



**Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore**  
**Shri Vaishnav Institute of Textile Technology**  
**Choice Based Credit System (CBCS) in Light of NEP-2020**  
**Generic Elective for PG Courses**

| COURSE CODE | CATEGORY | COURSE NAME      | TEACHING & EVALUATION SCHEME |               |                      |                         |                      |   |   |   |         |
|-------------|----------|------------------|------------------------------|---------------|----------------------|-------------------------|----------------------|---|---|---|---------|
|             |          |                  | THEORY                       |               |                      | PRACTICAL               |                      | L | T | P | CREDITS |
|             |          |                  | END SEM University Exam      | Two Term Exam | Teachers Assessment* | END SEM University Exam | Teachers Assessment* |   |   |   |         |
| GPTX201     | GE       | MEDICAL TEXTILES | 60                           | 20            | 20                   | -                       | -                    | 3 | 0 | 0 | 3       |

**Legends:** L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;

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**Course Educational Objectives (CEOs):**

1. To provide the introductory knowledge about textile materials and medical textiles.
2. To impart the knowledge of various properties of Medical Textiles as per different domains of health care.
3. To expose the knowledge of biocompatibility and related characterization methods of Medical textiles.

**Course Outcomes (COs):**

After completion of this course the students are expected to be able to demonstrate following knowledge, skills and attitudes.

The students will be able to:

1. Familiarity of healthcare related problem.
2. Comprehend just requirements for a textile material to be used as medical textile.
3. Identify new scope and design of medical textile.

**Syllabus:**


**Unit-I Introduction to Biomaterials**

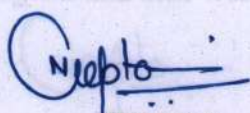
**9 HRS**

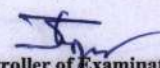
Introduction to biomaterials and definition & properties, Classification – Metals, polymers, ceramics, composites properties and application as biomaterial. Characterization of materials - Mechanical Properties, surface properties, electrical properties and visco-elasticity, Metallic implant materials – Stainless steel, Co-based alloys, Ti and Ti-based alloys.

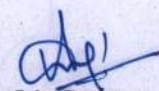
**Unit-II Introduction to Polymers and Fibres**

**10 HRS**

  
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Basic concept of polymer, their classification, methods of polymerization, molecular weight and its measurement, distribution and importance. General classification of fibres. Structure, properties, uses, advantages and disadvantages of most common natural and manmade fibres.

**Unit-III Introduction to Biocompatibility**

**8 HRS**

Biocompatibility–Definition. Factors affecting biocompatibility–Carcinogenicity, mutagenicity, cytogenicity, toxicity. Blood Compatibility–Factors affecting blood compatibility. Material response: Swelling and leaching, Corrosion and Dissolution, Reaction of Biological molecules with biomaterial surfaces. Testing of implants: Methods of test for biological performance-In vitro and In vivo implant test methods. Clinical testing of implant Materials, Design and selection of implant materials–Design Process.

**Unit-IV Health care domain specific Medical Textiles I: Suture, Wound Dressing**

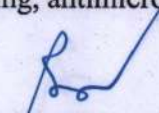
**7 HRS**

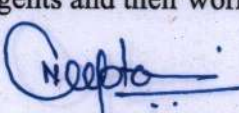
Medical textiles market. Classification of medical textiles. Sutures: Classification based on origin, physical configuration and absorbability, properties of sutures, Evaluation and standards. Wound dressings: Functional requirements, materials used, wound healing mechanism and factors affecting wound healing, Evaluation and standards.

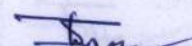
**Unit-V Health Care Domain Specific Medical Textiles II: Healthcare & Hygiene Antimicrobial Finish Based Materials**

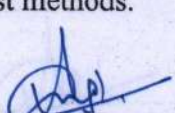
**8 HRS**

Healthcare and Hygiene Products: Functional requirements, materials used, design procedure, Evaluation and standards. Antimicrobial finishing of medical textiles: Need for antimicrobial finishing, antimicrobial agents and their working mechanism, Antimicrobial test methods.

  
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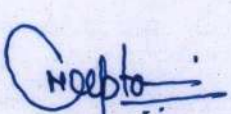
**Text Books:**

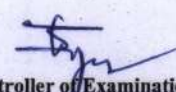
1. Manufactured Fibre Technology, Gupta, V.B., Kothari, V.K., Springer, 1997.
2. Textile Science: An Explanation of Fibre Properties, Gohl, E. P. G., Vilensky, L. D., CBS Publisher, 1984.
3. J B. Park, Roderic S. Lakes: Biomaterials: an Introduction, Plenum Press, New York, 1992.
4. 2. Jonathan Black, Biological Performance of materials, Marcel Decker, 1981.

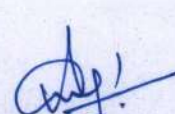
**References:**

1. Manmade Fibers – Moncrief, R.W., Halstead Press, New York, 1975.
2. Production of Synthetic Fibres – Vaidya, A. A., Prentice Hall of India, Private Limited, New Delhi, 1998.
3. Donald L. Wise...[et al.] eds. :Encyclopedic handbook of biomaterials and bioengineering (4 vols.), Marcel Dekker, New York,1995
4. 2. J. S Temenoff, A G Mikos: Biomaterials The intersection of biology and materials science, First Edition, Pearson Education
5. 3. Piskin and A S Hoffmann, Polymeric Biomaterials (Eds), Martinus Nijhoff Publishers, Dordrecht, 1986.

  
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**Course Educational Objectives (CEOs):**

1. To introduce about the concept of fashion.
2. To understand the designing terms and elements used in garments related to fashion.
3. To demonstrate the effect and application of color psychology.
4. To give basic side of draping, darting and designing of different parts of garment.

**Course Outcomes (COs):**

Students will be able:

1. To understand the fashion trends and forecast.
2. To make the different designs applying elements of design.
3. To apply colors according to the psychology.
4. To make different parts and dresses using draping technique.

**Syllabus:**

**UNIT I Introduction to Fashion**

**9 Hrs.**

Introduction to Fashion definition and origin terms and definitions, Traditional Indian garments and Embroidery, Ethical Garments.

**UNIT II Classification of Fashion**

**9 Hrs.**

Classification of fashion style, fashion cycle and reasons for change in fashion.

**UNIT III Fashion Lines**

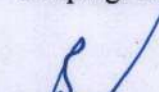
**9 Hrs.**

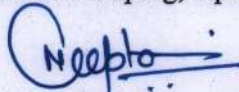
Introduction to necklines, waistlines, hemlines, collars, sleeves, cuffs, plackets and pockets. Fullness applied in apparel tucks, pleats, gathers, shirring, frills or ruffles, flounces.

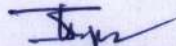
**UNIT IV Draping**

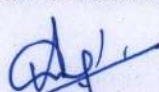
**9 Hrs.**

Draping: Introduction to draping, equipment and dress forms, Preparation of muslin for

  
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draping, fabric behavior, Principles and techniques of draping.


**UNIT V Concepts of Design**

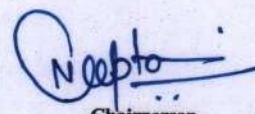
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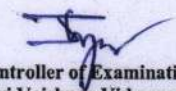
Silhouettes – Types and their application in everyday use, Skirts- Basic concepts in designing the variety of skirts, Trousers– Basic concepts in designing the variety of trousers, Wardrobe planning - design development for formal, casual, party and sports wears for men, women and kids based on their location.

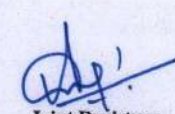
**References:**

1. Draping for Apparel Industry- Helen Joseph Armstrong
2. Introduction to clothing production management-. J. Chuter
3. Apparel manufacturing handbook-Jacob Soliner
4. The technology of clothing manufacture-Herold Carr and Barbara Iatham, Om Book Service,1994.

  
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