

**Scheme & Syllabus of
UNDERGRADUATE DEGREE COURSE**

**IV Semester
(Fashion & Apparel Design)**



Rajasthan Technical University, Kota

Effective from session: 2024-25



RAJASTHAN TECHNICAL UNIVERSITY, KOTA

Scheme & Syllabus

II Year-IV Semester: Fashion & Apparel Design

Teaching and Examination Scheme: BFAD

II Year - IV Semester

THEORY											
Sr. No.	Category	Course		Contact hrs./week				Marks			Credits
		Code	Title	L	T	P	Total Hrs.	IA	ETE	Total	
1	Applied Art & Craft	4BFAD-01	Yarn Technology-II	3	-	-	3	30	70	100	3
2	Applied Art & Craft	4BFAD-02	Fabric Technology-II	3	-	-	3	30	70	100	3
3	Applied Art & Craft	4BFAD-03	Home Textiles	3	-	-	3	30	70	100	3
4	Applied Art & Craft	4BFAD-04	Textile Processing-II	3	-	-	3	30	70	100	3
5	Applied Art & Craft	4BFAD-05	Industrial Management	3	-	-	3	30	70	100	3
Sub Total				15	-	-	15	150	350	500	15
PRACTICAL & SESSIONAL											
6	Applied Art & Craft	4BFAD-06	Fashion Illustration Lab-II	-	-	4	4	60	40	100	2.0
7	Applied Art & Craft	4BFAD-07	Pattern Making Lab-II	-	-	3	3	60	40	100	1.5
8	Applied Art & Craft	4BFAD-08	Garment Construction Lab-II	-	-	3	3	60	40	100	1.5
9	Applied Art & Craft	4BFAD-09	Textile Processing Lab-II	-	-	4	4	60	40	100	2.0
10	Applied Art & Craft	4BFAD-10	Computer Aided Design Lab-II	-	-	4	4	60	40	100	2.0
11	Applied Art & Craft	FECxx	Foundation course	-	-	-	-	-	-	100	0.5
Sub Total				-	-	18	18	300	200	600	9.5
TOTAL OF IV SEMESTER				15	-	18	33	450	550	1100	25.0

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

ETE: End Term Exam, IA: Internal Assessments



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4BFAD-01: Yarn 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.	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.	8
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,	6
3.	Control in yarn faults, ring frame calculations pertaining to TPI, production and draft, Doubling - Objects and terminology, study of ring doublers, TFO	8
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.	Principles & techniques of manufacturing braided yarn, Spinning of Long staple Fibres like Jute and Silk. Introduction to New spinning system like open end spinning. Airjet spinning etc.	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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II Year-IV Semester: Fashion & Apparel Design

4BFAD-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.	8
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.	7
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: Fashion & Apparel Design

4BFAD-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.	Furnishings -Developments in Textile Furnishing; Type of Furnishings Materials Woven and non-woven, Factors affecting selection of Home Furnishings.	4
2.	Floor Coverings -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.	Curtains and Draperies -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.	Home Furnishing -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.	Bed Linens -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: Fashion & Apparel Design

4BFAD-04: Textile Processing-II

Credit: 2
3L+0T+0P

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

Sr. no.	Topic	No. of Hours
1.	Direct Dyes: 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.	Reactive Dyes: 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.	Vat Dyes: 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.	Azoic Colour: 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.	Acid Dyes: 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

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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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4BFAD-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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4BFAD-06: Fashion Illustration Lab-II

Credit: 2.0
0L+0T+4P

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

Sr. no.	Topic
1	Fashion figure of women's with various views- • Drawing of fashion figure.
2	Body details- • Drawing body details with different movements. • Drawing arms, legs, feet, palm, & different positions.
3	Face details with hair styles- • Drawing different face positions such 3/4th, front, side. • Facial details like eyes, nose and lips.
4	Flat Drawing Flat drawing to form a garment such as, types of sleeves, necklines, pockets, cuffs, collars, yokes, waist bands, bows & ties, frills & flounces etc.
5	Garment draping of women's wear.
6	Women's wear project
7	Each project to include Forecast Research, Theme / Inspiration board & its write up, Mood Board & its write up, Key Words, Target Client / Market board, Colour Board, colour chips, pantone numbers, Fabric swatches (minimum 5 types of fabric to be used), Trims, Rendered garments on croquis, flat sketch, specification sheet & costing.

Reference Books:

- Fashion Illustration Techniques: A Super Reference Book for Beginners by ZeshuTakamura.
- 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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4BFAD-07: Pattern Making Lab-II

Credit: 1.5
0L+0T+3P

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

Sr. no.	Topic
1	Basic torso, Variation of torso (Princess Line torso)
2	Variation of Maxi dress, Empire waist dress, Sheath dress, Frock dress, princess line dress, Jump suit, Gowns etc.

Reference Books:-

- Metric Pattern Cutting for Women's Wear. Author Winifred Aldrich. Publisher Blackwell Publishing Ltd.
- Modern Pattern by Fashion Design by Helen Joseph.
- Advance Pattern Making by San foundry.
- Techniques for Drafting & Pattern making by Padmavati .B
- Patternmaking for Fashion Design by Helen Joseph-Armstrong, Publisher-Pearson Education Delhi.
- Patternmaking for Fashion Design (5th Edition) by Helen Joseph Armstrong
- Patternmaking: A Comprehensive Reference for Fashion Design by Sylvia Rosen.
- Techniques of Drafting and Pattern Making.
- Pattern Magic by Tomoko Nakamichi.

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4BFAD-08: Garment Construction Lab-II

Credit: 1.5
0L+0T+3P

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

Sr. no.	Topic
1	Collars : Variation of collars, Mandarin, Peter pan, Shirt, Shawl, Sailors, Notched collar.
2	Sleeves: Cowl, puff sleeve, flare sleeve, Bishop Sleeve , Leg-O-mutton ,petal sleeve Raglan, Kimono sleeve
3	Variation of Maxi dresses, Empire waist dress, Sheath dress, Frock dress, princess line dress, gown etc.

Reference Books:-

- The Complete guide to clothing construction by Christine Haynes.
- Garment Construction by Kannik's Korner
- Garment Construction by KannikasKarner.
- .Illutated Guide to Sewing by Barnes & Noble.

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4BFAD-09: Textile Processing Lab-II

Credit: 2.0
0L+0T+4P

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

Sr. no.	Topic
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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4BFAD-10: Computer Aided Design Lab-II

Credit: 2
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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