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| **Course Title: Fabric Design and Analysis** |
| **Course Code: TE 321** | **Credit : 3.0** | **Total Marks: 100** |
| **Rationale:**The course is designed to encourage students to experiment, innovate and interested about good design. The sub-text of the course focuses on giving the students hands-on experience regarding woven and knitted fabric design techniques to investigate, analyze and evaluate reference materials. |
| **Objectives:****By the end of this course it is expected that the students will be able to*** Recognize different types of designs woven fabrics and their drafting-lifting procedures
* Create new designs of fabric
* Find out EPI, PPI, warp count, weft count, GSM and other related calculations
* Differentiate the categories of knitted fabrics and their design including cam and needle arrangement
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| **Learning Outcomes** | **Course Content** |  **Teaching/Learning****Strategy** | **Assessment Strategy** |
| * Understand about woven fabrics
* Learn about fabric design presentation
* Know different terms
* Able to do the drafting and lifting plan
 | Module 1: General concept about woven fabric and its classification, important terms and factors about fabric design, methods of fabric presentation, weave repeat unit, Drafting and lifting plan constructions**, c**lassification of woven fabrics, Plain weave fabric and its representation, Factors affecting the fabric structure. | Lecture, Discussion. | Oral Question, class test |
| * Learn different types of plain weave
* Able to identify the derivatives of plain weave
* Able to design different derivatives of plain weave
* Able to plan the drafting and lifting of any plain weave design
 | Module 2: **Plain Weave Fabrics:**Derivatives of plain weave and their characteristic, Ornamentation of plain weave fabrics by varying set, use of the derivatives of plain weave  | Lecture, Discussion, Problem, Exercise, Video | Q/A, Group discussions. |
| * Learn different types of Twill weave
* Able to identify the derivatives of Twill weave
* Able to design different derivatives of Twill weave
* Able to plan the drafting and lifting of any Twill weave design
 | Module 3:**Twill Weaves:**Definition of the terms balanced, warp-faced and weft-faced twill weaves. Developed twill weaves, i.e. zigzag, herringbone, diamond, diaper, rearrange twill, step twill, broken and elongated, relative firmness of twill weaves, large twills influence of the twist of the yarns. Angle of inclination of twill weaves | Lecture, Discussion, Problem, Exercise. | Q/A, Class Tests, Group discussion |
| * Learn different types of satin weave
* Able to plan the drafting and lifting of any satin weave design
 | Module 4: Satin and sateen weave, Drafts, denting and pegging plans | Lecture, Discussion, Problem, Exercise. | Q/A, MCQ. |
| * Learn different types of fancyweave
* Able to identify the different fancy weave
* Able to design different fancy weave
* Able to plan the drafting and lifting of any fancy weave design
 | Module 5: **Fancy Designs of Fabrics:**Characteristic, appearance and texture of simple fancy weaves (viz. mock leno including distorted thread effects), huckaback honeycomb, basic crepe weaves and Bedford cord structures | Lecture, Discussion, Problem, Mathematical Problems. | Q/A, Mathematical problems solving, Class test. |
| * Learn the effect of color
* Able to identify a number of common color weave
* Able to design different color weave
* Able to plan the drafting and lifting of any color weave design
 | Module 6: **Color effects:** Stripe and check effects using basic and simple fancy weaves, Color in combination with weave effects, i.e. pinstripe, crowfoot, dog’s tooth, shepherds check. |  |  |
| * Understand weft Knitted structure
* Know about different loop structures
* Able to draw and present the loop structures
 | Module 7: Structures of Simple, Tuck and Miss Stitches and their representation using loop diagrams  | Q/A, Lecture, Real life example, Mathematical Problems, video | Q/A, Assignment, Group Discussion. |
| * Know about different common designs
* Able to represent the common designs
 | Module 8: Representation using conventional notation of various types of common weft knitted designs. Examples: half-cardigan, full-cardigan, 1×1 weft lock knit and 2×1 weft lock knit structures, French double pique, swiss double pique, contina, pin tuck etc. | Lecture, Real life example | Class Tests, Group discussion |
| **Recommended Books and Periodical** |
| **Text Books:** * Understanding Textiles for a Merchandiser by Engr. Shah AlimuzzamanBelal
* Grammar of Textile Design by H. Nisbet
* A manual on Weave construction by Ivo Kastanek
* Technology of Textile Design by E.A.Posselt
* Hand book of Textile Design by Jacquie Wilson
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| **References:** * Class Lectures.
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