



NATIONAL UNIVERSITY OF ENGINEERING

COLLEGE OF CHEMICAL AND TEXTILE ENGINEERING

TEXTILE ENGINEERING PROGRAM

PIT71 – TEXTILE MANUFACTURING TECHNOLOGY

I. GENERAL INFORMATION

CODE	:	PIT71 Textile Manufacturing Technology
SEMESTER	:	7
CREDITS	:	3
HOURS PER WEEK	:	5 (Theory–Practice)
PREREQUISITES	:	PIT52 Textile Quality Control II
CONDITION	:	Compulsory
DEPARTMENT	:	Textile Engineering

II. COURSE DESCRIPTION

The course prepares students for understanding, analyzing and applying different technologies for textiles manufacturing, as well as implementing textile industrial plants. Students understand the process for market evaluation, identification of textile business opportunities, fashion trends and market niches. Also, students analyze production planning, product development, quality control in order to assure the production of textile fibers, fabric and clothes satisfying customer requirements and expectations.

III. COURSE OUTCOMES

At the end of the course, students:

1. Understand and analyze currently used technologies in the different stages of the textile industry.
2. Identify business opportunities and assess the market in terms of size, supply and demand.
3. Formulate production plans optimizing the costs and times.
4. Formulate and implement quality control procedures at different levels of the textile industry.

IV. LEARNING UNITS

1. INTRODUCTION

Organization of textile and clothing companies / Functions / Lines of authority / Support lines

2. TECHNICAL ASPECTS OF CHALKING, LAYING AND CUTTING:

Laying / Types of laying and laying machines / Cutting room / Types of cutting machines / Types and forms of chalking / Procedure for the chalking and order / Formats and cutting controls. / Elaboration of sheets.

3. PRODUCTION PLANNING

Sale forecasting / Terms of delivery / Quality and capacity / Internal control systems / Costs and budgets / Design and modeling / Preparation of samples / Specifications and purchase of equipment and accessories / Preparation of orders and other administrative forms.

4. MARKET STUDIES

Sales trends by the effect of fashion and weather / Seasons and campaigns / Effects of price on the supply and demand of products / Criteria for the determination of price / Meaning of price in competitive markets / Segmentation and positioning in market.

5. MARKET SELECTION

Positioning / Inclusion and Des-inclusion channels / Producer, retailer / Wholesaler, consumer / Selection of intermediaries / Export of garments / Market schemes.

6. PRODUCT DEVELOPMENT

Industrial production methods / Phases for the development of a new product / Study of work and methods engineering / Production line balance / Study of times and movements.

7. CONFECTION TECHNOLOGY

Differences between tissues of point and plane for making different types of sewing and attachments / The use of accessories, guiding and benders / Material feeding system (plate, comb or impeller) / Automation technologies in clothing industry.

8. NEEDLE AND YARN

Types of needles, thickness for the preparation / Types of threads of sewing and its features to obtain a good seam / Relationship between needle and sewing yarn to avoid defects in stitches.

9. MAINTENANCE

Scheduled and preventive maintenance of sewing machines / Lubricants / Grade of oil and greases.

10. QUALITY CONTROL AT CONFECTIONING

Clothes finishing / Payment system of confection workers.

11. MOTIVATION AND INCENTIVES IN THE TEXTILE INDUSTRY

Systems of control and inspection of supplies, process and finished garments / Symbols for the quality care of clothing / Washing and bleaching / Use of AQL (acceptable quality level).

12. QUALITY ENGINEERING APPLIED TO THE CLOTHING INDUSTRY

Modern quality systems: Just in Time, Kanban, Japanese techniques.

V. LABORATORY AND PRACTICAL EXPERIENCE

Practice 1: Design area. Operations for designing fashion clothes.

Practice 2: Model operation according to size of designed cloth.

Practice 3: Cutting area, cloth chalking, calculation of materials consumption.

Practice 4: Cutting machinery.

Practice 5: Sewing area, sewing machinery types and models.

Practice 6: Finishing area, line balance in the sewing and finishing area.

VI. METHODOLOGY

The course takes place in theory, practice and laboratory sessions. In theory sessions, faculty presents the concepts, methods and application. In practice sessions, students solve diverse problems related to textile manufacturing technologies, materials, equipment, quality control, fashion and markets. In laboratory sessions, students carry out experimental tests to analyze textile equipment and materials. At the end of each experiment, students present a report summarizing procedure, results, drawings and conclusions. Student active participation is promoted.

VII. GRADING FORMULA

The Final Grade PF is calculated as follow:

$$PF = (EP + 2*EF + PP) / 4$$

EP: Mid-term Exam EF: Final Exam

PP: Average of Practice and Laboratory Work

VIII. BIBLIOGRAPHY

1. A. J. CHUTER

Introduction to Clothing Production Management.

2. H. CART AND B. LATHAM

The Technology of Clothing Manufacture.