperies, Developments in tucks and Pleats, uses of Drapery Rods, Hooks, Tape Rings and Pins.               | 10           |
| 4.      | <b>Home Furnishing</b> -Advances indifferent styles, and use of Colours, design & texture in home furnishing. Developments in living room furnishing including upholstery, Wall Hangings, Cushion, Cushion Covers, Bolster and Bolster Cover. | 8            |
| 5.      | <b>Bed Linens</b> -Advances in the production of - Different Types of Bed Linen, Bed skirts, Pillow cover, Throw, Sheets, Blankets, Blanket Covers, Comforts, Comfort Covers, Bed Spreads, Mattress and Mattress Covers, Pads, Pillows.       | 6            |

#### Reference Books:

- Alexander.N.G., "Designing Interior Environment", Mas Court Brace Covanorich, Newyork, 1972.
- Donserkery.K.G., "Interior Decoration in India", D. B. Taraporeval Sons and Co. Pvt. Ltd., 1973.
- Wingate I.B. & Mohler J.F., "Textile Farbics& Their Selection", Prentice Hall Inc., New York, 1984.
- Irsak.C, " Nonwoven Textiles" Textile Institute", Manchester, 1999.
- Krcma.R., Manual of Non-wovens, Textile Trade Press, Manchester 1993.
- Pradip V. Mehta., "Managing Quality in the Apparel Industry", NIFT Publication, India, 1998.
- Slater K., "Physical Testing and Quality Control", The Textile Institute, Vol.23, No.1/2/3 Manchester, 1993.

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### II Year-IV Semester: Textile Design

#### 4BOD-04: Textile Processing-II

Credit: 3  
3L+0T+0P

Maximum Marks: 100 (IA: 30, ETE: 70)  
End Term Exam: 3 Hours

| Sr. no. | Topic   | No. of Hours |
|---------|---|--------------|
| 1.      | <b>Direct Dyes:</b> Theory of dyeing, dynamic equilibrium, General formula of Direct dyes: Classification of direct dyes; Mechanism of Direct dyes and procedure for application of direct dyes. Dye-fibre bond. Effect of different process parameters (e.g. temp, time, pH) & role of various additives in dyeing process; fastness properties of direct dyes; industrial after treatments for direct dyes.                                     | 8            |
| 2.      | <b>Reactive Dyes:</b> General formula of reactive dyes. Chemical nature of reactive dyes; Classification of reactive dyes; Process of application of various kind of reactive dyes & dyeing mechanism; Role of additive and effect of process parameter in reactive dyeing. General properties of reactive dyes.  | 8            |
| 3.      | <b>Vat Dyes:</b> General formula of vat dyes, classification of vat dyes; Process of application of vat dyes, mechanism of vat dyeing; oxidation process; Role of additives and process parameters in vat dyeing. Solubilized Vat dyes. Dyeing with solubilized vat dyes. Fastness properties of vat dyes.  | 10           |
| 4.      | <b>Azoic Colour:</b> Basic principle of application of Azoic Colour, Naphtholation process, role of additives and effect of process parameters on naphtholation process. Classification of naphthols based on substantivity. Basic chemistry in Diazotisation process, Procedure for diazotisation; Stabilization of diazonium salt. Development of Shades- Coupling, Basic Chemistry involved in coupling. Fastness properties of Azoic Colours. | 8            |
| 5.      | <b>Acid Dyes:</b> Chemical nature of Acid dyes; Classification of Acid dyes, Process of application of Acid dyes & mechanism of dyeing, Role of additives and process parameters in Acid dyeing. Fastness properties of Acid dyes.  | 6            |

#### Reference Books:

- Dyeing & Chemical technology of Textile fibers by E.R. Trotman.
- Chemical Technology in the Pre-Treatment process of Textile by Dr S. R. Karmakar.
- Chemistry of Dyes and principles of Dyeing by Dr. V.A. Shenai.
- Technology of Dyeing by Dr. V.A. Shenai.
- A glimpse on the chemical technology and textile fibres by R.R. Chackrawarti.
- Scouring and Bleaching by E.R.
- Textile Preparation and Dyeing by Asim Kumar Roy Choudhury.

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# RAJASTHAN TECHNICAL UNIVERSITY, KOTA

## Scheme & Syllabus

### II Year-IV Semester: Textile Design

#### 4BOD-05: Industrial Management

**Credit: 3**  
**3L+0T+0P**

**Maximum Marks: 100 (IA: 30, ETE: 70)**  
**End Term Exam: 3 Hours**

| Sr. no. | Topic  | No. of Hours |
|---------|--|--------------|
| 1.      | Introduction: Concept and scope of Industrial Management. Productivity: Definition, measurement, productivity index, types of production system, Industrial Ownership.   | 6            |
| 2.      | Functions of Management, Taylor's Scientific Management Theory, Fayol's Principles of Management, Social responsibilities of Management, Introduction to Human resources management: Nature of HRM, functions and importance of HRM.   | 7            |
| 3.      | Work Study: Introduction, definition, objectives, steps in work study, Method study: definition, objectives, steps of method study, Work Measurement: purpose, types of study — stop watch methods — steps — allowances — standard time calculations — work sampling, Production Planning and Control Inventory Control: Inventory, Cost, Models of inventory control: EOQ, ABC, VED | 10           |
| 4.      | Quality Control: statistical quality control, Control charts for variables and attributes, Acceptance Sampling- Single sampling- Double sampling plans, Introduction to TQM.   | 8            |
| 5       | Project Management: Project network analysis, CPM, PERT and Project crashing and resource Leveling   | 8            |

#### Reference Books:

- Engineering Management (Industrial Engineering & Management)/ S.C. Sharma & T.R. Banga, Khanna Book Publishing Co. (P) Ltd., Delhi (ISBN: 978-93-86173-072)
- Industrial Engineering and Management/ P. Khanna, Dhanpatrai publications Ltd.
- Production & Operation Management /PaneerSelvam /PHI.
- Industrial Engineering Management/NVS Raju/Cengage Learning.
- Industrial Engineering Management I RaviShankar/ Galgotia.

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### II Year-IV Semester: Textile Design

#### 4BOD-06: Fashion Illustration Lab-I

**Credit: 2**  
**0L+0T+4P**

**Maximum Marks: 100 (IA: 60, ETE: 40)**

| Sr. no. | Topic  |
|---------|--|
| 1.      | Fashion Coquis of Teens with Various Views:- <ul style="list-style-type: none"><li>• Drawing of fashion coquis.</li><li>• Different views such as Front, Back, Side &amp; 3/4th.</li><li>• Flesh figure,</li></ul> |
| 2.      | Body Details:- <ul style="list-style-type: none"><li>• Drawing body details with different movements.</li><li>• Drawing arms, legs, feet, palm, &amp; different positions.</li></ul>                               |
| 3.      | Face Details with Hair Styles- <ul style="list-style-type: none"><li>• Drawing different face positions such 3/4th, front, side.</li><li>• Facial details like eyes, nose ,lips and hair style</li></ul>           |
| 4.      | Rendering of different fabrics.  |

#### Reference Books:

- Fashion Illustration Techniques: A Super Reference Book for Beginners by Zeshu Takamura.
- Fashion Illustration: Inspiration and Technique, Paperback -2011 by Anna Kiper
- Essentials Fashion Sketchbook by Peter Pauper Press
- Fashion Illustration: Inspiration and Technique by Anna Kiper.

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**4BOD-07: Fabric Technology Lab-II**

**Credit: 1.5**  
**0L+0T+3P**

**Maximum Marks: 100 (IA: 60, ETE: 40)**

| <b>Sr. no.</b> | <b>Topic</b>   |
|----------------|--|
| 1              | Warp Take up motion.                                   |
| 2              | Warp let-off mech.                                     |
| 3              | Keighly & Climax dobby design and its card preparation |
| 4              | Cam dobby and its card preparation.                    |
| 5              | SLSC, DLDC Jacquard Design & its card preparation      |
| 6              | Industry Visit   |

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**4BOD-08: Home Textiles Lab**

**Credit: 1.5**  
**0L+0T+3P**

**Maximum Marks: 100 (IA: 60, ETE: 40)**

| <b>Sr. no.</b> | <b>Topic</b>   |
|----------------|--|
| 1              | Identification of Different home textiles products.                      |
| 2              | Prepare a file with different home textile products with specifications. |
| 3              | Market survey.   |

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**4BOD-09: Textile Processing Lab-II**

**Credit: 2.0**  
**0L+0T+4P**

**Maximum Marks: 100 (IA: 60, ETE: 40)**

| <b>Sr. no.</b> | <b>Topic</b>  |
|----------------|---|
| 1              | Dyeing of cotton fabric/yarn with Direct dyes.      |
| 2              | Dyeing of cotton fabric/yarn with Reactive dyes.    |
| 3              | Dyeing of cotton fabric/yarn with Vat dyes.         |
| 4              | Dyeing of wool & silk fabric/yarn with Acid dyes.   |
| 5              | Dyeing of cotton fabric/yarn with Azoic colours.    |
| 6              | Determination of washing fastness of dyed material. |

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### II Year-IV Semester: Textile Design

#### 4BOD-10: Computer Aided Design Lab-II

**Credit: 2.0**  
**0L+0T+4P**

**Maximum Marks: 100 (IA: 60, ETE: 40)**

| Sr. no. | Topic  |
|---------|--|
| 1       | Adobe Photoshop, Working with Images and Basic Selections, Multiple Images, Rulers, Guides & Grids, Adjusting Color with Adjustments, Getting Started With Layers And Painting Commands, Understanding the Background Layer, Creating, Selecting, Linking & Deleting Layers, Introduction to Blending Modes.   |
| 2       | Photo Draping and Basics, Photo Draping a garment/dress with Blending modes, Photo Draping a Bed, Painting In Photoshop Using the Brush Tool, Working with Colors& Swatches, Creating & Using Gradients, Creating & Working with Brushes.  |
| 3       | Photo Retouching And Color Correction, The Red Eye Tool, The Clone Stamp Tool, The Patch Tool & the Healing Brush Tool, The Spot Healing Brush Tool, The Color Replacement Tool, Adjusting Levels, Adjust Curves, Non-Destructively, with Adjustment Layers  |
| 4       | Corel draw, Exploring the CorelDraw Screen, Inserting and Deleting Pages, Changing Page, Customizing Options, Using Multiple Workspaces, Creation and manipulation, Drawing and Shaping Tools, Using the Freehand Tool, Drawing Lines and Polylines, Working With Special Effects And Texts, Drawing With the Artistic Media Tool, Shaping an Object with an Envelope, Extruding an Object, Blending Two Objects, Using the Lens Effect, Adding Perspectives, Using Power Clips. |

#### Reference Books:

- "The Official Guide" by Gary David Bouton.
- "CorelDRAW X8: The Ultimate Beginner's Guide" by Mark Clarkson.
- "CorelDRAW X8 for Dummies" by Roger Wambolt.
- "CorelDRAW Graphics Suite X8 Training Guide" by Graphics Unleashed.

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