

Cosmetic Technology

1. **Course number and name:** 020TCOCS5 CosmeticTechnology
2. **Credits and contact hours:** 4 ECTS credits, 2x1:15 contact hours
3. **Name of instructor:** Houssam Hijazi
4. **Instructional materials:**
 - PowerPoint slides
5. **Specific course information**

- a. **Catalog description:**

This course introduces students to the scientific, technological, and regulatory foundations of the cosmetic and cosmeceutical industry. Topics include the history and scope of cosmetology, the anatomy and physiology of the skin, and the distinction between traditional cosmetics and biologically active cosmeceuticals. Students will explore the raw materials used in cosmetic formulations, principles of product development and stability, ethical and environmental considerations, and current industry production technologies. Emphasis is placed on formulation strategies tailored to different skin types, the evaluation of product efficacy and safety, and regulatory compliance. Through case studies and practical insights, students gain a comprehensive understanding of the cosmetic product lifecycle from concept to commercialization.

- b. **Prerequisites:** None

- c. **Required/ Selected Elective/Open Elective:** Selected Elective

6. **Educational objectives for the course**

- a. **Specific outcomes of instruction:**

By the end of this course, students will be able to:

- Explain the foundational principles of cosmetology
- Differentiate between traditional cosmetics and cosmeceuticals
- Assess the factors affecting cosmetic product efficacy and safety
- Demonstrate knowledge of skin anatomy and physiology relevant to cosmetic application
- Evaluate the limitations and ethical concerns in cosmetic science
- Classify and characterize raw materials used in cosmetic formulations
- Describe key cosmetic manufacturing technologies and processes
- Apply formulation principles to design skin-specific cosmetic products
- Understand regulatory and quality assurance frameworks in cosmetics
- Interpret case studies and real-world applications in cosmetic product development.

- b. **PIs addressed by the course:**

PI	7.1	7.2
Covered	x	x
Assessed	x	x

7. Brief list of topics to be covered

Module 1: Introduction to Cosmetology

- **Lesson 1.1:** The Significance of Cosmetology
 - Historical Evolution of Cosmetology
 - The Role of Cosmetology in Modern Healthcare and Lifestyle
 - **Lesson 1.2:** Definition and Scope of Cosmeceuticals
 - Understanding Cosmeceuticals vs. Traditional Cosmetics
 - Market Trends and Consumer Demand
 - **Lesson 1.3:** Competence of Cosmetics
 - Factors Affecting the Efficacy of Cosmetic Products
 - Evaluating the Performance and Safety of Cosmetic Formulations
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Module 2: Anatomy and Physiology of the Skin

- **Lesson 2.1:** Basic Anatomy of the Skin
 - Structure of the Skin: Epidermis, Dermis, Hypodermis
 - Functions of the Skin and Its Role in Absorption
 - **Lesson 2.2:** Skin Physiology and Its Interaction with Cosmetic Products
 - Barrier Function and Transdermal Delivery
 - Impact of Different Ingredients on Skin Health
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Module 3: Limitations of Cosmetics

- **Lesson 3.1:** Understanding the Boundaries of Cosmetic Science
 - Cosmetic Products vs. Medical Treatments
 - Safety Concerns and Regulatory Limitations
 - **Lesson 3.2:** Ethical and Environmental Considerations
 - Sustainable Sourcing and Production Practices
 - Addressing Consumer Concerns on Toxicity and Safety
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Module 4: Raw Materials in Cosmetics

- **Lesson 4.1:** Types of Raw Materials Used in Cosmetics
 - Synthetic Ingredients: Advantages and Challenges
 - Natural Ingredients: Benefits and Limitations
- **Lesson 4.2:** Parameter Guide for Raw Materials in the Cosmetic Industry
 - Evaluating Purity, Stability, and Quality
 - Regulatory Standards and Compliance

Module 5: Production Technology in Cosmetics

- **Lesson 5.1:** Overview of Cosmetic Production Processes
 - Batch vs. Continuous Production
 - Key Equipment and Technology Used
 - **Lesson 5.2:** Treatment and Processing of Raw Materials
 - Techniques for Purification, Mixing, and Homogenization
 - Ensuring Consistency and Quality in Production
 - **Lesson 5.3:** Biologically Active Ingredients and Rules for Treatment
 - Understanding Active Ingredients in Cosmeceuticals
 - Regulatory Guidelines for Processing Active Ingredients
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Module 6: Fabrication and Formulation in Cosmetics

- **Lesson 6.1:** The Process of Fabrication and Formulation
 - Steps in Developing a Cosmetic Product from Concept to Market
 - Challenges in Stabilizing and Preserving Formulations
 - **Lesson 6.2:** Customizing Formulations for Different Skin Types
 - Targeting Specific Skin Conditions and Needs
 - Case Studies of Successful Formulations
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