PROSPECTUS

BS Textiles
affiliated with University of Karachi

SMA RIZVI
TEXTILE INSTITUTE

A JOINT PROJECT OF TMA AND TOAP GOVT. OF PAKISTAN
VISION

To foster high quality education in textile and produce enlightened citizens with strong moral and ethical values that build a tolerant and pluralistic society rooted in the culture of Pakistan.

MISSION

To provide skilled manpower to the textile industry
I heartily congratulate SMA Rizvi Textile Institute on being granted affiliation from University of Karachi, prestigious university of Pakistan to start 4-years B.S. Programs in Textile (Weaving and Wet-Processing Technologies).

I do hope that the Institute will impart quality education on the state-of-the-art technology, thereby producing competent textile graduates required by Textile Industry of Pakistan.

Good luck!

Muftaq Ali Cheema
Federal Minister for Textile Industry
Government of Pakistan
MESSAGE

Syed Masood Ali Rizvi

Professional education is an indispensable prerequisite for the success of any country. For Pakistan, textile education, in particular, weaving and wet-processing technologies are simply inescapable if we are to gain good international standing. In order to impart meaningful and pragmatic education to our children in textile, we need institutions of quality learning where standards should satisfy the international benchmarks.

SMA Rizvi Textile Institute was established exactly with this aim in mind. I am sure that the institute will live up to its reputation by remaining committed to its motto to prepare the students to become competent supervisors, managers and professionals of tomorrow.

Syed Masood Ali Rizvi
Founder Chairman and Patron-in-Chief
Towel Manufacturer’s Association of Pakistan
Chairman, Board of Governors
SMA Rizvi Textile Institute
MESSAGE

Mr. Waqar Alam

Our programs of study are designed to meet the requirements of the textile industry and are continuously reviewed and updated to meet the changing demands. The faculty, comprising of highly qualified professionals, is dedicated to providing education that will enable the students to contribute to the development of the country and their individual careers. We have state of the art facilities, equipment and training aids and we are continuously engaged in further improving these facilities.

Mr. Waqar Alam
Director, Pearl Fabric Company
Chairman, Executive Committee
SMA Rizvi Textile Institute
There is an ongoing technological advancement in almost every field of science. Textile sector in Pakistan has always been the area of great potential where we need to excel to cope with the rest of the world. To meet the challenge, we on one hand require skilled/trained manpower and on the other hand we must adopt all modern features that have recently been explored in the realm of textile field.

SMA Rizvi Textile Institute itself is a sincere effort to rectify the present lurking constraints and to bring about a revolutionary change in the current state of the textile education.

The recent induction of modern state of the art equipment in weaving, dyeing and testing laboratories is certainly an encouraging indicator. These machines are being used to train students and workers from the industrial sector. Foreseeing what will happen in near future in terms of accommodation of students, we have gone through the phase of expansion of building and other facilities.

This year is important in the history of the institute. We are going to move one step ahead. The institute has been granted affiliation for its B.S program with University of Karachi that has a high standard of education.

I am confident that the institute is heading towards achieving its goal to become a centre of excellence in future.

Dr. Abdul Jabbar
Principal
SMA Rizvi Textile Institute was established in 1993 with the aim of providing quality education in the field of textile (weaving and wet processing technologies). The unique blend of the curriculum and a highly qualified faculty enables the institute to provide a favorable environment for grooming its students. Its academic programs prepare the students to meet the challenges of business in textile industry. The institute provides a healthy and congenial environment for an extensive program of interaction of students with professionals from the industry.

The textile is by far the most important sector of Pakistan. It contributes 67% to export earning and 35% to labor force. Pakistan is facing a hard competition in textile exports. The sustainability of Pakistan's share in the world market largely depends upon the quality of manpower. Textile education must be targeted to provide quality human resource to the textile industry. The delivery time, reliability, consistency, right-first-time (RFT) and just-in-time production, brands and marketing, knowledge of environmental issues and most importantly, the cost effectiveness are the key factors to be addressed. All these objectives can possibly be achieved with the help of sufficiently qualified and trained technicians. Unfortunately our human resource productivity is not up to the mark as compared to our competitors.

Modern technology is being adopted by the textile industry and to cope with this modernization, the human resource will have to be equipped with the latest trends and knowledge. We at the SMA Rizvi Textile Institute are trying our best to fill this gap.

SMA Rizvi Textile Institute is a joint venture of Export Promotion Bureau (EPB), Government of Pakistan (now known as Trade Development Authority of Pakistan, TDAP) and Towel Manufacturer's Association (TMA) to address human resource issues. The institute has continuously improved its facilities and faculty to impart the best possible training to the students. It houses the state of the art machinery from all around the world. Presently we have the best available technical facilities in weaving, wet-processing and physical testing.

At the institute, a meaningful curriculum and training methodology is developed which will equip students with the subject knowledge and personal skills needed to succeed in a rapidly changing world. The time table of students is fairly full with lectures, tutorials and practical classes. There are ample opportunities for the students to test experimentally at lab scale and bulk scale in pilot plant, the concepts introduced in the lectures. Library, computer learning and hands-on mill training are normal ingredients of our course structure.
We plan strategies for individual students, who may require special work plan, so that they can participate fully in the course structure. We maintain close links with textile industry by conducting courses in specialized fields of textile weaving and wet-processing technology to upgrade the technical skills of the technicians already working in the textile mills, so that they can respond to new technical opportunities and satisfy ever-demanding consumers.

Since a degree/diploma has never been an automatic passport to a job, we see the career development of our students as an integral part of our specialized courses, which are geared to the needs of business. As a result of this teaching and training technology, employment prospects for students are particularly good. The prospects/ emoluments normally offered to our fresh DAE graduates are much higher than the ones offered to a medical or an engineering graduate. All our students who have completed their courses of studies, get immediately well placed in various textile mills and multinational companies. They are working with dedication in their respective areas of assignment and contributing to the economic growth rate of the country.

We would like to emphasize here, that our institute is also service oriented. We provide latest technical guidance to textile mills on optimization of processes and on matters of technical nature to meet the requirement of overseas buyers on export quality.

This collaboration between TMA and TDAP (formerly EPB) in the field of education has given rise to synergies for producing quality graduates equipped with skills required for success in the job market - both in Pakistan and abroad. SMA Rizvi Textile Institute is among the fastest growing institutions offering a curriculum that is high in demand in the local and foreign market. It aims to add value to the mainstream business culture through graduates trained in true business ethics, spirit of innovation and drive for excellence.
Board of Governors

Mr. S. Masood Ali Rizvi
Chairman & Founder Member

Mr. Furqan Alam Lari
Vice Chairman & Founder Member
Afriz Textile Industries (Pvt.) Ltd.

Mr. Abdul Razak Teli
Founder Member
Nalashandi Industries Ltd.

Mr. Tahir Jahangir
Founder Member
Hala Enterprises

Mr. Arsal A. Khan
Founder Member
International Textiles (Ltd.)

Mr. Waqar Alam
Founder Member
Pearl Fabric Company

Mr. S. Usman Ali
Founder Member
Silver Textile Factory

Mr. Nisar Ali Ahmed Bhagat
Founder Member
Musafir Industries

Mr. Zahid Maqbool
Founder Member
Sajid Textile Industries (Pvt.) Ltd.

Mr. Nasim Ahmed
Member
Shahi Textiles

Mr. Pervez Ahmed
Member
Feroze Textile Industries
Representative of TOJAP
Member

Chairman TMA,
Ex-officio Member

Executive Committee

Mr. Waqar Alam
Chairman

Mr. Feroze Alam Lari
Member

Mr. S. Usman Ali
Member

Mr. Nasim Ahmed
Member

Mr. Nisar Ali Ahmed Bhagat
Member

Principal, SMA Rizvi Textile Institute
Ex-officio Member
Permanent

Dr. Abdul Jabbar
Principal
Professor, Textile Coloration
Ph.D. (Colour Chemistry & Dyeing), Leeds.
C. Cad. ASDC (SDC, U.K.)
M. Phil. (Organic Chemistry) H.E.J., University of Karachi

Abdul Majid Qureshi
Assistant Professor, Textiles
B.Sc. Textile Technology
National Textile University, Faisalabad

Fawad Khalid
Senior Lecturer, Weaving
B.Sc. Textile Engg.
National Textile University, Faisalabad

Rafil Riaz
Lecturer Physics
M. Sc. (Space Physics)
Ph.D, Space Physics (in process)
University of Karachi

Iqbal Ali Imam Zaidi
Lecturer Technical Drawing
B.Tech. (Pass), B.Tech. (Honours)

Saba Ahsan
Lecturer Textiles
B.Sc. Textile Engg.
National Textile University, Faisalabad

Beena Batool
Lecturer Textiles
B.E. Textiles
N.E.D. University of Engineering and Technology

Zahoor Ul Hasan Awan
Lecturer Textile Engineering
B.E. Mechanical
N.E.D. University of Engineering and Technology

Muhammad Nawaid Alam
Lecturer Mathematics
M. Sc. (Applied Mathematics)
University of Karachi

Muhammad Asif Uddin Khan
Lecturer Textile Chemistry
M. Sc. Applied Chemistry
University of Karachi

Amir Masood
Lecturer Chemistry
M. Sc. (Chemistry)
University of Karachi

Visiting

Serena Yousof
Lecturer CAD Designing
B.A. University of Karachi
Diploma in Textile Designing (Weaving)
CAD/CAM Weaving Certificate from EAT (Germany)

Bushra Ramzan
Lecturer Islamiat/Pak. Studies
B.Com., M.A. Islamiat
University of Karachi

Muhammad Saleem Hamdani
Lecturer Dyeing/Printing
B.S. Textile Science
Textile Institute of Pakistan (TIP), Karachi

Mian Saqib Sohail
Lecturer Industrial Management
M. Sc. Textile Apparel & Technology Management
(University of North Carolina State University)
B.S. Textile Sciences
Textile Institute of Pakistan (TIP), Karachi

Hammad Baig
Lecturer Weaving
B.Sc. Textile Engineering
National Textile University, Faisalabad

Azhar Rizvi
Lecturer English
M.A. English Language & Literature
TEFL (Applied Linguistics)
University of Sydney, Australia
The SMA Rizvi Textile Institute is fully equipped with modern educational facilities. It has large open space and lawns that help in creating a beautiful and peaceful environment for the students. The diversity of students at the SMA Rizvi Textile Institute provides a stimulating and a lively environment. The Institute offers spacious lecture rooms, a well-equipped computer lab, library in addition to the facilities of vide and spacious canteen and indoor games etc.

The institute is constructed on an area of 5556 sq. yards.

Data of Building

Total Built-up area
Administration and teaching wing
Pilot-Plant (Wet-Processing & Weaving)
Auditorium with a capacity of 250 seats

26,026 sq. ft
16,157 sq. ft x 3 floors
9,869 sq. ft

Transport Facility

The institute shall arrange transport from the main Korangi road to the institute.

Recreational Facilities

Recreational facilities provided to the students of SMA Rizvi Textile Institute are based on the concept that a healthy mind requires a healthy body. Recreational and entertainment facilities have been incorporated into the institute environment. It offers indoor games e.g. table tennis, badminton etc. to the students, however, the students can also play cricket, hockey, football and volleyball using other grounds/stadiums which may be made available at the request of the students.
Other Facilities

- Spacious and well-designed classrooms with modern teaching facilities.
- Subsidized lunch for students

Extracurricular Activities

Students are encouraged to participate in extracurricular activities such as debates, project displays etc. Several student bodies like sports committee have been formed to encourage students to arrange and participate in such activities. This helps to build confidence and develop leadership and management skills in students.

Career Counseling

Many students require career counseling in order to fully exploit their talent. Our Student Resource Office is equipped with valuable information on a wide range of occupations, employers, overseas opportunities and future study options. This office also provides:

- Advice on how your options might affect your career choice
- Information and guidance on internship and placement
- Individual counseling and workshops on career choice, applications, interviews etc.
- Guidance on higher studies

Personal Counseling

Student life requires frequent adjustments to meet the demands for academic performance and achievement. Students who are facing personal problems or difficulties in coping with these demands may seek counseling through the Student Resource Office which is fully equipped to provide advice, guidance and support on all administrative issues, personal problems, examination stress etc.
Academic Counseling

Academic counseling is available to students through the assigned faculty members called "Program Coordinators". Students are encouraged to seek guidance on academic matters from their respective "Program Coordinators" as required from time to time. The academic counseling system has been developed to ensure that students get timely support on their academic curriculum throughout their program of study. The program coordinators schedule and coordinate all academic activities of the institute and serve as the backbone of academic operations.

Course Outlines

Course outline have been developed in a scientific manner with extensive consultation among the faculty, industry experts and prominent professionals. These are regularly reviewed keeping in view the demands of the industry and the latest trends and technologies.

Student Feedback

The management obtains feedback from the students about their courses each semester. The students rate the courses in terms of the quality of instruction, contents, extent of coverage, use of teaching aids etc. This is in accordance with the criteria set by Higher Education Commission (HEC). This information is combined with the evaluation of courses by peer faculty and departmental heads to obtain a consolidated view of faculty and teaching. These evaluations greatly help in the development of the faculty and the course contents.
Wet-Processing and Physical Testing Laboratory

Computer Color Match Prediction System (CCMPS) Spectrophotometer from Data Color USA
Used for color matching, color management, recipe prediction

Pyrotec 2000 series, Two Bath Infra-Red Dyeing, Roaches, UK
High temperature dyeing machine, 32 pots with injection caustic dosing, consistent with production department. Two bath machine, each bath can be programmed separately to be used as two machines.

Pin Frame Oven /Steamer, TFO/S Series (500mm width), Roaches, UK.
Curing, pad-thermosol (both continuous and discontinuous), pad-steaming (both continuous and discontinuous) used for equalizing, curing, pigment, reactive, resin, silicone. Special finishing etc.

Padder BVP (500 mm width), Roaches, UK.
Continuous application of dyes,

pigments, finishes etc.

Printing Table
Screen printing facility

Mini Thermo (350mm width), Roaches, UK.
Pigment printing, finishing, drying, discontinuous thermo fixation

CPS (Chemical Pad-Steam) Continuous Steamer, Roaches, UK.
Pad steam continuous dyeing (specially for VAT), pre-treatment with self generation of steam. Steam chamber can accommodate up to 4 meters of fabric.

Wascoator FOM 71 CLS, Electrolux, Sweden
ASTM, B.S., ISO shrinkage performance of woven fabric

Whirlpool Washer, USA
Whirlpool Dryer, USA
AATCC shrinkage performance of fabric

Creda Tumble Dryer
5 Kg Tumble dryer

Washec-PA2, Roaches, UK.
ISO, AATCC washing fastness tester
Air Compressor, Atlas Kapco, Germany

Boiler, Solarzex, Pakistan

Elmanord Tear Tester Roaches, UK.
For determining the tearing resistance of textile specimens.

Crease Recovery Tester, Roaches, UK.
Softner, cross-linker and other finishing application

Crock Meter, Roaches, UK.
Dyeing, printing, finishing application
(Rubbing fastness testing)

GSM Cutters, Roaches, UK

Spray Rating Tester, Roaches, UK
Water repellency

Tensile Tester, Testomeric, UK
Fabric and yarn tensile testing, Tear testing, Zipper and buttons testing etc

Veridve Light Cahnit CAC-60
Color matching box

Martindale Abrasion and Pilling Tester,
Roaches, UK
Woven fabric pilling and abrasion tester according to all international standards.

Two Perspirometers, Roaches, UK
Perspiration fastness testing

Two Hot Air Ovens, Memmert, Germany

Following Local made machines are also part of our wet-processing laboratory:

- HT-dyeing Machine
- Atmospheric dyeing machine, DK type
- Two bowl Padder (for dyeing)
- Two bowl Padder (for finishing).
- Water baths for pot dyeing, China made
- ICI pilling tester
- Electronic weigh balance
- Hot plates

Pilot Plant:

- Boiler 600 Kg/Hr. at W.P 150psi
- Kier 50 Kg
- Winch 25 Kg
- Jigger 50 Kg
- Tumble Dryer 25 Kg
- Rope Washing Machine
- Hydro extractor
- Lab scale steam
- Printing table/screens
- Two Bowl Paddets
Computer Lab.

The computer lab at the SMA Rizvi Textile Institute is equipped with over 60 state-of-the-art computers and other training aids. The lab and other office computers are connected to powerful servers through a Local Area Network. The network makes database information available to management as well as students, in accordance with their access rights.

The computing infrastructure consists of a campus LAN which connects the lab to the administration networks and provides access to SMA Rizvi Textile Institute’s management information systems with high power e-mail and web services, as well as network, database and other services fulfills instruction and administration needs.

Weaving Laboratory

Rewinder 12 drums
Pirn winder 25 spindles
Sectional warper
- Creel capacity 320 packages
- Winding drum size 130”
- Winding drum dia 1.6 meters
Drawing -in stand
Card Punching machine

Shuttle-Less Looms

DORNIER AIRJET TERRY LOOM

Model or Serial # 073609 course
Machine Type LTNF 4/S
Normal Width 260 cm
Shedding Motion Can be fitted with Staubli
dobby type 2670 with electronic reading 20 frames
Beam Size 1000 mm Ground Beam,
1250 mm pile beam with electronic computer design.

SMIT RAPIER TERRY LOOM

Loom size 220cm
Type of Loom SMIT G6300,
Flexible Ribbon Rapiers
Beam Size 800mm Ground Beam,
800mm Pile Beam
With electronic computer design.
Vamatex Rapié Terry Loom

Model
Leonardo Dyna-terry

Loom Size
190 cm

Machine Type
Flexible ribbon weaving with negative rapiers.

Shedding Motion
The machine can be fitted with fmitexile RD 860S rotary doby with electronics reading 20 frames.

Beam Type
800 mm Ground Beam, 1000 mm pile Beam with electronic computer design.

Power Looms

Plain Loom, size 80°
1x4 drop box with plain tappets

Terry Loom, size 76°
Auto cop change with cross-border doby

Terry Loom, size 76°
with 1x4 drop box, 12 levers cross-border doby.
With 900 hooks jaquard.

Bonas Electronic Jaquard

Type of Jaquard 1/1344 Bonas CSJ

- Double lifting arms provide smooth running at higher speeds.
- Robust build gives stability to lift heavier loads.
- Over 50 shedding positions give maximum flexibility.
CAD / CAM Design Studio

CAD/CAM system for weaving with EAT victor software from Germany (4 sets)

CAD/CAM system for printing with DGS Ramsete III software from Italy (2 sets)

CAD/CAM system for weaving and printing (NED Graphics), France 11 stations.

Scanner (Networked with weaving and printing CAD/CAM system)

Printer (Networked with weaving and printing CAD/CAM system)

Science Labs.

- Well equipped chemistry lab.
- Well equipped physics lab.

Workshops

Electrical and mechanical workshops and a well furnished drawing hall equipped with all necessary instruments.

Chemicals

A wide range of chemicals for;
- Fiber identification
- Pretreatment
- Dyeing and Printing
- Finishing & Others
The institute offers four years programs in textiles affiliated with the University of Karachi.

**Title of the Courses**

B.S. in (Textile Weaving Technology)
B.S. in (Textile Wet-Processing Technology)

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<th>Duration of Courses</th>
<th>Four Years</th>
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<tr>
<td>Total Credit Hours</td>
<td>147 Hours in Textile Weaving</td>
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<td>144 Hours in Textile Wet-Processing</td>
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<td>Internships</td>
<td>4-8 weeks (Summer Session)</td>
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**Entrance Requirement**

- E Sc (HSC) Pre Engineering 50% marks
- DAE 1st Class in the Relevant field

**Fee Structure**

- Prospectus and Admission Form: Rs 300/-
- Entry Test Fee: Rs. 500/-
- Admission Fee: Rs. 3000/-
- Semester Fee: Rs. 30,000/-
- Examination Fee per year: As per University of Karachi rules
- Library Deposit (Refundable): Rs. 1000

**Payment of Tuition Fee**

The fee is payable on semester basis in advance through cash or pay order favoring "SMA Rizvi Textile Institute" Account # 1622 - 3 M.C.B. Korangi Industrial Area Branch, Sector - 24, Korangi Industrial Area, Karachi

**Final Decision**

In all affairs like selection of students, assessment of student's performance, financial assistance and disciplinary matters, the decision of the Institute shall be final.

**Financial Assistance**

Financial aid to the deserving applicants shall be granted in each year, based on their financial need and academic performance.
# Textile Weaving Technology

## FIRST YEAR

### FIRST SEMESTER

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Course Code</th>
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### SECOND SEMESTER

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## SECOND YEAR

### THIRD SEMESTER

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### FOURTH SEMESTER

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## THIRD YEAR

### FIFTH SEMESTER

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### SIXTH SEMESTER

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- Hands on Mill Training: One Month

### FOURTH YEAR

### SEVENTH SEMESTER

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### EIGHTH SEMESTER

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- Total Credit Hours: 147
- 106: Theory Hours
- 1: Practical Hours
# Textile Wet-Processing Technology

## FIRST YEAR

### FIRST SEMESTER

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<tr>
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<td>TS 302</td>
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## SECOND YEAR

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<td>Elements of Statistics &amp; Probability</td>
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<td>Textile Fibers I</td>
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<td>Yarn Manufacturing</td>
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### FOURTH SEMESTER

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### THIRD YEAR

#### FIFTH SEMESTER

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<td>WP 502</td>
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<td>3</td>
<td>WP 503</td>
<td>Water &amp; Surfactants</td>
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#### SIXTH SEMESTER

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Hands on Mill Training One Month

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### FOURTH YEAR

#### SEVENTH SEMESTER

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#### EIGHTH SEMESTER

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Textile Weaving Technology

FIRST YEAR

FIRST SEMESTER

Islamic Studies
TS 301

Ethics (for non Muslims)
TS 301

Physics I
TS 302
Motion in one, two and three dimension, Vectors, Force, Momentum, Newton’s law of motion, Work and Energy. Rotational dynamics and Equilibrium of rigid bodies.

General Chemistry I
TS 303
Basic concepts of atomic structure, periodic table, periodicity, different types of bonding & molecular orbital theory. Various theories about acid and base, pH and pOH, redox reactions, factors influencing on reactions and concentration units.

Mathematics I
TS 304
Calculus, functions, limit, derivatives, integration

Computer Fundamentals & MS Office
TS 305

Technical Drawing
TS 306
Uses and application of technical drawing, drawing tools and accessories, alphabets of lines used in drawing & drawing lines technology.

SECOND SEMESTER

English
TS 307
Introduction, structure of a sentences and its types, English word formation rules, development of a paragraph, grammar & essays.

Physics II
TS 308

General Chemistry II
TS 309
This course helps understanding physical properties of liquid, solid and solutions, kinetics of reactions, homogeneous & heterogeneous equilibrium, determination of absorbed and evolved heat energy during reaction and their thermo dynamical behavior. Electro chemical reactions, photochemical reactions and laws and terms involved in it.

Mathematics II
TS 310
Linear algebra, ordinary differential equation, complex numbers, geometry & trigonometry.

Computer Applications
TS 311
Basic programming skills, control structures, functions, implementation of basic data structures, introduction of C-language & other languages.

Workshop Practice
TS 312
Mechanical work & bench fitting, welding shop (gas welding), arc welding, wood work & electrical work.
SECOND YEAR

THIRD SEMESTER

Pakistan Studies
TS 401
Historical background, languages, constitution & economic progress of Pakistan.

Physics III
TS 402
Electric field, Magnetic field, Lines of induction, Electric flux.

General Chemistry III
TS 403
Alkanes, alkenes, alkynes, alkyl halides, alcohols, ethers, aldehydes, ketones, thioles & thioethers.
Carboxylic acids & their derivatives, fats, oils, soaps, detergents, amines, amino acids & aromatic concepts.

Elements of Statistics and Probability
TS 404
Introduction and definitions, classification of data & graphical representation, measures of central tendency, measures of dispersion, probability, methods of sampling and distribution. Simpler linear regression & co-efficient of correlation.

Textiles Fibers I
TS 405
Introduction, classification of textiles fibers, production, general features, characteristics, & uses of natural fibers, cellulosic fibers & protein fibers.

Yarn Manufacturing
TS 406
Ginning, blow room, carding, drawing, combing, roving, ring spinning, drafting system, open end spinning, yarn & its types.

FOURTH SEMESTER

URDU
TS 407
Urdu being our national language is part of the curriculum. The main components of this course are nan, naan, ghoseliyat, qasaed, manavi and marabi.

Mill Engineering
TS 408

Textiles Fibers II
TS 409
Production, general features, characteristics & uses of man-made fibers, regenerated fibers, modified cellulosics fiber, polyesters & fiber blends.

Fabric Formation
TS 410

Polymer Science
TS 411
Organic reaction principles necessary to understand the preparation, properties and chemistry of polymers. Synthesis, applications and behavior of common classes of polymers with emphasis on those materials used in the textile industry. The chemistry and structure of natural and man-made fibers.

Introduction To Fabric Design & Structure
TS 412
Terminology, presentation of weave with the use of colored papers, on graph paper, cross-sectional views of warp & weft, design draft & pegplan.
Construction of elementary weave, design, drafts, types of draft and lifting plan. Terry pile structure, terry weaves, terry ornamentation-stripe and check, dobby patterns, figured terry pile fabrics & mixed color effects.
Textile Mechanics
TW 501

Textile Calculation I
TW 502
Diameter, yarn counting system, determination of yarn, weight and length speed and gearing calculations. Production calculation related to different machines and different calculation of sizing, efficiency calculation of different seeds and consumption of yarn.

Electrical & Electronics Essential To Textile I
TW 503
Introduction to semiconductor physics, Stages of semiconductor manufacturing, Wafer sizes, Intrinsic & Extrinsic semiconductors, Doping and Possible Dopants, Energy bands, Band analysis of metals, semiconductors and insulators, Introduction to Diodes, biasing techniques, uses of diodes, special purpose diodes i.e. Zener diode, Tunnel diode & Laser diode, LEDs & applications of special purpose diodes.

Introduction To Textile Wet Processing I
TW 504
Pre-Treatment: singeing, desizing, scouring, mercerizing, bleaching and optical brightening, Dyeing, light & color, classification of dyestuffs, dyeing methods; exhaust, pad batch, pad steam, pad thermal and pad jlg.

Weaving Mechanism I
TW 505
Design to develop the skills of understanding different types of looms, their functions, their motions and their parts e.g. primary loom motions (shedding, picking and beating), secondary loom motions (let off, take up). Shedding motions and their types - dobby's, jacquard on projectiler, air jet and rapier looms. Selvages - their types and different loom settings.

Knitting Technology
TW 506
Knitting and knit fabrics, weft knitting, knit, tuck and float loops, weft knit design, weft knitted fabric production, warp knitting, knitting elements, warp knit design & warp knit fabric production.

SIXTH SEMESTER

Textile Calculation II
TW 507
Yarn diameter, yarn counting system determination of yarn weight and length speed. Gearing calculations, production calculation related to different machines and different calculation of sizing efficiency. Calculation of different seeds and consumption of yarn.

Electrical & Electronics Essential To Textile II
TW 508
Introduction to Transistor, Transistor as voltage amplifier & switch. Biasing of BJTs, DC-Operating point and its significance. Introduction to Amplifier, Common emitter amplifier, common base amplifier, common collector amplifier, Operational Amplifier, Class-A, Class-B & Class-C.

Preparatory Process I
TW 509

Weaving Mechanism II
TW 510
Review of the primary and secondary motions. Take-up motion, let off motion stop motion, weft stop motion & warp stop motion.

Fabric Design And Structure I
TW 511
Understand the interface of warp and weft yarns to produce different fabric designs and their structures. To use the elements of designing in practical field.

Introduction To Textile Wet Processing II
TW 512
Classification of dyestuffs, dyeing methods; exhaust, pad batch, pad steam, pad thermal and pad jlg. Dyeing of cellulosic fibers with direct, reactive, vat, azoic and pigments. Dyeing of man made & their blends with cotton, nylon, viscose rayon & acrylic polyester. Color fastness, wash fastness, rubbing fastness & light fastness.

Hands on Mill Training
One Month
FOURTH YEAR

SEVENTH SEMESTER

Intro to Textile Wet Processing III
TW 601

Preparatory Process II
TW 602

Weaving Mechanism III
TW 603
Weft replenishing motion; introduction, weft replenishment on conventional and unconventional (Shuttle less) looms. Main drive, clutch and brake systems. Shedding motion on shuttle less looms - cam, dobby and electronics jacquard shedding motion. Weft insertion system on shuttle less looms.

Fabric Design and Structure II
TW 604
Pique weaves, double plain cloth, inter changing double cloth designs, velvet and velveteen fabrics. Double shuttle plush, plush fabrics, double face cut pile fabrics, chenille fabrics, corduroy & fancy chenille fabrics. Leno weaving & placing one design in the other design.

Textile Testing And Quality Control I
TW 605
Use statistical techniques in the field of quality control & textile testing. Sampling, sampling plan, acceptable quality level & its application in sampling. Standards deviation, mean calculation & coefficient of variation. Determination of twist direction in single & double yarns. Determination of count of single and double yarn by using warp reel & analytical weighing.

CAD/CAM Designing
TW 606
Introduction of software and hardware. Scanning, selection of a design, editing or working process of the design. Weave base, jacquard parameters, jacquard machine information & machine format.

EIGHT SEMESTER

Project Work
TW 607
Project is generally linked to industry. Designed to develop imagination and independence of mind.

Weaving Mechanism IV
TW 608
Fabric formation techniques, selvedge formation, pick change work and terry pile formation systems on conventional and shuttle less loom. Terry - lift off motion on conventional and shuttle less loom, maintenance system and handling of installation work.

Fabric Design And Structure III
TW 609

Textile Testing & Quality Control II
TW 610
Determination of single yarn strength, determination of tenacity, comparison of CRE, CRF & CRI tensile strength testing machines. Importance of tensile strength of yarn & determination of burst strength. Quality control systems and standard testing procedures.

Mill Management & Costing
TW 611
Fundamentals of management, functions of management, production, planning & control. Quality assurance, productivity, inventory control, personal management, motivation, industrial accidents & costing.

ISO 9000 & Environmental Management System
TW 612
Evolution of standardization, introduction of standard, national & international standards bodies. Working of ISO and PSI, understanding of first, second and third party systems. Methodology to conduct opening and closing meeting, handling of audits and auditors. Environmental management system ISO 14000, legal & code understanding.
Textile Wet-Processing Technology

* First four semesters are similar to weaving technology

THIRD YEAR

FIFTH SEMESTER

Textile Mechanics
WP 501

Knitting Technology
WP 502

Water And Surfactants
WP 503
Water, water softening by various methods, water testing, detergents and wetting agents.

Textiles Machines I
WP 504
Ordinary kier, high pressure kier, pad-J-box, pad steam normal temperature, pad steam high temperature and pad batch. Rope washing machines, hydro extractors, cylinders, dryers, loop dryers & tumble dryers.

Pre-Treatment of Textiles I
WP 505
Task and aim of pretreatment, the reaction mechanism, pre-treatment of natural fibers, wool, silk, linen & jute. Pre-treatment of man made fibers.

Textile Dyeing I
WP 506
Light & color, classification of dyestuff, physical chemistry of dyeing & theory of dyeing. Migration, dye fiber bonds, rate of dyeing, dyeing methods, chemistry & properties of textile auxiliaries.

SIXTH SEMESTER

Dyestuff Chemistry
WP 507
Color & chemical constitution, azo dyes, diphenyl methane & triphenyl methane dyes, Azine, oxazine, thiazine dyes, xanthene & acridine dyes, Anthraquinone dyes, indigoid & thioindigoid dyes, phthalocyanine dyes, monochlorotriazinyl & dichlorotriazinyl dyes. Chemistry and properties of following dyes: direct, reactive, vat dyes, solubilized vat dyes, sulphur dyes, reactive dyes, disperse dyes & pigments.

Pre-Treatment Of Textiles II
WP 508
Pre-treatment of cotton, process, bleaching, optical brightening and mercerizing. Pre-treatment of fiber blends.

Textile Dyeing II
WP 509
Physical and chemical properties of acid dyes, basic dyes and disperse dyes. Theory of dyeing with disperse, basic, acid & reactive dyes. Dyeing techniques and dyeing of celluloses fibers.

Textiles Machines II
WP 510
Exhaust dyeing machines, semi-continuous machines, continuous machines, dryers, printing and stenter machines.

Quality Control & Textile Testing I
WP 511
Introduction to quality, quality control & assurances. Textile testing, determination of relative humidity, color fastness properties of dyed & printed textile material.

Textile Printing I
WP 512
Introduction, beginnings of textile printing, printing procedures and printing methods. Fixation methods, thickening agents, printing of wool & silk.

Hands on Mill Training
One month
FOURTH YEAR

SEVENTH SEMESTER

Textile Dyeing III
WP 601
Dyeing of cotton and viscose rayon with sulphur dyes, azoic dyes & solubilized vat dyes. Dyeing of fiber blends and energy conservation process.

Textile Printing II
WP 602

Quality Control & Textile Testing II
WP 603
Fabric strength, tensile strength, bursting strength, dimensional stability, crease & wrinkle recovery. Abrasion resistance, flame retardancy, air permeability, water repellency, formaldehyde determination & classification of defects.

Total Quality Management & Environmental
WP 604

Computer Color Management System I
WP 605
Fundamentals of color, eye & color vision, color systems, color difference measurements & metameric. Theories for color matching, computer aided color matching for textiles, color measurement instruments & preparation of data base for color matching system.

CAD/CAM
WP 606
Scanning of art work, editing, modification, reduction of colors, correction of designs, shading process, color separation of design & 3D textured mapping.

EIGHTH SEMESTER

Textile Printing III
WP 607
Printing of cotton & viscose rayon, fixation of dyestuffs methods and printing styles. Various printing techniques and printing of fiber blends.

Textile Finishing
WP 608

Computer Colour Management System II
WP 609
Theories for colour matching, computer aided colour matching for textiles. Colour measurement instruments. Preparation of database for colour matching system. Correlations of spectrophotometers and colour communications.

Mill Management & Costing
WP 610
Fundamentals of management, functions of management, supervision, human relations, decision making, planning and forecasting, industrial relations, budget & budgetary control, production planning & control, quality & productivity, inventory control, personal management, motivation, industrial accidents & coating.

Project work
WP 611
Project is generally industry linked. Designed to develop imagination and independence of mind for personal and career development.
For continuing professional development, the institute offers the following program of courses, interactive workshops aimed at keeping professional and other highly skilled or unskilled employees up-to-date with technological changes at work.

### Short Courses List

<table>
<thead>
<tr>
<th>No</th>
<th>Course Title</th>
<th>Duration</th>
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<tbody>
<tr>
<td>01</td>
<td>A brief introduction to textiles</td>
<td>20 hrs</td>
</tr>
<tr>
<td>02</td>
<td>Weaving loom operators</td>
<td>70 hrs</td>
</tr>
<tr>
<td>03</td>
<td>Interactive workshop on weaving calculations, design and structure</td>
<td>72 hrs</td>
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<tr>
<td>04</td>
<td>In-process quality control in fabric forming processes</td>
<td>72 hrs</td>
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<tr>
<td>05</td>
<td>In-process quality control in towel manufacturing</td>
<td>40 hrs</td>
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<tr>
<td>06</td>
<td>Bonas 500 jacquard-operating instructions and training</td>
<td>8-10 days</td>
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<tr>
<td>07</td>
<td>Dornier loom-operating instructions and training</td>
<td>8-10 days</td>
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<tr>
<td>08</td>
<td>Vamatex loom-operating instructions and training</td>
<td>8-10 days</td>
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<tr>
<td>09</td>
<td>SMIT loom-operating instructions and training</td>
<td>8-10 days</td>
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<tr>
<td>10</td>
<td>Quality control in textile wet-processing</td>
<td>72 hrs</td>
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<tr>
<td>11</td>
<td>Computer Color Match Prediction System (DataColor)</td>
<td>20 hrs</td>
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<tr>
<td>12</td>
<td>CAD/CAM weave designing for jacquard and dobbý</td>
<td>45 hrs</td>
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</tbody>
</table>
01. Nakshabandi Industries
02. Feroze Textiles
03. Afroze Textiles
04. Gul Ahmed Textiles
05. Al Karam Textiles
06. Al Abid Silk Mills
07. Liberty Textile Mills
08. Nina Industries
09. Younus Brothers Textiles
10. Sitara Textile Mills, Faisalabad
11. Clariant (Pak.) Ltd., Faisalabad
12. Hala Industries, Lahore
13. Friendship Textiles (Pvt.) Ltd.
14. Sohni Tex Industries
15. Textile fort
16. Naveena Industries
17. Hamsons
18. Bismillah Textiles, Faisalabad
19. J. M. S. Textile Mills (Pvt.) Ltd.
20. Meco Tex Textile Mills
21. Shabbir Textile Mills
22. Silver Textile Factory