NED University of Engineering and Technology

Department of TEXTILE ENGINEERING

Bachelor of Engineering in TEXTILE

DEPARTMENTAL OUTCOME BASED EDUCATION (OBE) CATLOGUE

Batch 2025 and Onwards

Contents

NED University of Engineering and Technology

Department of Textile Engineering

Program: Textile Engineering

Course Profile

F/QSP 11/17/01

1. Vision Statement

a. University Vision

Be a leader in enabling Pakistan's social and economic transformation.

b. Department Vision

To produce textile engineers known for their technical excellence, leadership qualities & ethical values, so they may contribute profoundly to the society and to the profession

2. Mission Statement

a. University Mission

Acquire education and research excellence in engineering and allied disciplines to produce leadership and enabling application of knowledge and skills for the benefit of the society with integrity and wisdom.

a. Programme Mission

To provide comprehensive knowledge in the textile engineering discipline through a well-designed curriculum while teaching them professional and ethical values so as these graduates will be capable of fulfilling the needs of the industry and the society

3. Program Educational Objectives (PEOs)

The Textile Engineering program at the Department of Textile Engineering produces graduates who will demonstrate;

PEO-1: Sound technical knowledge in Textile engineering, mathematics, management and economic decision making that will lead to success in a broad range of career opportunities, and graduate education.

PEO-2: Ability to successfully apply critical thinking to solve contemporary issues and engineering challenges in their professional life.

PEO-3: Effective written, verbal and visual communication skills to disseminate ideas to the team members, customers in interdisciplinary domains.

PEO-4: Awareness of ethical, legal and professional obligations so they as may contribute for the sustainable development of the environment and society

PEO-5: Lifelong learning and continuous self-improvement by pursuing higher education and professional developmental courses

4. Mapping of PEOs to University and Departmental Vision and Mission

Vision and Mission		Program Educational Objectives (PEOs)				
		PEO-1	PEO-2	PEO-3	PEO-4	PEO-5
University Vision	Be a leader[1-3] in enabling Pakistan's social[4] and economic transformation[1, 5].	✓	✓	✓	✓	✓
University Mission	Acquire education and research excellence[5] in engineering and allied disciplines to produce leadership[1-2] and enabling application of knowledge[3] and skills[3] for the benefit of the society[4] with integrity and wisdom.	✓	✓	✓	✓	✓
Department's Vision	To produce textile engineers known for their technical excellence[1-2], leadership qualities[3] & ethical values[4], so they may contribute profoundly to the society[4] and to the profession[5]	✓	✓	✓	✓	✓
Programme's Mission	To provide comprehensive knowledge[1-2] in the textile engineering discipline through a well-designed curriculum while teaching them professional[3-4] and ethical values[4] so as these graduates will be capable of fulfilling the needs of the industry[5] and the society[4]	✓	✓	✓	✓	✓

5. Program Learning Outcomes (PLOs)

PLO-1 Engineering Knowledge: Apply knowledge of mathematics, natural science, engineering fundamentals and Engineering specialization to the solution of complex engineering problems.

PLO-2 Problem Analysis: Identify, formulate, conduct research literature, and analyze complex Engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.

PLO-3 Design/Development of Solutions: An ability to design solutions for complex engineering problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.

PLO-4 Investigation: Conduct investigation of complex Engineering problems using research-based knowledge and research methods, including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions.

PLO-5 Tool Usage: Create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modeling, to complex Engineering problems, with an understanding of the limitations.

PLO-6 The Engineer and the World: Analyze and evaluate sustainable development impacts to society, the economy, sustainability, health and safety, legal frameworks, and the environment while solving complex engineering problems.

PLO-7 Ethics: Apply ethical principles and commit to professional ethics and norms of engineering practice and adhere to relevant national and international laws. Demonstrate an understanding of the need for diversity and inclusion.

PLO-8 Individual and Collaborative Team Work: Function effectively as an individual, and as a member or leader in diverse and inclusive teams and in multi-disciplinary, face-to-face, remote and distributed settings.

PLO-9 Communication: Communicate effectively and inclusively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, and make effective presentations, taking into account cultural, language, and learning differences.

PLO-10 Project Management and Finance: Demonstrate knowledge and understanding of engineering management principles and economic decision making and apply these to one's own work, as a member and leader in a team, to manage projects in multidisciplinary environments.

PLO-11 Lifelong Learning: Recognize the need for, and have the preparation and ability for i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change.

6. Mapping of PLOs to PEOs

Program Learning Outcomes (PLOs)	Program Educational Objectives (PEOs)				
	PEO-1	PEO-2	PEO-3	PEO-4	PEO-5
PLO 1: Engineering Knowledge	✓				
PLO 2: Problem Analysis		✓			
PLO 3: Design/Development of Solutions		✓			
PLO 4: Investigation		✓			
PLO 5: Tool Usage	✓				
PLO 6: The Engineer and the World				✓	
PLO 7: Ethics				✓	
PLO 8: Individual and Collaborative Team work			✓		
PLO 9: Communication			✓		
PLO 10: Project Management and Finance	✓				
PLO 11: Lifelong learning					✓

7. Scheme of Studies

Textile Engineering

FIRST YEAR

Fall Semester					Spring Semester				
		Credit Hours					Credit Hours		
Course Code	**Course Title**	**Th**	**Pr**	**Total**	**Course Code**	**Course Title**	**Th**	**Pr**	**Total**
ES-105/ ES-127	Pakistan Studies / Pakistan Studies (for Foreigners)	2	0	2	ES-206/ ES-209	Islamic Studies / Ethical Behaviour (for non-Muslims)	2	0	2
EA-128	Functional English	3	0	3	ES-108	Ideology and Constitution of Pakistan	2	0	2
MT-116	Calculus & Analytical Geometry	3	0	3	MT-221	Linear Algebra & Ordinary Differential Equations	3	0	3
MF-101	IT Fundamentals and Application	2	1	3	TE-111	Textile Chemistry	3	1	4
PH-129	Applied Physics	3	0	3	ME-112	Thermodynamics	3	0	3
TE-113	Introduction to Textile Engineering	2	0	2	TE-224	Polymer and fiber science	2	0	2

SECOND YEAR

Fall Semester					Spring Semester				
		Credit Hours					Credit Hours		
Course Code	**Course Title**	**Th**	**Pr**	**Total**	**Course Code**	**Course Title**	**Th**	**Pr**	**Total**
ME-101	Engineering Mechanics	3	1	4	TE-205	Pretreatment of Textiles	3	1	4
TE-218*	Material Science	2	0	2	ME-311	Manufacturing Processes	3	1	4
TE-216*	Fluid Mechanics for Textiles	2	0	2	MM-205	Mechanics of Materials	3	1	4
TE-211	Textile Yarn Manufacturing	3	1	4	MF-201**	Civics and Community Engagement	2	0	2
EE-122	Basic Electricity & Electronics	3	0	3	TE-312	Textile Fabric Manufacturing Processes	3	1	4
TE-251**	Engineering Drawing & Graphics	0	2	2	MF-205	Community Services	0	0	0

THIRD YEAR

Fall Semester					Spring Semester				
		Credit Hours					Credit Hours		
Course Code	**Course Title**	**Th**	**Pr**	**Total**	**Course Code**	**Course Title**	**Th**	**Pr**	**Total**
TE-307	Utilities for Textile Industry	3	1	4	TE-463*	Garment Manufacturing	2	1	3
MF-304**	Engineering Economics	2	0	2	TE-323*	Textile Product Evaluation-I	2	1	3

TE-326	Textile Dyeing	3	1	4	TE-319	Heat & Mass Transfer	2	1	3
EA-304	Business Communication and Ethics	3	0	3	TE-318	Textile & Environment	2	0	2
TE-207	Machine Design	3	0	3	TE-305	Quality Control in Textiles	2	0	2
ME-104	Workshop Practice	0	2	2	MT-333	Advanced Calculus & Fourier Analysis	3	0	3
					TE-351**	Computer Aided Design	0	1	1
					EA-###/ ES-###	Foreign Language-I	0	0	0

FINAL YEAR									
Fall Semester					**Spring Semester**				
		Credit Hours					**Credit Hours**		
Course Code	**Course Title**	**Th**	**Pr**	**Total**	**Course Code**	**Course Title**	**Th**	**Pr**	**Total**
MG-257	Organizational Behavior	2	0	2	MG-485	Entrepreneurship	2	0	2
TE-462	Advanced Fabric Manufacturing Mechanism	3	1	4	TE-406	Textile Production Management	3	0	3
TE-###	Elective - I	3	1	4	TE-###	Elective - II	3	0	3
TE-408	Textile Engineering Design project	0	3	3	TE-408	Textile Engineering Design project	0	3	3
TE-413	Textile Product Evaluation-II	3	1	4	TE-424	Textile Printing	3	1	4
EA-###/ ES-###	Foreign Language-II	0	0	0	TE-464**	Occupational Health and Safety	1	0	1
TE-###	**Elective - I**	**3**	**1**	**4**	**TE-###**	**Elective - II**	**3**	**0**	**3**
TE-452	Textile Finishing				TE-454	Textile Merchandising			
TE-455	Advanced Garment Manufacturing				TE-451	Automation & Control in Textiles			
TE-461	Advanced Yarn Manufacturing Mechanism								

*Modified Course

** New Course

8. Mapping of Curriculum to PLOs

Textile Engineering Courses			Program Learning Outcomes (PLOs)										
			PLO-1	PLO-2	PLO-3	PLO-4	PLO-5	PLO-6	PLO-7	PLO-8	PLO-9	PLO-10	PLO-11
First Year	**Fall**	ES-105 / ES-127 Pakistan Studies / Pakistan Studies (for Foreigners)						C2 C2					
		EA-128 Functional English									A3 C2		C6
		MT-116 Calculus & Analytical Geometry	C1	C2 C3									
		MF-101 IT Fundamentals and Application	C2	C3			P3						
		PH-129 Applied Physics	C2	C3 C3									
		TE-113 Introduction to Textile Engineering	C2 C2										
	Spring	ES-206 / ES-209 Islamic Studies / Ethical Behaviour (for non-Muslims)							C2 C2				
		ES-108 Ideology and Constitution of Pakistan						C2 C2					
		MT-221 Linear Algebra & Ordinary Differential Equations	C2	C3									
		TE-111 Textile Chemistry	C2 C2				P3						
		ME-112 Thermodynamics	C2	C3 C4									
		TE-224 Polymer and Fiber Science	C2 C2										
Second Year	**Fall**	ME-101 Engineering Mechanics	C2	C3 C3		P3							
		TE-218 Material Science	C1	C3									
		TE-216 Fluid Mechanics for Textiles	C2	C4									
		TE-211 Textile Yarn Manufacturing	C2			P2						C5	
		EE-122 Basic Electricity & Electronics	C2 C2	C3									
		TE-251 Engineering Drawing & Graphics					C3* C3*						
	Spring	TE-205 Pretreatment for Textiles	C2 C2			P3							
		ME-311 Manufacturing Processes	C2	C3		P3		A4					

		MM-205 Mechanics of Materials	C3		C4		C3			P3			
		MF-201** Civics and Community Engagement	C2					C3					
		TE-312 Textile Fabric Manufacturing Processes	C2			C4	P3						
		MF-205 Community Services						A3					A2
Third Year	**Fall**	TE-307 Utilities for Textile Industry	C4	C4	C3	P3							
		MF-304** Engineering Economics						C3					C4
		TE-326 Textile Dyeing	C2		C3	P3		C6					
		EA-304 Business Communication and Ethics							C3		A3 C6		
		TE-207 Machine Design	C2		C5 C5								
		ME-104 Workshop Practices				P3 P3		A4					
	Spring	TE-463* Garment Manufacturing	C4		C3		P3						
		TE-323 Textile Product Evaluation-I		C3 C4		P3							
		TE-319 Heat & Mass Transfer		C2	C3	C2	P3						
		TE-318 Textile & Environment						C2 C3					
		TE-305 Quality Control in Textiles	C2		C3	C5	P3						
		MT-333 Advanced Calculus & Fourier Analysis	C2	C3 C3									
		TE-351 Computer Aided Design					C3* C5*						
		EA-#/ES-# Foreign Language-I	-	-	-	-	-	-	-	-	-	-	-
Fourth Year	**Fall**	MG-257 Organizational Behavior						C3					C2 A3
		TE-462 Advanced Fabric Manufacturing Mechanism	C4	C4	C4	P3							
		TE-# Elective - I											
		TE-408 Textile Engineering Design Project		C	C			C	A	A	A	A	
		TE-413 Textile Product Evaluation-II		C5	C4	P3							
		EA/ES Foreign Language-II	-	-	-	-	-	-	-	-	-	-	-
	S	MG-485 Entrepreneurship								C3			C2

		TE-406 Textile Production Management			C5	C5	C3					C5	
		TE-# Elective - II											
		TE-408 Textile Engineering Design Project		C	C				A	C A	C A	C	C
		TE-424 Textile Printing	C3	C5		P3							
		TE-464 Occupational Health and Safety						C2 C3					
		Internship Feedback	C	C				A	A	A	A		
		Chances	27	20	12	15	10	13	05	05	05	04	06

*Modified Course

** New Course

9. Key Performance Indicators (KPIs)

		Evaluation Tool	KPI	Data Collection Frequency	Analysis Frequency
PEO	Programme	▪ Employer Feedback Survey ▪ Alumni Feedback Survey ▪ Employment Statistics	50% of the Survey Form responses must attain a score of 3 or above (on a scale of 1 to 5), and 50% of the graduates must be employed and/or engaged in higher studies.	Every Year	4 years from graduation
PLO	Student	▪ CLO scores of the student in the mapped course(s)	Each PLO must be attained in at least 50% of the respective mapped course(s), with an average score of at least 50%.	Every Semester	Every Semester
	Course	▪ PLO scores of all the students in the mapped course	At least 50% of the students must attain that PLO	Every Semester	Every Semester
	Programme	▪ Final PLO attainment statistics of all the courses including FYDP ▪ Internship Feedback Form ▪ Exit Survey	At least 50% of the mapped courses must attain the PLO and at least 50% of the students/ responses must attain a score of 3 or above on a scale of 1 to 5.	At graduation	At graduation
CLO	Student	▪ Course work	The student must obtain at least 50% average percentage score from all attempts.	Every Semester	Every Semester

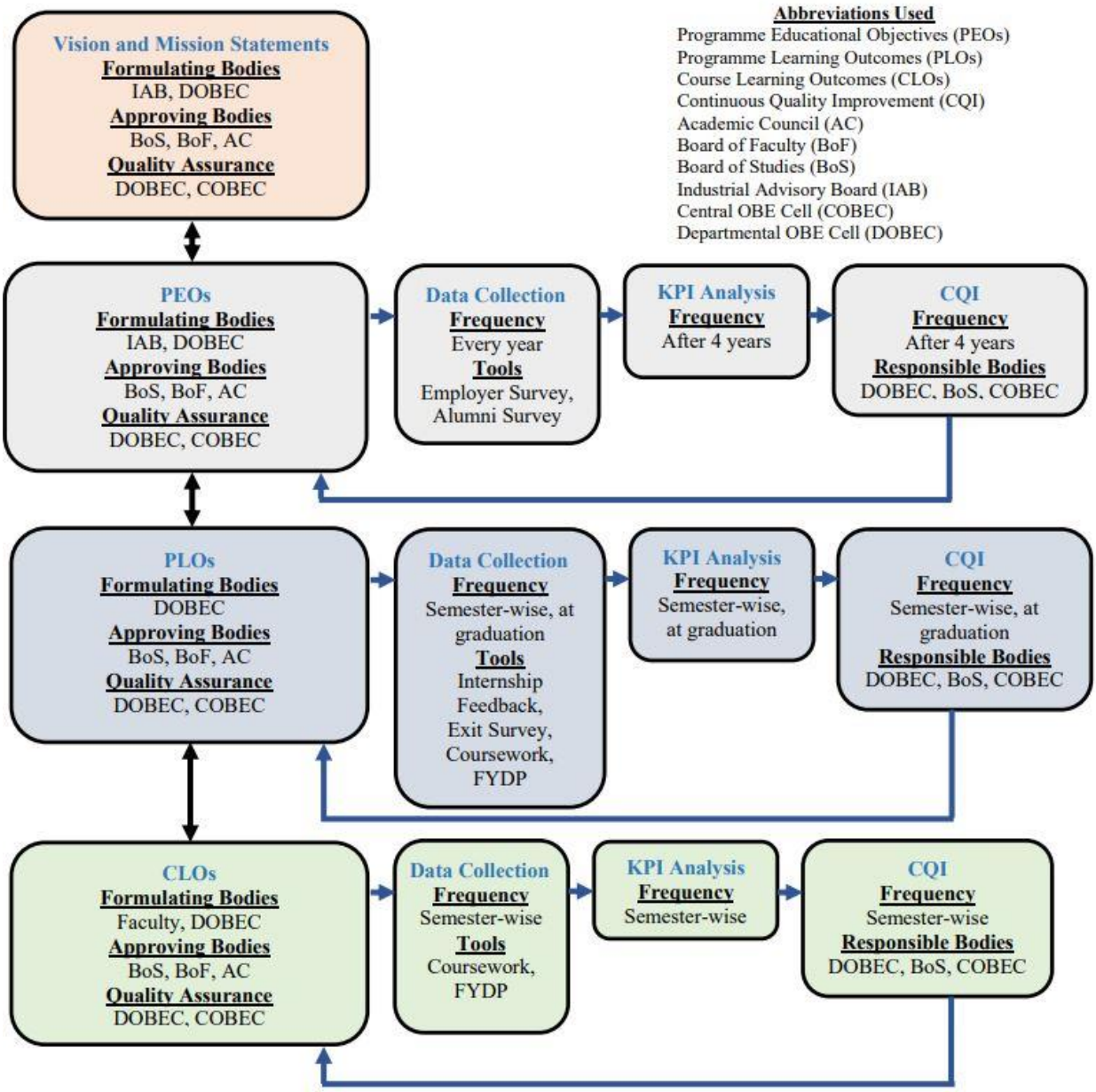
	Course	▪ CLO scores of all students in the course	At least 50% of the students must attain that CLO	Every Semester	Every Semester

10.Continuous Quality Improvement (CQI)

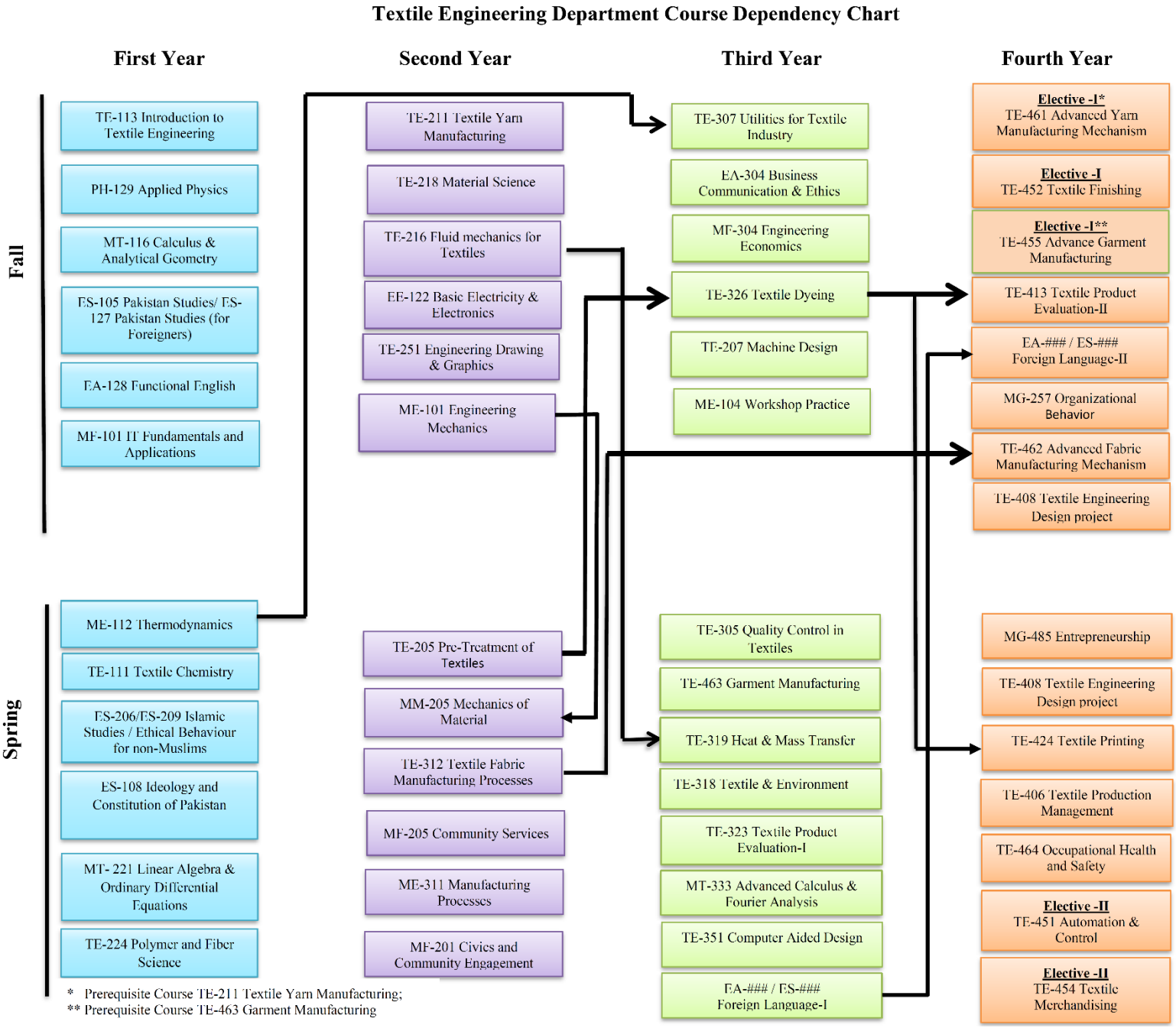
The following table shows the post KPI evaluation actions, severity-wise, as outlined in the Manual of Uniform OBE Framework.

	PEO CQI	**PLO CQI**			**CLO CQI**	
	Program KPI	**Student KPI**	**Course KPI**	**Programme KPI**	**Student KPI**	**Course KPI**
KPIs Achieved	▪ No Action	▪ No Action	▪ No Action	▪ No Action	▪ No Action	▪ No Action
KPIs Not Achieved	1. Review of curriculum strategies. 2. Review of assessment methods. 3. Review of the relevant KPIs. 4. Review of PEOs. 5. Revisions implemented.	1. Warning through the progressive attainment sheet. 2. Student counselling.	1. Review of teaching and learning process. 2. Review of CLOs assessment methods. 3. Review of CLO-PLO mapping and the relevant KPIs. 4. Review of curriculum design. 5. Revisions implemented.	1. Review of teaching and learning process. 2. Review of PLOs assessment methods. 3. Review of Course-PLO mapping and the relevant KPIs. 4. Review of curriculum design. 5. Revisions implemented.	1. Student provided further chances through direct assessment tools. 2. Student counselling.	1. Review of CLO assessment methods. 2. Review of CLOs and taxonomy levels. 3. Review of students' course feedback. 4. Review of CLO KPIs. 5. Faculty advice by Departmental OBE Cell. 6. Faculty training.

The following figure shows the overall OBE framework for an Engineering Programme as outlined in the Manual of Uniform OBE Framework.



11.Course Dependencies



* Prerequisite Course TE-211 Textile Yarn Manufacturing;
** Prerequisite Course TE-463 Garment Manufacturing

12.Course Profiles

Course profiles of all the Engineering and Non-Engineering Courses listed in the scheme of studies, are attached herewith.

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE Pakistan Studies ES-105	**SEMESTER** ■ SPRING ☐ FALL	**CREDIT HOURS** TH ☐3 ■2 ☐1 ☐0 PR ☐3 ☐2 ☐1 ■0
PREREQUISITE COURSE(S)	**DATE OF COURSE CONTENT APPROVAL** June 21, 2023	**APPLIED FROM BATCH** 2025

COURSE CONTENTS

Historical and Ideological Perspective of Pakistan Movement
Two Nation Theory, Factors leading to the creation of Pakistan, Jinnah and demand for Pakistan.

Land of Pakistan
Geophysical conditions of Pakistan, Geopolitical and strategic importance of Pakistan, Natural resources of Pakistan: mineral, water and power resources.

Constitutional process
Early efforts to make a constitution (1947-1956), Salient features of the Constitution of 1956, 1962, Political and Constitutional crisis of 1971, Salient features of the Constitution of 1973, Constitutional amendments from 1973 to date.

Contemporary issues of Pakistan
A brief Survey of Pakistan's economy, The Current Economic Situation of Pakistan: Problems & Issues and future perspective, Social Issues: Pakistan's society and culture: broad features, Literacy and education in Pakistan: problems and issues, Scientific and technical development in Pakistan, Citizenship: national and international. Environmental Issues: Environmental pollution: causes, hazards and solutions, National policy, International treaties, conventions and protocols.

Pakistan's Foreign Policy
Pakistan's Foreign Policy from 1947 to present, Relations with immediate neighbors, Relations with major powers, Relations with the Muslim world.

Human Rights
Conceptual foundations, Western and Islamic perspective of Human Rights, Human Rights in the Constitution of 1973, Human rights issues in Pakistan.

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING OUTCOME

Sr. No.	CLOs	Taxonomy level	Programme learning outcome (PLO)
At the end of the course, the student will be able to:			
01	Explain the historical and ideological foundations of the Pakistan Movement and assess its contemporary relevance in both regional and global contexts.	C2	The Engineer and the world
02	Discuss key issues related to Pakistan's natural resources, economy, governance, and climate change, and propose viable solutions to address these challenges	C2	The Engineer and the world

REMARKS (if any):

Recommended by: _____ (Chairperson/Date)

Approved by: _____ (Dean/Date)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE ES-127 Pakistan Studies (For Foreigners)	**SEMESTER** ■ SPRING ☐ FALL	**CREDIT HOURS** TH ☐3 ■2 ☐1 ☐0 PR ☐3 ☐2 ☐1 ■0
PREREQUISITE COURSE(S)	**DATE OF COURSE CONTENT APPROVAL**	**APPLIED FROM BATCH 2025**

COURSE CONTENTS

Land of Pakistan:
Land & People-Strategic importance- Important beautiful sights, Natural resources.
A Brief Historical Background:
A brief Historical survey of Muslim community in the sub-continent, British rule & its impacts, Indian reaction, Two nation theory, Origin & development, Factors leading towards the demand of a separate Muslim state, Creation of Pakistan
Government & Politics in Pakistan:
Constitution of Pakistan, A brief outline, Governmental structure, Federal & Provincial, Local Government Institutions, Political History, A brief account.
Pakistan & the Muslim World:
Relations with the Muslim countries
Language and Culture:
Origins of Urdu Language, Influence of Arabic & Persian on Urdu Language & Literature, A short history of Urdu literature

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING OUTCOME

Sr. No.	CLOs	Taxonomy level	Programme learning outcome (PLO)
At the end of the course, the student will be able to:			
1	Describe the historical, ideological, socio-economic, and political aspects of Pakistan as a nation and state.	C2	The Engineer and the world
2	Discuss Pakistan's culture, issues, and challenges through appropriate actions and advocacy	C2	The Engineer and the world

REMARKS (if any):

Recommended by: _____ (Chairperson/Date)

Approved by: _____ (Dean/Date)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE EA 128 Functional English	**SEMESTER** □ SPRING ■ FALL	**CREDIT HOURS** TH ■3 □2 □1 □0 PR □3 □2 □1■0
PREREQUISITE COURSE(S) None	**DATE OF COURSE CONTENT APPROVAL**	**APPLIED FROM BATCH** 2025

COURSE CONTENTS

Listening skills and subskills

Effective listening techniques: listening for gist, details, and specific information in a range of situations (AV lectures, interviews, documentaries etc.)

Speaking skills

Speaking with fluency and accuracy in a variety of situations including conversations, group discussion, academic and social interaction, public speaking, presentation skills, and interviews**;** Pronunciation improvement exercises (through websites, apps, and in class worksheets)

Reading and subskills

Reading strategies: Skimming, scanning, and detailed reading, identifying main ideas, supporting details, and inferences (multiple genres including newspapers, books, stories, documentaries etc). Reading Practice: Reading comprehension tasks. Reading output tasks (notes, summary, discussion, counter argument etc.)

Study skills

Effective note-taking strategies for lectures, meetings, and reading texts. Taking in varied forms paragraph, lists, infographics etc.) ; Interpreting instructions oral and written. Effective examination taking technique (comprehending instructions, planning, and writing answers ensuring relevance and precise

Writing skills

Writing process, Pre-writing strategies (Mindmapping, cubing, outlining, clustering etc.); Writing to describe, argue, compare and contrast, persuade through writing prompts; Writing academic and professional genres: emails, letters, short report, resume, cover letter, building profiles on various job portal; Writing accuracy: Identifying and overcoming grammatical problems.

Vocabulary and grammar development

Vocabulary Development strategies. Exposure and practice to develop everyday and academic vocabulary for formal contexts.

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING OUTCOME

Sr. No.	CLOs	Taxonomy level	Programme learning outcome (PLO)
At the end of the course, the student will be able to:			
1	Demonstrate effective spoken skills and strategies appropriate for various academic and professional settings.	A3	Communication
2	Comprehend explicit and implicit information through reading and listening strategies.	C2	Communication
3	Produce various written genres for different academic and professional settings utilizing study skills.	C6	Lifelong Learning

REMARKS (if any):

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

Recommended by: _____ **Approved by: _____**

(Chairperson/Date) (Dean/Date)

COURSE CODE& TITLE MT-116 (Calculus & Analytical Geometry)	**SEMESTER** □ SPRING ■ FALL	**CREDIT HOURS** TH ■ 3 □2 □1 □0 PR □3 □2 □1 ■ 0
PREREQUISITE COURSE(S)	**DATE OF COURSE CONTENT APPROVAL**	**APPLIED FROM BATCH** 2025

COURSE CONTENTS

Set and Functions

Define rational, irrational and real numbers; rounding off a numerical value to specified value to specified number of decimal places or significant figures; solving quadratic, and rational inequalities in involving modulus with graphical representation; Definition of set, set operations, Venn diagrams, De Morgan's laws, Cartesian product, Relation, Function and their types (Absolute value, greatest integer and combining functions). Graph of some well-known functions. Limit of functions and continuous and discontinuous functions with graphical representation.

Differential Calculus

Differentiation and Successive differentiation and its application: Leibnitz theorem. Taylor and Maclaurin theorems with remainders in Cauchy and Lagrange form, power series. Taylor and Maclaurin series, L' Hopitals rule, extreme values of a function of one variable using first and second derivative test, asymptotes of a function, curvature and radius of curvature of a curve, partial differentiation, extreme values of a function of two variables with and without constraints. Solution of non-linear equation, using Newton Raphson method.

Integral Calculus

Indefinite integrals and their computational techniques, reduction formulae, definite integrals and their convergence. Beta and Gamma functions and their identities, applications of integration relevant to the field.

Sequence & Series

Sequence, Infinite Series, Application of convergence tests such as comparison, Root, Ratio, Raabe's and Gauss tests on the behaviour of series.

Analytical Geometry

Review of vectors, scalars and vector products, Three-dimensional coordinate system and equation of straight line and plane and sphere, curve tracing of a function of two and three variables, surface revolutions, coordinate transformation.

Complex Number

Argand diagram, De Moivre formula, root of polynomial equations, curve and regions in the complex plane, standard functions and their inverses (exponential, circular and Hyperbolic functions).

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING OUTCOME

Sr. No.	CLOs	Taxonomy level	Programme learning outcome (PLO)
At the end of the course, the student will be able to:			
1	Solve real and complex numbers problems.	C3	Problem Analysis
2	Apply calculus and analytical geometry to engineering problems.	C3	Problem Analysis
3	Carry out calculation to discuss the behavior of sequence and series.	C3	Problem Analysis

REMARKS (if any):

Recommended by: _____ **Approved by: _____**

(Chairperson/Date) (Dean/Date)

Recommended by: _____ **Approved by: _____**

(Chairperson/Date) (Dean/Date)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE MF-101 IT Fundamentals and Applications	**SEMESTER** ☐ SPRING ☐ FALL	**CREDIT HOURS** TH ☐3 ■2 ☐1 ☐0 PR ☐3 ☐2 ■1 ☐0
PREREQUISITE COURSE(S) -	**DATE OF COURSE CONTENT APPROVAL** 26-05-2025	**APPLIED FROM BATCH** 2025

MAPPED SUSTAINABLE DEVELOPMENT GOAL(s) (SDG(s))

COURSE CONTENTS

Fundamentals of IT: Introduction to Information and Communication Technologies (ICT), Components and scope of ICT, ICT productivity tools, Emerging technologies and future trends, Ethical Considerations in Use of ICT Platforms and Tools, Applications of ICT in education, healthcare and finance. Digital citizenship.

Data Representation and Number Systems: Binary, octal, decimal, hexadecimal systems, data representation: characters, numbers, multimedia.

Databases: Fundamentals of databases, organization and storage, introduction to Information Systems (IS) and Management Information Systems (MIS), real world IS and MIS applications.

Data Communication and Computer Networking: Network topologies, Types of networks

Programming Languages: Evolution and structures: syntax, semantics, special purpose vs. general-purpose languages, comparative study of data types, control structures and algorithms, basics of coding, practical problem solving.

COURSE LEARNING OUTCOMES (CLOs) WITH PROGRAMME LEARNING OUTCOMES (PLO) MAPPINGS

CLO No.	CLO Statement	Taxonomy level	Mapped PLO
At the end of the course, the student will be able to:			
1	Explain the fundamental concepts of ICT, programming and spreadsheets	C2	Engineering Knowledge
2	Apply programming and spreadsheet methods to solve basic engineering problems.	C3	Problem Analysis
3	Operate programming and spreadsheet software for programming and data processing, respectively	P3	Tool Usage

REMARKS (if any):

Recommended by: _____ (Chairperson/Date)

Approved by: _____ (Dean/Date)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE PH-129 Applied Physics	**SEMESTER** ☐ SPRING ■ FALL	**CREDIT HOURS** TH ■3 ☐2 ☐1 ☐0 PR ☐3 ☐2 ☐1 ■0
PREREQUISITE COURSE(S)	**DATE OF COURSE CONTENT APPROVAL**	**APPLIED FROM BATCH** 2025

COURSE CONTENTS

Vectors & Mechanics: Review of vectors, Newton Laws and their Applications, Frictional Forces and determination of Co-efficient of Friction, Work-Energy Theorem, applications of law of Conservation of Energy, Angular Momentum, Centre of Mass.

Waves and Oscillations: Simple Harmonic Oscillator, Damped Harmonic Oscillation, Forced Oscillation and Resonance, Types of Waves and Superposition Principle

Optics and Lasers: Huygens Principle, Two-slit interference, Single-Slit Diffraction, Types of Lasers, Applications of Laser.

Modern Physics: Planck's explanations of Black Body Radiation Photoelectric Effect, De-Broglie Hypothesis, Electron Microscope, Atomic structure, X-rays, Radioactive Decay and Radioactive Dating, Radiation Detection Instruments

Electrostatics and Magnetism: Electric field due to different Charge Distribution, Electrostatic Potential Applications of Gauss's Law, Lorentz Force Ampere's Law, Magnetism, Magnetization, Magnetic Materials.

Electrical Elements and Circuits: Review of electric current, voltage, power, and energy, Ohm's law, inductance, capacitance, Basic Electrical circuits, Electromechanical systems.

Semiconductor Physics and Electronics: Energy levels in a Semiconductor, Hole concept, P-N junction, Diodes, Transistors, Basic Electronic circuits (e.g. rectifier).

Thermodynamics: Review of Laws of Thermodynamics, conduction, convection, and radiation. Thermal conductivity, specific heat, and overall heat transfer coefficients. Heating, Ventilation and Air Conditioning (HVAC).

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING

Sr. No.	CLOs	Taxonomy level	Programme learning outcome (PLO)
At the end of the course, the student will be able to:			
1	Discuss principle of physics; and explain the Concept of classical and modern physics to Solve related problems	C2	Engineering Knowledge
2	Use the concept of classical physics for Engineering problems	C3	Problem Analysis
3	Apply the concept of modern physics to solve physical problems	C3	Problem Analysis

REMARKS (if any):

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE TE-113 Introduction to Textile Engineering	**SEMESTER** ☐ SPRING ■FALL	**CREDIT HOURS** TH ☐3 ■2 ☐1 ☐0 PR ☐3 ☐2 ☐1 ■0
PREREQUISITE COURSE(S) NIL	**DATE OF COURSE CONTENT APPROVAL** September 2016	**APPLIED FROM BATCH** 2025

COURSE CONTENTS

General Fibre properties & their importance

Textile Spinning

Introduction of the processes and machinery in blow room, card, draw frame, speed frame, and ring frame.

Winding

Study of various winding machines and processes; study of different yarn packages.

Textile Weaving

Introduction to weaving; difference between weaving and knitting; flowchart of weaving processes. Brief description of warping systems.

Importance of sizing and preparation of various sizing materials for different yarns: cotton, synthetic.

Brief Description of a Loom

Basic primary motions, weft insertion mechanism, layout and outline of a loom.

Wet Processing

Fabric preparatory processes, brief description of common batch and continuous methods of scouring, bleaching and dyeing.

Theory of dyeing and classification of dyes considering application, textile printing.

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING OUTCOMES

Sr. No.	CLOs	Taxonomy level	Programme learning outcome (PLO)
At the end of the course, the student will be able to:			
1	Discuss fibre properties, yarn & fabric manufacturing.	C2	Engineering Knowledge
2	Explain main wet processing techniques for value addition of textiles.	C2	Engineering Knowledge

REMARKS (if any):

Recommended by: _____ **Approved by: _____**

(Chairperson/Date) (Dean/Date)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE ES-206 Islamic Studies	SEMESTER ■ SPRING ☐ FALL	CREDIT HOURS TH ☐3 ■2 ☐1 ☐0 PR ☐3 ☐2 ☐1 ■0
PREREQUISITE COURSE(S) NIL	DATE OF COURSE CONTENT APPROVAL 15-05-2024	APPLIED FROM BATCH 2025

COURSE CONTENTS

Fundamentals of Islam

Tauheed, Arguments for the Oneness of God; Al-Ambiya-22, Al-Baqarah-163-164, Impact of Tauheed on human life, Place of Man in the Universe: Al Israa/Bani Israil-70; Purpose of creation: Al zariyat-56, Prophethood, Need for Prophet, Characteristics of Prophet, Finality of Prophethood: Al-Imran-79, Al-Hashr-7, Al-Maidah-3, and Faith in Hereafter (Aakhirat), Effects on worldly life: Al-Hajj-5, Al-Baqarah-48, Hadith

Ibadah

Concept of Ibadah, Major Ibadah, Salat, Zakat, Hajj and Jihad. Al-Mu'minun-1-11, Al Anfaal- 60, & Two Ahadiths

Basic Sources of Shariah:

The Holy Quran, Its revelation and compilation, the authenticity of the Text, Hadith, Its need, Authenticity and Importance, Consensus (Ijmaa), Analogy (Qiyas)

Moral and Social Philosophy of Islam

The concept of Good and Evil; **A'l e Imran - 110, Al Nahl-125,** Akhlaq-e-Hasna with special reference to **Surah Al-Hujrat, verses 10, 11, 12, 13,** Professional Ethics (Kasb-e-Halal) **Al Taha-81, Al Baqar 188, one hadith.**

Seerat of the Holy Prophet(PBUH)

a) Moral and ethical teachings of the Holy Prophet (PBUH) with special reference to Hajjat-ul-Wida, (Fundamentals of Islam, Social aspects, Economics aspects, political aspects

b). Personal Characteristics: perseverance & trust in Allah, honesty & integrity, simplicity & humility, mercy & compassion, clemency & forgiveness, bravery & valor, generosity, patience.

c) Engagement and communication with collaborators and foes:

Cases Study from Seerah: Charter of Madina, Ghazwa e Khandaq, Treaty of Hudaibya , Ghazwa e Khayber, Najran's Delegation, Victory of Makkah.

d) Social values and rights, (peace & harmony, tolerance, solidarity, collaborations, inclusivity & cohesion)

Case Studies from Seerah: Al –Fudoul Confederacy, Placement of Black stone, charter of Medina, Treaty of Hudaibya)

Leadership skills (Vision, communication, negotiation, conflict management, decision making, relationship building, Integrity, positivity, compassion, empathy, loyalty, accountability, confidence, delegation, empowerment, problem-solving, foresightedness, openness, gratitude and justice).

Teaching of Holy Quran: Translation and tafseer of **Surah-e- Fatiha**, and The Selected Section of Sura Al-Furqan verses (63-77), Surah**-e-Luqman** (verses (12-19)).

Nazraah and Tajveed of: Suratul Fatiha, Ayatal Kursi, and last 10 surahs of the Holy Quran. (Ghunnah, Qalqalah, Al-Madd, Noon Sakinah & Tanween Rules)

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Course Profile

F/QSP 11/17/01

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING

Sr. No.	CLOs	Taxonomy level	Programme learning outcome (PLO)
At the end of the course, the student will be able to:			
1	Explain the provided Quranic verses and Hadiths and their functional meaning and about the specified topics.	C2	Ethics
2	Describe the foundational principles of Sariah sources and the exemplary characteristics of Seerat –un-Nabi (SAW) in personal and professional life.	C2	Ethics

REMARKS (if any):

Recommended by: _____ **Approved by: _____**

(Chairperson/Date) (Dean/Date)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE ES-209 Ethical Behaviour (for Non-Muslims)	**SEMESTER** ■ SPRING □ FALL	**CREDIT HOURS** TH □3 ■ 2 □1 □0 PR □3 □2 □1 ■ 0
PREREQUISITE COURSE(S) --	**DATE OF COURSE CONTENT APPROVAL**	**APPLIED FROM BATCH** 2025

COURSE CONTENTS

Nature, Scope and Methods of Ethics: Ethics and Religion, Ethical teachings of World Religions

Basic Moral Concepts: Right and Wrong, Good and Evil

Ethical Systems in Philosophy: Hedonism, Utilitarianism, Rationalism & Kant, Self-Realization Theories, Intuitionism

Islamic Moral Theory: Ethics of Qur'an and its Philosophical basis, Ethical precepts from Qur'an and Hadith and Promotion of Moral Values in Society.

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING OUTCOME

Sr. No.	CLOs	Taxonomy level	Programme learning outcome (PLO)
At the end of the course, the student will be able to:			
1.	EXPLAIN the ethical teachings of the world's major religions.	C2	Ethics
2.	DESCRIBE the importance and implications of ethics on individuals and societies.	C2	Ethics

REMARKS (if any):

Recommended by: _____ (Chairperson/Date)

Approved by: _____ (Dean/Date)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE ES-108 Ideology and Constitution of Pakistan	**SEMESTER** ■SPRING ☐ FALL	**CREDIT HOURS** TH ☐3 ■2 ☐1 ☐0 PR ☐3 ☐2 ☐1 ■0
PREREQUISITE COURSE(S)	**DATE OF COURSE CONTENT APPROVAL** 2025	**APPLIED FROM BATCH** 2025

COURSE CONTENTS

Two-Nation Theory

Nation and Nationalism in British India. Inclusive nationalism, Exclusive nationalism, Freedom movement in British India, Two-Nation Theory.

Ideology: definition and its significance

Difference between Philosophy, Ideology, and Theory. Evolution of Islamic ideology in British India. Pakistan movement: role of ideology. Ideological factors that shaped the Constitution(s) of Pakistan (Objectives Resolution 1949).

Introduction to the Constitution of Pakistan

Definition and importance of a constitution. First Constituent Assembly of Pakistan. Main issues that delayed the Constitution-making in Pakistan. Dissolution of the Constituent Assembly. Second Constituent Assembly of Pakistan. Third Constituent Assembly of Pakistan.

Constitution and State Structure

Federal form of State. Parliamentary form of government. Structure of Government (executive, legislature, and judiciary). Distribution of powers between federal and provincial governments.

Fundamental Rights, Principles of Policy, and Responsibilities

Duty of the citizens of Pakistan (Article 5). Overview of fundamental rights to citizens of Pakistan guaranteed by the Constitution 1973 (Articles 8-28). Overview of Principles of Policy (Articles 29-40).

Constitutional Amendments

Procedures for amending the Constitution. Notable constitutional amendments and their implications: 8th, 13th, 17th, and 18th.

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Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING OUTCOME

Sr. No.	CLOs	Taxonomy level	Programme learning outcome (PLO)
At the end of the course, the student will be able to:			
1	Describe the historical evolution of Islamic ideology in British India and critically evaluate its influence on the freedom movement and the basic principles of the Constitution of Pakistan.	C2	The Engineer and the world
2	Discuss the foundational concepts of the Constitution of Pakistan, including the structure of the state, system of governance, key institutions, fundamental rights, and civic responsibilities of citizens.	C12	The Engineer and the world

REMARKS (if any):

Recommended by: _____ (Chairperson/Date)

Approved by: _____ (Dean/Date)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE MT-221 Linear Algebra & Ordinary Differential Equations	SEMESTER ■ SPRING ☐ FALL	CREDIT HOURS TH ■3 ☐2 ☐1 ☐0 PR ☐3 ☐2 ☐1 ■0
PREREQUISITE COURSE(S)	**DATE OF COURSE CONTENT APPROVAL**	**APPLIED FROM BATCH** 2025

COURSE CONTENT

Linear Algebra: Linearity and linear dependence of vectors, basis, dimension of a vector space, field matrix and type of matrices (singular, non- singular, symmetric, non- symmetric, upper, lower, diagonal), Rank of a matrix using row operations and special method, echelon and reduced echelon forms of a matrix, determination of consistency of a system of linear equation using rank, matrix of linear transformations, eigen value and eigen vectors of a matrix, Diagonalization. Applications of linear algebra in relevant engineering problem.

1st Order Differential Equations: Basic concept: Formation of differential equations and solution of differential equations by direct integration and by separating the variables: Homogeneous equations and equations reducible to homogeneous from; Linear differential equations of the order and equations reducible to the linear form; Bernoulli's equations and orthogonal trajectories: Application in relevant Engineering.

2nd and Higher Orders Equations: Special types of IInd order differential equations with constant coefficients and their solutions: The operator D; Inverse operator I/D; Solution of differential by operator D methods; Special cases, Cauchy's differential equations; Simultaneous differential equations; simple application of differential equations in relevant Engineering.

Partial Differential Equation: Basic concepts and formation of partial differential equations: Linear homogeneous partial differential equations and relations to ordinary differential equations: Solution of first order linear and special types of second and higher order differential equations; D' Alembert's solution of the wave equation and two dimensional wave equations: Lagrange's solution; Various standard forms.

Fourier Series: Periodic functions and expansion of periodic functions in Fourier series and Fourier coefficients: Expansion of function with arbitrary periods. Odd and even functions and their Fourier series; Half range expansions of Fourier series.

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING OUTCOME

Sr. No.	CLOs	Taxonomy level	Programme learning outcome (PLO)
At the end of the course, the student will be able to:			
1	Describe formation of differential equations and system of linear equations to explain physical situations	C2	Engineering Knowledge
2	APPLY appropriate methods to solve differential equations and system of linear equations of relevant engineering problems.	C3	Problem Analysis

REMARKS (if any):

Recommended by: _____ (Chairperson/Date)

Approved by: _____ (Dean/Date)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE TE-111 Textile Chemistry	**SEMESTER** ■ SPRING ☐ FALL	**CREDIT HOURS** TH ■3 ☐2 ☐1 ☐0 PR ☐3 ☐2 ■1 ☐0
PREREQUISITE COURSE(S)	**DATE OF COURSE CONTENT APPROVAL** September 2016	**APPLIED FROM BATCH** 2025

COURSE CONTENTS

Liquids and Solutions

Viscosity, colloidal solution, coagulation, adsorption, absorption and diffusion. Intermolecular forces in liquids, surface tension, osmosis and osmotic pressure, desalination of saline water by reverse osmosis. Ways of expressing concentration of solutions.

Electrochemistry

Theories on acids, bases, electrolytes, buffers. Conductance of electrolytes & measurement of electrolytic conductance & cell constant, pH scale & its measurement, buffer solution & Handersen-Hasselbalch equation.

Aromatic Compounds

Concept of a dye and a pigment, parts of a dye molecule. Organic and inorganic raw materials for the manufacturing of dyes/intermediates. Synthesis of dyestuff intermediates through chemical conversion reactions, Resonance and orbital theory of color.

Carbohydrates

Mono, di & polysaccharides and structure of Starch & cellulose, properties and uses of starch & cellulose. Chemistry of cellulose and its degradation products. Physical properties of cellulosic materials.

Surface Active Agents

Soap and soap manufacturing, theory of detergency, synthetic detergents. Surfactants (anionic, cationic, non-ionic & amphoteric) and their properties. Laundry detergents.

Chemical Auxiliaries used in Textile Processing:

Enzymes and Catalysts; mechanism and application, Salts, wetting agents, sequestering/chelating agents, dispersing and solubilizing agents, leveling and dye-fixing agents. Waxes.

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING OUTCOME

Sr. No.	CLOs	Taxonomy level	Programme learning outcome (PLO)
At the end of the course, the student will be able to:			
01	Explain the fundamental concept of physical chemistry and describe their relevance to chemical system and processes.	C2	Engineering Knowledge
02	Discuss the role of auxiliaries used in textile to assess their suitability for specific applications.	C2	Engineering Knowledge
03	Demonstrate the ability to operate equipment to understand principles of chemistry under guidance.	P3	Tool Usage

REMARKS (if any):

Recommended by: _____ **Approved by:** _____

(Chairperson/Date) (Dean/Date)

NED University of Engineering and Technology

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Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE ME-112 (Thermodynamics)	**SEMESTER** ■ SPRING ☐ FALL	**CREDIT HOURS** TH ■3 ☐2 ☐1 ☐0 PR ☐3 ☐2 ☐1 ■0
PREREQUISITE COURSE(S) None	**DATE OF COURSE CONTENT APPROVAL** 30-6-2020	**APPLIED FROM BATCH** 2025

COURSE CONTENTS

Introduction, Working substance, System, Pure substance, PVT surface, Phases, Properties and state, Units, Zeroth law, Processes and cycles, Conservation of mass.

Relation of mass and energy, Different forms of energy, Internal energy and enthalpy, Work, Generalized work equation, Flow and non-flow processes, Closed systems, First law of Thermodynamics, Open systems and steady flow, Energy equation for steady flow, System boundaries, Perpetual motion of the first kind.

Thermodynamic equilibrium, Reversibility, Specific heats and their relationship, Entropy, Second law of Thermodynamic property relation from energy equation, Frictional energy.

Gas laws, Specific heats of an ideal gas, Dalton's law of partial pressure, Third law of Thermodynamics, Entropy of an ideal gas, Thermodynamic process.

Cycle work, Thermal efficiency and heat rate, Carnot cycle, Sterling cycle, Reversed and reversible cycles, Most efficient engine.

Clausius inequality, Availability and irreversibility, Steady flow system.

Two phase system of a pure substance, Changes of phase at constant pressure, Steam tables, Superheated steam, Compressed liquid and vapour curves, Phase diagrams, Phase roles, Processes of vapours, Mollier diagram, Rankine cycle, Boilers and auxiliary equipment.

Otto cycle, Diesel cycle, Dual combustion cycle, Four stroke and two stroke engines, Types of fuels.

Condition for minimum work, Isothermal efficiency, Volumetric efficiency, Multi-stage compression, Energy balance for a two stage machine with intercooler.

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING OUTCOME

Sr. No.	**CLOs**	**Taxonomy level**	**Programme learning outcome (PLO)**
At the end of the course, the student will be able to:			
1	Discuss thermodynamics properties of matter and related processes.	C2	Engineering Knowledge
2	Apply the laws of thermodynamics to open and close systems.	C3	Problem Analysis
3	Analyze the performance of different power cycles.	C4	Problem Analysis

REMARKS (if any):

Recommended by: _____ **Approved by:** _____

(Chairperson/Date) (Dean/Date)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE TE-224 POLYMER AND FIBER SCIENCE	**SEMESTER** ■ SPRING ☐ FALL	**CREDIT HOURS** TH ☐3 ■2 ☐1 ☐0 PR ☐3 ☐2 ☐1 ■0
PREREQUISITE COURSE(S) NIL	**DATE OF COURSE CONTENT APPROVAL** 2016	**APPLIED FROM BATCH** 2025

COURSE CONTENTS

Fundamental Concepts of the Fibrous Polymers: Monomer and Polymers, Classification of Polymers, polymerization methods, Degree of polymerization, orientation of chain molecules, Chemical bonds in important textile polymers, Glass transition temperature

Textile Fibres: Definition and classifications of textile fibres. Essential requirements of the fibre forming polymers

Natural Fibres: Cellulosic fibres, Seed Fibre: Processing, morphological structure, physical and chemical properties and uses of cotton fibre, Varieties of Pakistani cotton, Cotton grading, Bast fibres: Processing, extraction (retting process), morphological structure, physical and chemical properties and uses of Jute, flax, hemp, and ramie fibre Leaf fibres: Processing, extraction, morphological structure, physical and chemical properties and uses of Abaca and Sisal fibres Protein Fibres:

Wool: Introduction, classification, morphological structure, production, physical and chemical properties, grading and uses of wool fibre. Scouring, carbonization and heat-setting of wool. Introduction of fibres such as Camel, Mohair, Cashmere, Alpaca and Angora

Silk: Production, morphological structure, physical and chemical properties and uses

Regenerated Fibres: Introduction and classification of regenerated fibres; manufacturing processes, properties and uses of Rayons such as viscose, high wet modulus rayons, lyocell, and acetates.

Synthetic Fibres: Introduction and classification of synthetic fibres; manufacturing processes, properties and uses of polyester, polyamide, acrylic, polypropylene, elastomers, aramid, glass and carbon fibres

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING OUTCOME

Sr. No.	CLOs	Taxonomy level	Programme learning outcome (PLO)
At the end of the course, the student will be able to:			
1	Explain the basic concepts of polymer & fibre science and principles involved in production of natural & man-made fibers.	C2	Engineering Knowledge
2	Discuss the relationship among all fibres' composition, textile characteristics, and their suitability for different end uses.	C2	Engineering Knowledge

REMARKS (if any):

Recommended by: _____ **Approved by:** _____

(Chairperson/Date) (Dean/Date

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE ME-101 Engineering Mechanics	SEMESTER ☐ SPRING ■FALL	CREDIT HOURS TH ■3 ☐2 ☐1 ☐0 PR ☐3 ☐2 ■1 ☐0
PREREQUISITE COURSE(S) None	**DATE OF COURSE CONTENT APPROVAL**	**APPLIED FROM BATCH** 2025

COURSE CONTENTS

Statics of Particles:
Forces in a plane; Newton's First Law, Freebody diagram; Forces in space (rectangular components); Equilibrium of a particle in space.

Kinematics of Particles:
Rectilinear and curvilinear motion of particles; Components of velocity and acceleration; Motion relative to a frame in translation.

Kinetics of Particles:
Newton's Second Law; Dynamic equilibrium; Rectilinear and curvilinear motion; Work and energy; Kinetic energy of particle; Principle of Work and Energy; Conservation of energy; Impulse and momentum; Impulsive forces and conservation of momentum; Impact, direct and oblique; Conservation of angular momentum.

Rigid Bodies:
Equivalent systems of forces; Principle of transmissibility; Moment of a force; Couple; Varignons Theorem. Centre of gravity of a three-dimensional body and centroid of a volume. Moments of inertia, radius of gyration, parallel axis theorem.

Equilibrium of Rigid Bodies:
Free-body diagram; Equilibrium in two and three dimensions; Reaction of supports and connections; Equilibrium of two-force and three-force bodies.

Kinematics of Rigid Bodies:
General Plane motions; Absolute and relative velocity and acceleration.

Plane Motion of Rigid Bodies:
Forces and acceleration; Energy and momentum; Conservation of linear and angular momentum.

Friction:
Laws of dry friction; Angles of friction; Wedges; Square-threaded screws; Journal and thrust bearings; Belt friction.**Analysis of Structures:**
Internal forces and Newton's Third Law; Simple and space trusses; Joints and sections; Frames and machines. Forces in cables.

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING OUTCOME

Sr. No.	CLOs	Taxonomy level	Programme learning outcome (PLO)
At the end of the course, the student will be able to:			
1	Define different theoretical concepts related to static and dynamic equilibrium for particles and rigid bodies	C2	Engineering Knowledge
2	Solve problems related to force, moments and equilibrium in particles and/or rigid bodies	C3	Problem Analysis
3	Solve problems related to kinematics and kinetics of particles and/or rigid bodies	C3	Problem Analysis
4	Perform experiments related to mechanical systems in statics/dynamic equilibrium as per the provided instructions	P3	Investigation

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REMARKS (if any):

Recommended by: _____

(Chairperson/Date)

Approved by: _____

(Dean/Date)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE **TE-218 Material Science**	**SEMESTER** ☐ SPRING ■ FALL	**CREDIT HOURS** TH ☐3 ■2 ☐1 ☐0 PR ☐3 ☐2 ☐1 ■0
PREREQUISITE COURSE(S)	**DATE OF COURSE CONTENT APPROVAL**	**APPLIED FROM BATCH** 2025

COURSE CONTENTS

Introduction: Material science and Material Engineering, types of materials, structure & properties, selection criteria of materials
Metals and Alloys: Metals, ferrous alloys, non-ferrous alloys and their mechanical properties, Iron-carbon phase diagram, binary diagrams. Heat treatments of steel, hardenability, annealing

Ceramics & Glasses: Composition, properties, structures, application of ceramics, glasses & refractory materials and their manufacturing methods

Polymers: Polymerisation, structural feature of Polymers, Thermoplastic Polymers, Thermo setting Polymers, and their mechanical properties

Composites: Introduction, types, method of fabrication and their mechanical properties, Textile reinforced composite materials in modern applications

Material Degradation: Material degradation by atmospheric, aqueous and galvanic corrosions. Forms of corrosion and methods of corrosion prevention. Chemical degradation of ceramics and polymers. Radiation damage, wear and surface analysis

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING OUTCOME

Sr. No.	**CLOs**	**Taxonomy level**	**Programme learning outcome (PLO)**
At the end of the course, the student will be able to:			
1.	Comprehend the fundamental concepts of material science, including classifications, structures, and properties of engineering materials.	C1	Engineering Knowledge
2.	Use appropriate engineering materials for specific applications based on mechanical performance, thermal stability, and environmental resistance.	C3	Problem Analysis

REMARKS (if any):

Recommended by: _____ **Approved by:** _____

(Chairperson/Date) (Dean/Date)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE **TE-216: Fluid Mechanics for Textiles**	SEMESTER ☐ SPRING ■ FALL	CREDIT HOURS TH ☐3 ■2 ☐1 ☐0 PR ☐3 ☐2 ☐1 ■0
PREREQUISITE COURSE(S)	**DATE OF APPROVAL**	**APPLIED FROM BATCH** 2025

COURSE CONTENTS

Fluid properties: Pressure, Vapour pressure, Density, Specific weight, Specific gravity, Viscosity, Bulk modulus of elasticity, Surface tension, capillary action, Ideal, Newtonian and non-Newtonian fluids, Relevance of fluid properties to textiles and textile processes.

Fluid statics: Pressure variation in a static fluid; Pascal's law; hydrostatic force on a plane surface, Pressure prism method; hydrostatic force on a curved submerged surface; buoyant force, Archimedes' principle; the stability of floating and submerged objects, Constant velocity rotation of a liquid around fixed axis.

Fluid dynamics: Flow characteristics; Equation of continuity; Application of Newton's second law to fluid flows; development, uses, and limitations of the Bernoulli equation; static, dynamic and stagnation pressures; Laminar and turbulent pipe flow; losses in pipe flows.

Fluid flow applications in textile processing: Air jet spinning, Nozzle design and performance in air jet spinning, Spun bonding process of non-woven, fabric like structures, Textile wet processing, Air-jet and water jet weft insertion mechanisms.

Dimensional analysis: Buckingham Pi Theorem and its application in dry and wet textile processing.

Fluid measurement: Measurement of static pressure, stagnation pressure, flow velocity and flow rate.

Fluid machinery: Turbo machinery: Hydraulic Turbines, Pumps and blowers. Minimizing losses in turbo machines; Turbo machinery applications in textile industry.

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING OUTCOME

Sr. No.	CLOs	Taxonomy level	Programme learning outcome (PLO)
At the end of the course, the student will be able to:			
1	Discuss fluid properties; concepts of fluid statics and fluid dynamics to solve related complex engineering problems.	C2	Engineering Knowledge
2	Analyze complex engineering problems related to textiles processing using fluid mechanics concepts.	C4	Problem Analysis

REMARKS (if any):

In this revised course, CLOs statements and their mapping with PLOs revised, as per new adopted 11 PLOs.
Contact hours are also reduced from 2-1 to 2-0 as per new approved scheme of studies for Batch 2025 onwards.

Recommended by: _____ **Approved by:** _____

(Chairperson/Date) (Dean/Date)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE TE 211: Textile Yarn Manufacturing	**SEMESTER** ■ SPRING ☐ FALL	**CREDIT HOURS** TH ■ 3 ☐2 ☐1 ☐0 PR ☐3 ☐2 ■1 ☐0
PREREQUISITE COURSE(S) NIL	**DATE OF COURSE CONTENT APPROVAL**	**APPLIED FROM BATCH** 2025

COURSE CONTENTS

Definitions, yarn classification & numbering systems.

Preparatory processes: Blow Room: Principles and objectives. Layout of blowroorn line. Components; feeding apparatus, opening devices, grid and their interaction. General factors influencing opening, cleaning, blending and transport of material. Conventional and modern blow rooms. Foreign contamination detection and removal system, waste recycling.

Carding: Principles and objectives. Operating zones of carding, Components; feed device, taker-in, auxiliary carding devices, main cylinder, flats, doffer, detaching apparatus, can coiler, Card clothing, autoleveling and machine drive.

Drawing Frame: Principles and objectives. Roller drafting, equalizing, parallelizing, blending and dust removal. Components; creel, coiling, drafting arrangement, sliver formation and transport. Can. changer, autoleveling.

Lap Forming and Combing: Lap former, conventional and modern preparatory systems. Combing theory and principles, sequence of operations, comparison of carded and combed slivers.

Roving Frame: Principles and objectives, Operating zones, drafting arrangement, twist insertion, winding system, package formation, machine drives and doffing systems.

Ring Frame: Principles and objectives, Operating zones, drafting system, ring traveler and clearer, spindle, guide devices, balloon control ring, bobbin building mechanism and machine drives.

Spinning calculation: Yarn count system, Calculation of count, draft, production and twist.

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING OUTCOME

Sr. No.	CLOs	Taxonomy level	Programme learning outcome (PLO)
At the end of the course, the student will be able to:			
1	Understand the mechanism and processes involved in yarn manufacturing.	C2	Engineering Knowledge
2	Develop spinning plan of a yarn manufacturing industry by using basic production calculations.	C5	Project Management and Finance
3	Demonstrate their ability regarding adjustment of different process parameters involved in yarn manufacturing.	P2	Investigation

REMARKS (if any):

Recommended by: _____ **Approved by:** _____

(Chairperson/Date) (Dean/Date)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE **EE-122 Basic Electricity & Electronics**	SEMESTER ☐ SPRING ■ FALL	CREDIT HOURS TH ■3 ☐2 ☐1 ☐0 PR ☐3 ☐2 ☐1 ■0
PREREQUISITE COURSE(S) NIL	**DATE OF COURSE CONTENT APPROVAL** 06-03-2023	**APPLIED FROM BATCH 2025**

COURSE CONTENTS

Fundamentals of Electric Circuits

Charge, current, voltage and power, voltage and current sources, Ohm's law.

Voltage and current Laws

Node, path, loops and branches, Kirchhoff's Current Law, Kirchhoff's Voltage law, the single loop circuits. The single Node-Pair Circuits. Series and Parallel Connected independent sources. Resistors in Series and Parallel, Voltage and Current Division.

Circuit Analysis Techniques.

Multi-Nodal Analysis, the super Nodal, Mesh Analysis, The Super Mesh, Linearity and Superposition, Source Transformations, Thevenin and Norton Equivalent Circuits, Maximum Power Transfer, Delta-Wye Conversion. Capacitor, inductor, Inductance and Capacitance Combination, The Source-Free RL Circuit, Properties of Exponential Response, the Source-free RC Circuit.

Introduction Machines

Induction Motors, Construction, Types, Rotating field theory, Principal of working, slip and its effect on motor current quantities, Overexcited and under-excited motor, power factor and power factor control, starting of synchronous motor, parallel operation of alternators and sharing of load, working alternator on infinite bus bars.

Introduction to Transformer

Construction, Principal of working, efm equation Transformation ratios, No load working and vector diagram on load.

Online Diagram

Symbols of different components, understanding of one line diagram.

Basic Electronics

P-N Junction, diode and applications Transistor construction, operation and applications Fundamental concepts of Digital Electronic

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING OUTCOME

Sr. No.	CLOs	Taxonomy level	Programme Learning Outcome (PLO)
At the end of the course, the student will be able to:			
1	Apply knowledge of Ohm's law, Kirchoff's laws and circuit theorems to solve for the unknown circuit state variables. Single phase and poly phase systems will be identified.	C3	Problem Analysis
2	Describe construction, operating principles and characteristics of electrical machines, transformers and electronics devices.	C2	Engineering Knowledge
3	Comprehend one-line diagram of electrical power systems.	C2	Engineering Knowledge

REMARKS (if any):

Recommended by: _____ **Approved by:** _____

(Chairperson/Date) (Dean/Date)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE TE-251 Engineering Drawing and Graphics	**SEMESTER** ☐ SPRING ■FALL	**CREDIT HOURS** TH ☐3 ☐2 ☐1■0 PR ☐3 ■2 ☐1 ☐0
PREREQUISITE COURSE(S)	**DATE OF COURSE CONTENT APPROVAL**	**APPLIED FROM BATCH 2025**

COURSE CONTENTS

Introduction to Engineering Drawing: Principles of engineering drawing, drawing instruments, drawing sheet planning, scaling, line types, dimensioning, lettering and free-hand sketching, technical drawing standards and symbols.
Geometrical Construction: Plane figures, conic sections, cyclical curves and involutes, sectioning. Development of surfaces: Prisms, pyramids, cylinders and cones
Orthographic Projections: Projection of points, lines, Planes and solids, Practice projections and surface development. Practice and drawing of three views of different objects using
Orthographic projection. Conversion of orthographic projection into isometric view. Creating drawings of engineering fasteners like rivets, cotter joints, threads etc, Principles of Orthographic and Isometric projection
Introduction to Geometric dimensioning and Tolerances. Development of surfaces, Fits, Tolerances and Allowances Assembly Drawing.
Assembly drawings, Assembly Practice Drawing for Installation, catalogues, and instruction manuals.
Computer Aided Drafting Overview of CAD Software, Function keys, Drawing entities, Drafting aids, Editing of a drawing (modify commands), Two dimensional drawing, 3D Geometrical modelling techniques, Three-Dimensional Drawing

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING OUTCOME

Sr. No.	CLOs	Taxonomy level	Programme Learning Outcome (PLO)
At the end of the course, the student will be able to:			
1	Demonstrate the concepts of 2D and 3D engineering drawings to make projections.	C3*	Tool Usage
2	Use CAD software to develop 3D geometric models.	C3*	Tool Usage

REMARKS (if any):
*Will be assessed by software-based rubrics.

Recommended by: _____ **Approved by:** _____

(Chairperson/Date) (Dean/Date)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE TE-205: PRE-TREATMENT OF TEXTILES	SEMESTER ■ SPRING ☐ FALL	CREDIT HOURS TH ■3 ☐2 ☐1 ☐0 PR ☐3 ☐2 ■1 ☐0
PREREQUISITE COURSE(S)	**DATE OF COURSE CONTENT APPROVAL** September 2016	**APPLIED FROM BATCH** 2025

COURSE CONTENTS

Pre-Treatment Process: chemical reactions & mechanisms involved in pre-treatment of cotton, wool and silk fibrous substrate viz. Desizing; Scouring; bleaching, shearing and singeing; Mercerising; Carbonizing and rabbing. Effects of effective pre-treatment on dyeing properties

Hydroextraction: Mechanism of removal of water from fibrous substrate by mechanical, electrical and thermal system

Pre-Treatment Machines: Descriptions of machines used in different pre-treatment processes in fibre, yam and fabric forms. Machinery for knit and pile fabrics Continuous and batch processes for pre-treatment and their comparison

Fluorescent Brightening Agents: Introduction of FBA's, Mode of action, Chemistry and application of FBA's Whiteness and measurement of whiteness.

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING OUTCOME

Sr. No.	CLOs	Taxonomy level	Programme learning outcome (PLO)
At the end of the course, the student will be able to:			
1	Accurately state and explain the pre-treatment processes, chemicals reactions and their mechanisms for various natural and synthetic fibers	C2	Engineering Knowledge
2	Correctly select and explain the working principles of machines used for pre-treatment of various types of fibers and their blends	C2	Engineering Knowledge
3	Formulate and apply precise recipes for Pre-treatment processes by exhaust and continuous methods followed by their evaluation.	P3	Investigation

REMARKS (if any):

Recommended by: _____ **Approved by:** _____

(Chairperson/Date) (Dean/Date)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE ME-311 Manufacturing Processes	**SEMESTER** ■ SPRING ☐ FALL	**CREDIT HOURS** TH ■3 ☐2 ☐1 ☐0 PR ☐3 ☐2 ■1 ☐0
PREREQUISITE COURSE(S)	**DATE OF COURSE CONTENT APPROVAL**	**APPLIED FROM BATCH** 2025

COURSE CONTENTS

Sand Casting: Introduction; Sand casting procedure; Patternmaking; Material types and construction of patterns; Pattern allowances.

Moulding Process: Moulding materials; Tools and equipment; Testing of sand; Moulding machine, Core making; Types of cores; Core making machine; Shell moulding; Plaster Moulding

Centrifugal Casting: Trimming and finishing of castings; Seasoning of casting; Inspection of castings. Die Casting; Pressure die casting; Vacuum die casting;

Gravity Die Casting: Die casting machines; Hot chamber and Cold Chamber methods; Die casting alloys; Die design, construction, and material

Welding Processes: Classification of welding Processes; Oxyacetylene welding. Oxygen torch cutting and flame straightening;

Arc welding: Shielded arc welding, Gas tungsten are welding, Gas metal arc welding, Flux-Cored arc welding, submerged are welding.
Plasma arc welding, stud welding, spot welding, Seam welding, Projection welding; Brazing and Soldering.

Fabrication of Plastics Casting: Blow Moulding Compression Moulding; Transfer Moulding Cold Moulding; Injection Moulding; Reaction Induction Moulding; Vacuum Forming; Welding of Plastics

Machining Process and Machine Tools: Machine tools using single edge cutting tools; and multiple edge cutting tools, Description, and Operations; Performed on Lathe, Shaper, Planner, Drilling, Milling, Gear cutting, and broaching Machines; Work holding devices

Machine Tools using Abrasive Wheels: Description and Functions of various types of grinding machines; Wheel dressing; and Wheel Balancing;

Honing, Lapping, and super Finishing Operations: Thread Manufacturing Cutting Tools for Manufacturing; Cutting Tools Material Characteristics; Cutting Tool Materials;
Tool, Geometry; Non-Traditional Machining Processes such as EDM, ECM, & Ultrasonic Machining

Hot & Cold working Metals: Advantage and Limitation of hot and cold working processes: Methods of Forging; Hammer forging;

Die forging: Drop, Press and Upset forging; Construction of drop forging hammers; Forging defects and their cause, Cold working processes such as Bending, Shearing, Rolling Extrusion, Blanking, Perforating. Notching, Tube drawing, Wire drawing and embossing.

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING OUTCOME

Sr. No.	CLOs	Taxonomy level	Programme learning outcome (PLO)
At the end of the course, the student will be able to:			
1	Discuss in detail various manufacturing processes	C2	Engineering Knowledge
2	Apply knowledge of manufacturing processes to calculate parameters for various manufacturing operations	C3	Problem Analysis
3	Perform various machining operations on job piece as per the guidelines	P3	Investigation
4	Adopt safety protocols as per the Health Safety and Environment (HSE) guidelines	A4	The Engineer and the World

REMARKS (if any):

Recommended by: _____ **Approved by: _____**

(Chairperson/Date) (Dean/Date)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE & TITLE MM-205: MECHANICS OF MATERIALS	**SEMESTER** ■ SPRING ☐ FALL	**CREDIT HOURS** TH ■3 ☐2 ☐1 ☐0 PR☐3 ☐2 ■1 ☐0
PREREQUISITE COURSE(S) ME-101: Engineering Mechanics	**DATE OF COURSE CONTENT APPROVAL** 06-02-2017	**APPLIED FROM BATCH** 2025

COURSE CONTENTS

Review mechanics of materials. Deformation; strain; elastic stress-strain behavior of materials; Introduction to stress-strain diagram, working stresses, unit design, Introduction to elastic and nonlinear continua. Poisson's ratio; Determination of forces in frames; Simple bending theory; general case of bending; Shear force and bending moment diagrams; Relationship between loading, shear force and bending moment. Stress; Skew (antisymmetric) bending Direct, shear, hydrostatic and complementary shear stresses; Bar and strut or column; Theory of buckling instability, Thin ring, Elementary thermal stress and strain; General stress-method. Theory of elasticity, Analytical solution of elasticity problems brittle fracture. strain energy in tension and compression. Analysis of bi-axial stresses, principal planes, principal stress-strain, stresses in thin walled pressure vessels. Mohr's circles of bi-axial stress. Torsion of circular shafts, coiled helical spring, strain energy in shear and torsion of thin walled tubes, torsion of non- circular sections. Shear centre and shear flow for open sections, General case of plane stresses, principal stress in shear stresses due to combined bending and torsion plane strain. Composite materials, Volume dilatation, Theories of Yielding, Thin Plates and Shells Stress Concentration

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING OUTCOME

Sr. No.	**CLOs**	**Taxonomy level**	**Programme learning outcome (PLO)**
At the end of the course, the student will be able to:			
1	Calculate internal loads based on different support reaction	C3	Engineering Knowledge
2	Correlate the internal stresses with different external loading conditions	C4	Design/Development of Solutions
3	Construct the Mohr circle to find stresses in materials at different angles	C3	Tool Usage
4	Operate under supervision different equipments and techniques to determine mechanical properties	P3	Individual and collaborative teamwork

REMARKS (if any):

Recommended by: _____ **Approved by:** _____

(Chairperson/Date) (Dean/Date)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE MF-201 Civics and Community Engagement	**SEMESTER** ☐ SPRING ☐ FALL	**CREDIT HOURS** TH ☐3 ■2 ☐1 ☐0 PR ☐3 ☐2 ☐1 ☐0
PREREQUISITE COURSE(S) -	**DATE OF COURSE CONTENT APPROVAL** 26-05-2025	**APPLIED FROM BATCH** 2025

MAPPED SUSTAINABLE DEVELOPMENT GOAL(s) (SDG(s))

COURSE CONTENTS

Introduction to Civics and Citizenship: Definition of civics, citizenship and civic engagement, Historical evolution of civics participation, Types of citizenship:active, participatory, digital etc. The relationships between democracy and citizenship Civics and Citizenship: Concepts of civics, citizenship and civic engagement, Foundation of modern society and citizenship. Types of citizenship: active, participatory, digital etc. State, Government and Civil Society: Structure and functions of government in Pakistan, The relationships between democracy and civil society, Right to vote and importance of political participation and representation Rights and Responsibilities: Overview of fundamental rights and liberties of citizens under constitution of Pakistan 1973, Civic responsibilities and duties, Ethical considerations in civic engagement (accountability, nonviolence, peaceful dialogue, civility, etc.) Community Engagement: Concept, nature and characteristics of community, Community development and social cohesion, Approaches to effective community Engagement, case studies of successful community driven initiatives Advocacy and Activism: Public discourse and public opinion, role of advocacy in addressing social issues, Social action movements Digital Citizenship and Technology: The use of digital platforms for civic engagement, Cyber ethics and responsible use of social media, Digital divides and disparities (access, usage, socioeconomic, geographic etc.) and their impact on citizenship

Diversity, Inclusion and Social Justice: Understanding diversity in society (ethnic, cultural, economic, political etc.), Youth, women and minorities' engagement in social development, Addressing social inequalities and injustice in Pakistan, Promoting inclusive citizenship and equal rights for societal harmony and peaceful co-existence

COURSE LEARNING OUTCOMES (CLOs) WITH PROGRAMME LEARNING OUTCOMES (PLO) MAPPINGS

CLO No.	CLO Statement	Taxonomy level	Mapped PLO
At the end of the course, the student will be able to:			
1	Explain civics, citizenship, democracy, rights, responsibilities, ethics, and digital engagement.	C2	Engineering Knowledge
2	Apply community engagement and advocacy to address social issues, promote inclusion, and ensure societal impact.	C3	Engineer and the World

REMARKS (if any):

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE TE-312 Textile Fabric Manufacturing Processes	SEMESTER ■ SPRING ☐ FALL	CREDIT HOURS TH ■3 ☐2 ☐1 ☐0 PR ☐3 ☐2 ■1 ☐0
PREREQUISITE COURSE(S)	**DATE OF COURSE CONTENT APPROVAL**	**APPLIED FROM BATCH 2025**

COURSE CONTENTS

Properties of textile fibres

Span length, strength, fineness, elongation, stiffness, cleanness

Yarn faults, Neps, slubs, thin and thick places.

Winding process

Types of packages. Objectives, principle and mechanisms of winding. Pirn winding. Mechanism of doubling, twisting, reeling and winding off machines.

Warp Preparation process

Principle and operation of warping systems, warping calculations. Sizing machine, types of sizes and sizing calculations

Loom design and motion

Weave design: Plain, twill and satin weaves and their derivatives. Colour & weave effects. Computer aided weave designing.

Loom Mechanisms: Primary, secondary & auxiliary motions of loom. Let-off mechanisms and its type. Take-up mechanisms and its types. Specification and material analysis of various parts of loom

Shuttle weaving machines: Parts, mechanisms and loop timings.

Weaving calculations

Humidity

Importance of humidity in a weaving unit, air quality in weaving shed. Types of humidification systems.

Weft Knitting

Mechanisms and Structures Knitting terminologies. Basic knitted structures. Elements of knitting machine, types of knitting needles. Designing of structures by needle notation. Flat and Circular machines. Application of CAD/CAM. Whole Garment knitting system.

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING OUTCOME

Sr. No.	CLOs	Taxonomy level	Programme learning outcome (PLO)
At the end of the course, the student will be able to:			
1	Describe the preparatory processes for fabric manufacturing with respect to properties of the raw materials.	C2	Engineering Knowledge
2	Outline the fabric manufacturing processes including designing, machines construction and calculations.	C4	Investigation
3	Operate equipment/tools deal with fabric manufacturing, under supervision	P3	Tool Usage

REMARKS (if any):

Recommended by: _____ **Approved by:** _____

(Chairperson/Date) (Dean/Date)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE MF-205 Community Service	**SEMESTER** ☐ SPRING ☐ FALL	**CREDIT HOURS** TH ☐3 ☐2 ■1 ☐0 PR ☐3 ■2 ☐1 ☐0
PREREQUISITE COURSE(S) -	**DATE OF COURSE CONTENT APPROVAL** 26-05-2025	**APPLIED FROM BATCH** 2025

MAPPED SUSTAINABLE DEVELOPMENT GOAL(s) (SDG(s))

COURSE CONTENTS

Orientation to Community Service: [Taught component] Introduction to the concept and practice of community service. Need, objectives and benefits of community service. Foundational theories (educational, undergraduate curriculum, humanities, social science, corporate social responsibility etc.). Tools and skills needed in community service. Contextual examples in community service; case examples. Professional and ethical conduct during community service Community Service Attachment Completing 30-35 hours of formal assignment at an organization Community Service Experience Documentation Writing a report documenting the experience and submitting it on the prescribed format.

COURSE LEARNING OUTCOMES (CLOs) WITH PROGRAMME LEARNING OUTCOMES (PLO) MAPPINGS

CLO No.	CLO Statement	Taxonomy level	Mapped PLO
At the end of the course, the student will be able to:			
1	Express interest in contributing to community and society through social projects	A3	Engineer and the World
2	Volunteer to help make a difference to a specific group, community, or organization.	A2	Lifelong Learning

REMARKS (if any):

Recommended by: _____ **Approved by:** _____

(Chairperson/Date) (Dean/Date)

Recommended by: _____ **Approved by:** _____

(Chairperson/Date) (Dean/Date)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE TE-307 UTILITIES FOR TEXTILE INDUSTRY	**SEMESTER** ☐ SPRING ■ FALL	**CREDIT HOURS** TH ■3 ☐2 ☐1 ☐0 PR ☐3 ☐2 ■1 ☐0
PREREQUISITE COURSE(S) ME-112 Thermodynamics	**DATE OF COURSE CONTENT APPROVAL**	**APPLIED FROM BATCH** 2025

COURSE CONTENTS

Utilities for Textiles: Water, Natural Gas, Steam, Compressed Air and Electrical power; Piping Network for Utilities

Power Generation: Basic principles and Cycles used; Steam Power Plant and its types; Gas Power Plant; Combined Heat and Power Generation; Solar Cells and Fuel Cells

Internal combustion engines: Internal Combustion Engines: Types and Classification; Fuels; Speed and Load Control; Supercharging; Exhaust Gas Recovery; Engine Lubrication System; Knocking and Detonation

Combustion: Stoichiometric Equations; Higher and Lower Heating Values; Fuel Rating; Adiabatic Flame Temperature

Water Supply: Sources and Demand of Water; Quality and Treatment of water; Water Desalination

Steam Generation: Properties of Steam, Boilers and Types; Heating Surface Area calculations; Fuels, Feed Water Systems; Air Preheaters; Economizers; Super heaters; Condensers; Separators; Ejectors

Turbines: Steam and Gas Turbines: Classification, Operation and Maintenance

Air Conditioning & Ventilation: Principles of Air conditioning; Relevant Codes & Standards; Primary and Secondary Refrigerants; Vapour Compression and Absorption cycles, Simple Air-conditioning System; Ventilation Equipment

Psychrometric Chart and its Uses; Air Distribution Systems; Duct Design; Distribution Equipment

HVAC Equipment Selection: Humidifiers, Dehumidifiers, Fans, Diffusers and Cooling Towers

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING OUTCOME

Sr. No.	CLOs	Taxonomy level	Programme learning outcome (PLO)
At the end of the course, the student will be able to:			
1	Outline the different methods of power generation employed in Textile industries	C4	Engineering Knowledge
2	Outline the importance of Water quality and treatment for power generation and textiles processing	C4	Problem Analysis
3	Apply concepts of ventilation and air-conditioning to solve related problems of Textiles manufacturing	C3	Design and Development of Solutions
4	Operate equipment/tools deal with different utilities, under supervision	P3	Investigation

REMARKS (if any):

Recommended by: _____ **Approved by:** _____

(Chairperson/Date) (Dean/Date)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE & TITLE MF-304 Engineering Economics	**SEMESTER** ☐ SPRING ■FALL	**CREDIT HOURS** TH ☐3 ■2 ☐1 ☐0 PR ☐3 ☐2 ☐1 ■0
PREREQUISITE COURSE(S) -	**DATE OF COURSE CONTENT APPROVAL** 26-05-2025	**APPLIED FROM BATCH** 2025

COURSE CONTENTS

Introduction: Introduction and Principles of Engineering Economics.

The Economic Environment: Consumer and producer goods, measures of economic worth. price, supply, & demand relationship. Cost Concepts.

Time Value of Money: Simple interest, compound interest, cash flow diagrams, interest formulas, nominal versus effective interest rate, continuous compounding. Depreciation.

Comparing Alternatives: Present economy, selection among machines, materials, processes, and designs, payback period method, present worth method, uniform annual cost method, rate of return method, alternatives having identical lives, alternatives having different lives. Cost-Benefit Analysis.

Linear Programming: Mathematical statement of linear programming problems graphic solution.

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING OUTCOME

Sr. No.	CLOs	Taxonomy level	Programme learning outcome (PLO)
At the end of the course, the student will be able to:			
1	Apply techniques of engineering economics to accomplish given objective.	C3	The Engineer and the World
2	Analyze alternatives using engineering economics indicators independently in evolving engineering applications.	C4	Lifelong Learning

REMARKS (if any):

Recommended by: _____ **Approved by:** _____

(Chairperson/Date) (Dean/Date)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE TE-326: TEXTILE DYEING	SEMESTER ☐ SPRING ■FALL	CREDIT HOURS TH ■3 ☐2 ☐1 ☐0 PR ☐3 ☐2 ■1 ☐0
PREREQUISITE COURSE(S) TE-205: Pre-Treatment of Textiles	**DATE OF COURSE CONTENT APPROVAL** September 2016	**APPLIED FROM BATCH** **2025**

COURSE CONTENTS

Dye stuff classification:
Early attempts to classify dyes and pigments, Colour index classification

Chemical Class:
Azo, Anthraquinone, Indigoid, Polycyclic, aromatic, Carbonyl, Polymethine, Azine, Oxigine, Thiazines, Xanthene, thiazole, Quinoline, Sulphur and cyanine dyes

Application Class:
Direct Dyes, Sulphur Dyes, Azoic Dyes, Reactive Dyes, Anthraquinone Vat and solubilized Vat Dyes, Disperse Dyes, Acid Dyes, and Basic Dyes. Principle of dye selection for various fibrous substrates, Theories of dyeing of natural and manmade fibres. dyeing equilibrium, thermodynamics of dyeing isotherms, dyeing kinetics

Dyeing:
Application of Direct, Vat, Sulphur, Reactive and Azoic dye-stuff to cellulosic substrate, Acid dye to protein and Disperse to synthetic substrate through various dyeing techniques. Dyeing of blended fabric. RFT dyeing Descriptions of machines used in dyeing of fibre, yam and fabric forms. Dyeing Machinery for knit and pile fabrics. Continuous and batch processes for dyeing and their comparison

Colour physics & measurement:
Colour Spectrum, nature of light, light sources, illumination and standard illuminant, principles of colorimetry, CIE system, Beer – Lambert law, Kubelka-Munk theory, computerized colour matching, metamerism, Shade sorting

Pigments:
Pigments as colorants. Classification and properties of pigments Viz. Inorganic and orgamc pigments. Pigment dyeing.

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING OUTCOME

Sr. No.	CLOs	Taxonomy level	Programme learning outcome (PLO)
At the end of the course, the student will be able to:			
1	Understand various dyeing theories, processes, techniques and machines for different textile materials in yarn and fabric form	C2	Engineering Knowledge
2	Evaluate dyeing process in terms of the amount of dye fixed, color strength, total color difference, metamerism and fastness properties using precise color recipes and RFT dyeing approach.	C5	Investigation

3	Apply the theory of dyeing and colour science Concepts and principles for controlling the production of dyed textile products.	C3	Design/Development of Solutions
4	Practice color recipe formulation and uniform dyeing using exhaust and continuous methods	P3	Tool Usage

REMARKS (if any):

Recommended by: _____ **Approved by:** _____

(Chairperson/Date) (Dean/Date)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE EA-304 Business Communication & Ethics	**SEMESTER** □ SPRING ■FALL	**CREDIT HOURS** TH ■3 □2 □1 □0 PR □3 □2 □1 ■0
PREREQUISITE COURSE(S) Functional English [HS 104/111/114]	**DATE OF COURSE CONTENT APPROVAL**	**APPLIED FROM BATCH** 2025

COURSE CONTENTS

Introduction to Communication

Definition, Types (nonverbal/oral/written/technological), Levels (intra/inter/small group/ organizational/ public/mass), Nonverbal Communication (temporal/environment/person-oriented)

Principles, Channels (internal/external), Modes (upward/downward/lateral/formal/informal, Feedback & its types (positive-negative/immediate-delayed/low-high monitoring/critical-supportive/judgmental-non- judgmental) Multicultural/Intercultural communication - International Communication

Characteristics (7C's), Barriers/Problems (Noise/Distortion/Gender differences/language/lacking communication skills/problems in the message/information over/underload)

Listening (skills/process and stages/problems and coping strategies/dimensions or types (participatory – passive/surface-deep/non-judgmental-judgmental/empathic-objective)

Oral Communication

Interviews: Theory and preparation

Presentations: Theory

Business Writing

Planning Audience Centered Business Messages: Audience Analysis (psychographic & demographic profile, Five Types of Audiences (initial/ gatekeeper/ primary/ secondary/ watchdog)

Features of written style, way to make writing optimally readable, criteria for effective messages, process of writing effective messages

Letter Elements and formats: practice in writing letters)

Three types of Business Messages & organizational plans (Direct/Indirect/Persuasive)

Practice in writing business messages (letters/memo) for situations (Enquiries, responses, special announcements, granting and rejecting requests etc)

Employment communication: job application and resume

Tenders, Inter Office Communication: Memorandum, Meetings: notice, agenda, and minutes

Report Writing: Report Types (letter –memo/analytical-informational/based on purpose), report structure, practice in writing short formal report.

Engineering / Business Ethics

Development of Engineering Ethics, Key issues in Engineering Ethics

Code of Ethics and Conduct of different national and global bodies

Development of Engineering ethics and impact, Criteria for classifying a professional

Four moral theories as the basic ethical framework (utilitarianism/duty/rights/virtue ethics)

Ethical problem-solving Techniques (line drawing/flow charting/conflict problems)

Key Ethical Concerns and concepts: confidentiality, risk and safety, environment and computer ethics, whistleblowing, bribes and gifts, sexual harassment etc. (Course pack will be provided to students for reading)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING OUTCOME

Sr. No.	CLOs	Taxonomy level	Programme learning outcome (PLO)
At the end of the course, the student will be able to:			
1.	Demonstrate effective oral communication and interpersonal skills in simulated professional and business situations	A3	Communication
2.	Compose effective business messages for various purposes and audiences	C6	Communication
3.	Apply principles, theories, and codes of ethics in situations related to professional practice.	C3	Ethics

REMARKS (if any):

Recommended by: _____ (Chairperson/Date)

Approved by: _____ (Dean/Date)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE TE-207 MACHINE DESIGN	**SEMESTER** ☐ SPRING ■ FALL	**CREDIT HOURS** TH ■3 ☐2 ☐1 ☐0 PR ☐3 ☐2 ☐1 ■0
PREREQUISITE COURSE(S) NIL	**DATE OF COURSE CONTENT APPROVAL**	**APPLIED FROM BATCH** 2025

COURSE CONTENTS

Basic principles of machine design: Basic criteria of design of machine parts, determination of permissible and actual stresses, factor of safety

Design of simple machine elements: Design of keys, cotters, and couplings Design of brakes and clutches, flywheel, Design of welded, riveted and bolted joints, Design of translation screws

Design of flexible elements: Design of belts, Design of chains, Design of ropes

Design of shaft: Design of shafts Introduction to flexible shafting; Connecting rods and crank shafts

Design of gears: Gearing; Design of spur, helical, bevel & worm gears Cam follower system:

Classification of Cam Mechanisms; Cam Nomenclature; Cam Design; Pressure angle; radius of curvature; Cam size and Cam Profile; Weaving and Knitting Machine Cams

Bearing & lubrication: Types and theory of lubrication and its application in textiles, Design of rolling contact bearings, Design of journal bearings

Industrial design codes: Design codes (ASME, BS, ANSI, JIS, DIN or ISO) and standards, tolerances, standards of fits & tolerances.

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING OUTCOME

Sr. No.	**CLOs**	**Taxonomy level**	**Programme learning outcome (PLO)**
At the end of the course, the student will be able to:			
1	Understand and explain the process of engineering design and various considerations for design of mechanical machines	C2	Engineering Knowledge
2	Design flexible machine elements using appropriate mathematical tools and techniques	C5	Design/Development of Solutions
3	Design gear systems using appropriate mathematical tools and techniques	C5	Design/Development of Solutions

REMARKS (if any):

Recommended by: _____ **Approved by:** _____

(Chairperson/Date) (Dean/Date)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE ME-104 (Workshop Practice)	**SEMESTER** ☐ SPRING ■FALL	**CREDIT HOURS** TH ☐3 ☐2 ☐1 ■0 PR ☐3 ■2 ☐1 ☐0
PREREQUISITE COURSE(S) None	**DATE OF COURSE CONTENT APPROVAL** 30-06-2020	**APPLIED FROM BATCH** 2025

COURSE CONTENTS

Use of carpenter's tools, Exercise in preparing simple joints, Bench fitting practice, Exercise in marking and fittings, Use of measuring instruments.

Smith's forge, Exercise in bending, Upsetting and swaging.

Familiarizing the students with the following processes:

- Soldering and brazing, Welding, Heat treatment, Molding and casting.
- Simple machine shop processes, Such as turning, shaping, Milling and sheet metal work.

RECOMMENDED BOOKS

- Mechanical Workshop Practice by K. C. John
- Workshop Technology Part-1, by W. A. J. Chapman
- Workshop Processes, Practices and Materials by Bruce J. Black

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING OUTCOME

Sr. No.	CLOs	Taxonomy level	Programme learning outcome (PLO)
At the end of the course, the student will be able to:			
1	Practice metal working using equipment and tools as per the provided guidelines.	P3	Investigation
2	Practice wood working using equipment and tools as per the provided guidelines.	P3	Investigation
3	Adopt safety protocols as per the Health Safety and Environment (HSE) guidelines.	A4	The Engineer and the World

REMARKS (if any):

Recommended by: _____ **Approved by:** _____

(Chairperson/Date) (Dean/Date)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE TE 463 Garment Manufacturing	**SEMESTER** ■ SPRING ☐ FALL	**CREDIT HOURS** TH ☐3 ■2 ☐1 ☐0 PR ☐3 ☐2 ■1 ☐0
PREREQUISITE COURSE(S) Nil	**DATE OF COURSE CONTENT APPROVAL**	**APPLIED FROM BATCH** 2025

COURSE CONTENTS

Importance of readymade garment manufacturing units in Pakistan opportunities and challenges. Brief description of garment and manufacturing.

Fabric inventory management, Fabric quality parameters, GSM, shrinkage, skew and bowing, Shade variation, shade bands, shade and shrinkage report development for marker making and spreading.

Manual pattern drafting principles, CAD systems for pattern making, Pattern Grading Marker Plan, CAD marker making techniques, Marker efficiency, fabric utilization, fabric reconciliation.

Spreading requirements and ply control. Concept of end bits and end loss. Types of fabric spreading methods (manual, semi-automatic, automatic). Cutting Equipment's, Cut panel inspection and tracking.

Introduction to stitch and seam types/sewing machine types and uses. Different types of sewing production systems.

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING OUTCOME

Sr. No.	CLOs	Taxonomy level	Programme learning outcome (PLO)
At the end of the course, the student will be able to:			
1	Outline ready-made garments manufacturing processes from fabrics.	C4	Engineering Knowledge
2	Apply various techniques to optimize garment manufacturing processes.	C3	Design/Development of Solutions
3	Operate equipment that deals with garment manufacturing under supervision	P3	Tool Usage

REMARKS (if any):

Recommended by: _____ (Chairperson/Date)

Approved by: _____ (Dean/Date)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE TE-323 Textile Product Evaluation -I	**SEMESTER** ■SPRING ☐ FALL	**CREDIT HOURS** TH ☐3 ■2 ☐1 ☐0 PR ☐3 ☐2 ■1 ☐0
PREREQUISITE COURSE(S) TE 211, TE-312	**DATE OF COURSE CONTENT APPROVAL**	**APPLIED FROM BATCH (2025)**

COURSE CONTENTS

Textile Testing: Objectives, General requirements and standards for textile testing (ASTM, AATCC, ISO, BS, etc.)

Textiles and Moisture: Importance of standard conditioning in textile testing. Moisture regain and its measurement.

Fibre Testing: Sampling and determination of fibre characteristics such as length and uniformity, fineness, strength, maturity and other properties by conventional and modern testing instruments and techniques

Yarn Testing: Sampling and determination of count, twist, strength, elongation, evenness, hairiness of yarn by conventional and modern testing instruments.

Fabric Testing: Sampling and measurement of fabric strength viz Tensile, Tear, Bursting, Seam Strength, Rip, Ballistic, stretch and recovery and their relation with usage of fabric. Assessment of fabric construction

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING OUTCOME

Sr. No.	CLOs	Taxonomy level	Programme learning outcome (PLO)
At the end of the course, the student will be able to:			
1	Explore the general requirements, standard atmospheric conditions and standard test methods for fibre testing.	C4	Problem Analysis
2	Apply the knowledge gained by standard test procedures for analyzing the physical & mechanical properties of yarn and fabric.	C3	Problem Analysis
3	Demonstrate and measure the quality and performance of fibres, yarns, and fabrics by applying standardized testing procedures using appropriate laboratory equipment.	P3	Investigation

REMARKS (if any):

Recommended by: _____ **Approved by:** _____

(Chairperson/Date) (Dean/Date)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE TE-319: Heat and Mass Transfer	**SEMESTER** ■ SPRING ☐ FALL	**CREDIT HOURS** TH ☐3 ■2 ☐1 ☐0 PR ☐3 ☐2 ■1 ☐0
PREREQUISITE COURSE(S) TE-216: Fluid Mechanics for Textiles	**DATE OF COURSE CONTENT APPROVAL**	**APPLIED FROM BATCH** 2025

COURSE CONTENTS

Conduction:
General equation for conduction; One-dimensional steady-state analysis.
Convection:
Momentum and thermal boundary layer fundamentals; Forced convection heat transfer (internal and external flow geometries); Free convection; Boiling; Condensation
Radiation:
Basic concepts of electromagnetic radiation; Surface characteristics; Blackbody; Gray body; Emission in defined wave band; Energy exchange between black bodies.
Mass transfer:
Diffusion mass transfer: Rate equation; Steady-state molecular diffusion in gases and liquids (diffusion through a stagnant layer, equimolar counter diffusion, diffusion in multi-component mixtures); Diffusion through solid materials (non-porous and porous); Diffusion through a polymeric film Analogy of heat, mass and momentum transfer Convective mass transfer; Concentration boundary layer; Mass transfer coefficients for various geometries and flow situations Interphase mass transfer; Batch and continuous drying (rate of drying curve & drying mechanisms, drying time).
Equipment and textile processes:
Heat and mass transfer in wet processes; Heat and mass transfer equipment.

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING

Sr. No.	CLOs	Taxonomy level	Programme learning outcome (PLO)
At the end of the course, the student will be able to:			
1	Discuss and understand concepts of heat transfer to solve related problems.	C2	Problem Analysis
2	Discuss and understand concepts of mass transfer to solve related problems.	C3	Design/Development of Solution
3	Employ the concepts of heat and mass transfer to understand and demonstrate their application in textiles processing.	C2	Investigation
4	Operate (under supervision) relevant equipment/tools to understand the concepts/phenomena of heat transfer.	P3	Tool Usage

REMARKS (if any):

Recommended by: _____ (Chairperson/Date)

Approved by: _____ (Dean/Date)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE TE-318 Textile & Environment	**SEMESTER** ■ SPRING ☐ FALL	**CREDIT HOURS** TH ☐3 ■2 ☐1 ☐0 PR ☐3 ☐2 ☐1 ■0
PREREQUISITE COURSE(S) NIL	**DATE OF COURSE CONTENT APPROVAL**	**APPLIED FROM BATCH** 2025

COURSE CONTENTS

Atmospheric Pollution Origin and prevention; emission and control technology; industrial air pollution; air quality pollution and criteria setting

Noise & Noise Control General consideration; environmental noise sources evaluation; methods and techniques to control and reduce noise level

Solid Waste Management Composition of textile wastes; collection systems and alternatives for treatments and reuse

Health & Industrial Safety ESSA requirements related to the safety of workers; OHSA standard

Environmental management systems and eco-labeling ISO14000, Oeko-tex 100, EU-EcoLabel Environmental impact assessment, Environmental audits, National Environmental Quality Standards

Cleaner production technologies in textiles Sources, impact, monitoring, reduction and control of pollution in textile industry

Water pollution Wastewater characteristics, effluents standards, terminology in wastewater treatments, primary treatments, secondary treatments, recycle and reuse of wastewater.

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING

Sr. No.	CLOs	Taxonomy level	Programme learning outcome (PLO)
At the end of the course, the student will be able to:			
1.	Discuss the sources, characteristic, standards and treatments of different types of pollution	C2	The Engineer and the World
2.	Apply health and safety standards, cleaner production technologies and eco-labeling in textiles manufacturing	C3	The Engineer and the World

REMARKS (if any):

Recommended by: _____ (Chairperson/Date)

Approved by: _____ (Dean/Date)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE TE-305: Quality Control in Textile	SEMESTER ■ SPRING ☐ FALL	CREDIT HOURS TH ☐3 ■2 ☐1 ☐0 PR ☐3 ☐2 ☐1 ■0
PREREQUISITE COURSE(S) NIL	**DATE OF COURSE CONTENT APPROVAL**	**APPLIED FROM BATCH** 2025

COURSE CONTENTS

Fundamentals of Probability and Statistics

Set theory and set operations; Venn diagram; Definition of probability; Probability laws; Conditional probability. Bayer's rule Deterministic and probabilistic data; Grouping of data; Measures of central tendency and dispersion; Calculation of mean, mode, median; standard deviation, and range, weighted average, and coefficient of variation. Random variable; discrete and continuous random variable; Mathematical expectation; Laws of expectation

Probability Distribution

Discrete probability distributions: Uniform, Binomial, Multinomial, Hyper geometric, Poisson, & Negative Binomial distribution. Continuous probability distributions: Normal, Exponential, Weibull, Chi-square, F&T distributions. Transformation of variables; Moment generating function; Random sampling; Sampling distribution of mean; Central limit theorem

Control Charts

Properties of the distribution of sample means, sample range estimation of standard deviation, chance and assignable causes, control charts for mean and range, control charts for mean and standard deviation, control charts for proportion defective and defects per assembly. Tests of significance to compute confidence limits

Acceptance Sampling

Introduction, OC curve, consumer and producer risks, AQL & LTPD, sampling errors, acceptance sampling for continuous production, Acceptance by variables, single, double, and sequential sampling.

Quality, Reliability, & Maintainability

Definitions, management of quality control, total quality control, Taguchi method, economic aspects of quality decisions, Process capability and variability analysis, Various aspects of life testing, reliability, & maintainability, introduction to ISO 9000.

Application of QC in Textile Engineering

International and Pakistan standard of various textile products such as fibers, Yarn, filaments, woven and knitted fibers, finished goods and garments, with emphasis on cotton products.

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING OUTCOME

Sr. No.	CLOs	Taxonomy level	Programme learning outcome (PLO)
At the end of the course, the student will be able to:			
1	Apply well known discrete and continuous probability distributions in real life problems in general and textile in particular.	C3	Engineering Knowledge
2	Analyze the effective tools and techniques for quality design, control and improvement of the product and process in general and textile in particular.	C4	Problem Analysis

3	Apply statistical process control and tools for quality compliance.	C3	Individual and Collaborative Team Work

REMARKS (if any):

Recommended by: _____ **Approved by:** _____

(Chairperson/Date) (Dean/Date)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE MT-333 Advanced Calculus & Fourier Analysis	**SEMESTER** ■ SPRING ☐FALL	**CREDIT HOURS** TH ■3 ☐2 ☐1 ☐0 PR ☐3 ☐2 ☐1 ■0
PREREQUISITE COURSE(S)	**DATE OF COURSE CONTENT APPROVAL**	**APPLIED FROM BATCH** 2025

COURSE CONTENTS

Partial Differential Equation: Basic concepts and formation of partial differential equations; Linear homogeneous pa differential equations and relations to ordinary differential equations; Solution of first order linear and special types of second and higher order differential equations; D' Alembert's solution of the wave equation and two dimensional wave equations; Lagrange's solution; Various
standard forms.

Fourier series: Periodic functions and expansion of periodic functions in Fourier series and Fourier coefficients; Expar of function with arbitrary periods. Odd and even functions and their Fourier series; Half range expansions of Fourier se " OFT and FFT, Fourier Spectrum".

Advance calculus: Define a stationary point of a function of several variables, define local maximum, and saddle poin a function of two variables the stationary points of a several variables, obtain higher partial derivatives of simple functi of two or more variables, iterated integrals, double and
triple integrations with applications (area, centoroid, moment of inertia, surface area, and volume, use multiple integr in solutions of engineering problems.

Vector Calculus: Vector differential operator, directional derivative, gradient, divergence, curl of a vector
Field, and-laplacian operators with applications, (Solenoid, conservative, etc). Vector Integrations; Evaluate line integr along simple paths, apply line integrals to calculate work done, apply Green's theorem in the plane to simple examples, evaluate surface integrals over simple surface, use the jacobian to transform a problem a new coordinate system, apply Gauss' divergence theorem to simple problems, apply Stokes' theorem to simple examples.

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING OUTCOME

Sr. No.	**CLOs**	**Taxonomy level**	**Programme learning outcome (PLO)**
At the end of the course, the student will be able to:			
1	Describe formation of partial differential equation and calculus to explain physical situations.	C2	Engineering Knowledge
2	APPLY appropriate methods to solve partial differential equations in relevant engineering problems.	C3	Problem Analysis
3	Use Fourier series in relevant engineering problems.	C3	Problem Analysis

REMA**RKS (if any):**

Recommended by: _____ **Approved by:** _____

(Chairperson/Date) (Dean/Date)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE TE 351 Computer Aided Design	**SEMESTER** ■ SPRING ☐ FALL	**CREDIT HOURS** TH ☐3 ☐ 2 ☐1 ■0 PR ☐3 ☐2 ■1 ☐0
PREREQUISITE COURSE(S) --	**DATE OF COURSE CONTENT APPROVAL**	**APPLIED FROM BATCH** 2025

Exploration of 3D Apparel CAD Software Tools and Applications
Hands-on experience with the interface, tools, and design list of options of 3D apparel CAD software. Apply materials, trims, and accessories to transform digital garments into realistic 3D models. Understand the use of graphic design and all-over prints in pattern development within the 3D environment.

Advanced Techniques in 3D Pattern Design and Visualization
Graphic placement and cut mark techniques essential for 3D pattern making. Use color way tools to apply, modify, and manage color palettes for garment visualization. Enhance understanding of digital aesthetics through advanced pattern design applications.

Digital Asset Creation, Garment Review, and 3D Fit Validation
Understand key factors in digital asset creation and the role of Virtual Quality Standards (VQS). Evaluate garment specifications and review processes to meet order requirements. Explore stitching types, simulation tools, and review garment fit and styling across avatars and sizes.

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING OUTCOME

Sr. No.	CLOs	Taxonomy level	Programme learning outcome (PLO)
At the end of the course, the student will be able to:			
1	Develop 3D apparel/garment models using CAD software	C5*	Tool Usage
2	Apply virtual quality standards to review garment fits for different specifications	C3*	Tool Usage

*Software based rubrics

REMARKS (if any):

Recommended by: _____ **Approved by:** _____

(Chairperson/Date) (Dean/Date)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE MG-257 Organizational Behaviour	**SEMESTER** ☐ SPRING ■ FALL	**CREDIT HOURS** TH ☐3 ■2 ☐1 ☐0 PR ☐3 ☐2 ☐1 ■0
PREREQUISITE COURSE(S)	**DATE OF COURSE CONTENT APPROVAL**	**APPLIED FROM BATCH 2025**

COURSE CONTENTS

Introduction to Organizational Behaviour; Foundations of OB: Management Functions, roles, and skills; Effective versus successful managerial activities; Replacing intuition with systematic study, Exploring OB challenges and opportunities facing globalization, OB Model

Foundations of Individual Behaviour; Biographical traits and ability, Personality, Perceptions and individual decision making, Values, attitudes, and job satisfaction, Motivation – basic concepts and applications, Work stress

Foundations of Group Behaviour; Group in OB, Defining and classifying groups, Stages of group development, work group behaviour, dynamics of groups, Understanding work teams, Leadership: basic approaches and contemporary issues; Conflict & negotiation

Foundations of Organizational Structure; Organizational structure and design, Organizational culture, Organizational change and development

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING OUTCOME

Sr. No.	CLOs	Taxonomy level	Programme learning outcome (PLO)
1	EXPLAIN key organizational behavior concepts and its implications	C2	Lifelong Learning
2	ANALYZE organizational behavior practices from the perspective of ethical criteria	C3	Ethics
3	PARTICIPATE in discussing and presenting strategies to change individual & group behaviors for organizational success	A3	Lifelong Learning

REMARKS (if any):

Recommended by: _____ (Chairperson/Date)

Approved by: _____ (Dean/Date)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE Te-462 Advanced Fabric Manufacturing Mechanism	SEMESTER ☐ SPRING ■ FALL	CREDIT HOURS TH ■3 ☐2 ☐1 ☐0 PR ☐3 ☐2 ■1 ☐0
PREREQUISITE COURSE(S) TE-312 Textile Fabric Manufacturing Processes	DATE OF COURSE CONTENT APPROVAL	APPLIED FROM BATCH 2025

COURSE CONTENTS

Shedding systems Tappet shedding Mechanism, Types of shedding and sheds, Types and designing of tappet.

Dobby shedding: Mechanism, Types and parts.

Jacquard shedding: Mechanism, types and fabric designing.

Weft insertion systems:

Projectile: Mechanism, specifications of different types of projectile, Parts of projectile weft insertion system. Lubrication system. Weft mixer system.

Rapier: Mechanism. Types of rapier, Parts of rapier weft insertion system.

Air jet: Introduction. Parts. Machine operating pressure. Air compression system, quality of compressed air.

Water Jet: Introduction, parts of water jet weft insertion system. Sensing systems in shuttle-less looms. Weaving cost calculations.

Beat up system for Shuttless loom.

Selvedge formation: Technical requirement and Types.

Terry-towel weaving: Mechanism, Types of terry fabrics, designing, machine settings, calculation for contraction of pile warp threads.

Braiding Technology: Types of braid and braiding machine. Braiding geometry. 2 step and 4 step braiding process.

Speciality weaving: 3 dimensional concept of weaving. Multilayer fabrics. Distinguishing features of loom for weaving cotton, woollen, worsted and synthetic yarns.

Warp Knitting: Comparison of weft and warp knitting technology. Principles of warp knitting: parts of machine, pattern mechanisms, basic overlap and underlap variations. Classification of machines. Development of lapping diagram and chain notation of basic warp knitted structures.

Fabric defects

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING OUTCOME

Sr. No.	CLOs	Taxonomy level	Programme learning outcome (PLO)
At the end of the course, the student will be able to:			
1	Analyze the various Shedding mechanisms and Shuttle-less weft Insertion systems.	C4	Problem Analysis
2	Employ the theoretical knowledge of various fabric manufacturing mechanisms to compare and contrast their advantages and limitations when a specific product has to be manufactured.	C4	Design and Development of Solutions
3	Outline the warp knitted fabric manufacturing and generate the lapping diagram and chain notation of fundamental fabric structure.	C4	Engineering Knowledge
4	Operate equipment/tools/machines deals with fabric manufacturing under supervision, to upgrade skills	P3	Investigation

REMARKS (if any):

Recommended by: _____ **Approved by: _____**

(Chairperson/Date) (Dean/Date)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE TE-413: Textile Product Evaluation II	**SEMESTER** ☐ SPRING ■ FALL	**CREDIT HOURS** TH ■3 ☐2 ☐1 ☐0 PR ☐3 ☐2 ■1 ☐0
PREREQUISITE COURSE(S) TE-326: Textile Dyeing	**DATE OF COURSE CONTENT APPROVAL** **September 2016**	**APPLIED FROM BATCH** 2025

COURSE CONTENTS

Qualitative and Quantitative Analysis:
Difference between Qualitative and Quantitative analysis; Identification of various fibres viz Cotton, Viscose, Polyester, Wool, Acrylic and Nylon by, microscopic viewing, burning, dissolving and staining techniques. Quantitative analysis of common blends and Qualitative analysis of damaged cotton

Oil and Water Repellency Tests:
Wicking and Wetting of Textiles, Water Proofing, Shower proofing, water and oil Repellency

Flammability Tests:
Factor affecting textile Flammability 45° and vertical flammability tester. Flammability regulations. Process and equipment used to determine Dimensional Stability; Factors Affecting Dimensional Stability, Garment and Fabric Appearance, Bow and Skewness evaluation

Pilling and Abrasion Tests:
Introduction and Factors effecting Pilling and Abrasion and its measurement
Subjective and Objective handle evaluation. Care labels and their importance.

Colour fastness Tests:
Importance of Fastness properties, Methods and equipment used to determine colour fastness to sun light, Washing, Laundering, Dry and Wet, rubbing, Perspiration, Dry cleaning, bleaching, Water, Sea water, Identification of dyes: powder form and on dyed fabric.

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING OUTCOME

Sr. No.	CLOs	Taxonomy level	Programme learning outcome (PLO)
At the end of the course, the student will be able to:			
1	Evaluate the problem related to material, process or machine by using standard test procedures for textiles.	C5	Problem Analysis
2	Analyze test results to verify, improve or modify the material or process in order to meet the customer specifications for a textile product	C4	Design/Development of Solutions
3	Practice standard testing procedure under supervision	P3	Investigation

REMARKS (if any):

Recommended by: _____ (Chairperson/Date)

Approved by: _____ (Dean/Date)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE MG- 485 Entrepreneurship	**SEMESTER** ■ SPRING ☐ FALL	**CREDIT HOURS** TH ☐3 ■2 ☐1 ☐0 PR ☐3 ☐2 ☐1 ■0
PREREQUISITE COURSE(S)	**DATE OF COURSE CONTENT APPROVAL**	**APPLIED FROM BATCH** 2025

COURSE CONTENTS

Introduction to Entrepreneurship; The concept of entrepreneurship, entrepreneurial mindset, social entrepreneurship, and essential entrepreneurial skills;

Initiating entrepreneurial ventures; innovation and creativity, assessment of entrepreneurial opportunities, pathways to entrepreneurial ventures, sources of capital;

Developing the entrepreneurial plan; legal challenges, marketing challenges, financial planning, export orientation, developing an effective business plan;

Growth strategies; strategic entrepreneurial growth through scaling, valuation of entrepreneurial ventures, and harvesting the entrepreneurial venture

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING OUTCOME

Sr. No.	CLOs	Taxonomy level	Programme learning outcome (PLO)
1	Explain basic functions and importance of entrepreneurship	C2	Life-long Learning
2	Demonstrate the entrepreneurial skills to develop a business plan.	C3	Individual and Collaborative Team Work

REMARKS (if any):

Recommended by: _____ **Approved by:** _____

(Chairperson/Date) (Dean/Date)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE TE-406 Textile Production Management	**SEMESTER** ■ SPRING ☐ FALL	**CREDIT HOURS** TH ■3 ☐2 ☐1 ☐0 PR ☐3 ☐2 ☐1 ■0
PREREQUISITE COURSE(S)	**DATE OF COURSE CONTENT APPROVAL**	**APPLIED FROM BATCH** 2025

COURSE CONTENTS

Production Management and Systems: Introduction to production Management; System concept; Functions of management; Managerial decision making; Models as decision aids.

Plant Location & Plant Layout: Selection of region; Selection of community; Site selection; Location factor dependence; Sources of assistance; Plant location trends; Quantitative analysis and Plant layout; Product and process layout analysis and comparison; Material handling considerations in layout.

Production Planning and Control: Formalized production planning; Production planning methods; Master scheduling; MRP; MRP inputs, MRP outputs; Product Structures; Types of MRP; Capacity planning and control; Production control systems; Scheduling techniques.

Planning & Control techniques: Inventory control; types of inventory; Inventory costs; Independent versus dependent demand; EQQ/EPÑ models; Types of control systems; Selective inventory control; Inventory system development; Project Planning; CPM/PERT; Network development; Determination of activity times; Establishment of critical path; Probabilistic statements.

Method Study: Definition; Objectives; Procedure; Process chart symbols; Outline process chart; Flow process charts; Multiple activity chart; Two handed chart; Critical examination, Principles of motion economy, Case studies and Application.

Work Measurement: Definition; Objectives; Techniques of work measurement; Stop watch time study; Timing methods; Performance rating; Standard timing; Allowance factors. Work sampling; Confidence level; Determination of samples size; Making random observations; Scope of work sampling. Predetermined time standards; Definition; Advantages and criticisms; Motion classification; TMU; Use of PTS systems.

Maintenance: Types of maintenance; Breakdown maintenance; Preventive maintenance; Individual versus group replacement; Internal versus external maintenance; Queuing theory; Application of queuing theory; Input characteristics; Queue characteristic; Service characteristic; Mathematical approach.

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING OUTCOME

Sr. No.	CLOs	Taxonomy level	Programme learning outcome (PLO)
At the end of the course, the student will be able to:			
1	Decide the location of plant by utilizing the various location selection methods and Design of plant layout according to the process requirement of the particular product.	C5	Design/Development of Solutions
2	Apply the basic concepts/tools involved in the PPC such as Aggregate Planning, Inventory Management, and MRP to minimize the cost and maximize the profit.	C3	Tool Usage
3	Develop project plan and schedules using project management tools i.e. Network Diagrams and CPM/PERT Analysis.	C5	Project Management and Finance

4	Improve the effectiveness and efficiency of production systems by the use of Work Study and maintenance management approaches.	C5	Investigation

REMARKS (if any):

Recommended by: _____ **Approved by: _____**

(Chairperson/Date) (Dean/Date)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE TE-424 Textile Printing	**SEMESTER** ■ SPRING ☐ FALL	**CREDIT HOURS** TH ■3 ☐2 ☐1 ☐0 PR ☐3 ☐2 ■1 ☐0
PREREQUISITE COURSE(S) TE-326 Textile Dyeing	**DATE OF COURSE CONTENT APPROVAL**	**APPLIED FROM BATCH** 2025

COURSE CONTENTS

Textile Printing:
Pre-treatment and fabric requirements for printing, design details of printing. Repeats and its types. Style and methods of printing. Special printing processes. Print designs

Printing Auxiliaries:
Auxiliaries for printing with pigments and dyes, General characteristics of, classification, Rheology and selection criteria for thickeners.

Pigment Printing:
Pigment systems and preparations, different style of application.

Dyestuff Printing:
Printing system for Direct, Reactive and Vat dyes with various styles.

Printing of Blended Materials:
Dye selection and Printing Process for common Blends. Identification of printing faults (Mechanism and Process) and remedies.

Inkjet printing:
Fabric preparation for inkjet printing, dye selection, inkjet printing process and application

Printing machines:
Block, Roller, Manual and automatic carriage flat screen printing machine, rotary printing machine and dryers for printing. Rotary Screen Engraving, CAD/CAM Inkjet printing machines

Fixation machines:
Fixation Mechanism for dyes and pigments. Different types of steamers and agers their advantages and disadvantages. After treatment processes and machinery for printing

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING OUTCOME

Sr. No.	CLOs	Taxonomy level	Programme learning outcome (PLO)
At the end of the course, the student will be able to:			
1	Demonstrate a thorough knowledge of the pre-treatment and post-treatment processes and the working, control and technical aspects of textile printing machines.	C3	Engineering Knowledge
2	Identify the causes of various printing faults and Synthesize solution(s) for the same on the basis of logical application of the acquired understanding of the processes and the machines.	C5	Problem Analysis
3	Execute screen printing of a woven fabric while achieving even distribution of ink, correct registration and uniformity of the shade being printed.	P3	Investigation

REMARKS (if any):

Recommended by: _____ **Approved by:** _____

(Chairperson/Date) (Dean/Date)

NED University of Engineering and Technology

Department of Textile Engineering

Program:-Textile Engineering

Course Profile

F/QSP 11/17/01

COURSE CODE& TITLE TE-464: Occupational Health and Safety	SEMESTER ■SPRING □ FALL	CREDIT HOURS TH □3 □2 ■1 □0 PR □3 □2 □1■0
PREREQUISITE COURSE(S)	DATE OF COURSE CONTENT APPROVAL	APPLIED FROM BATCH 2025

COURSE CONTENTS

Safety Management:
Understanding accidents and hazards, hazard control and loss control, company policy and management responsibilities, direct and indirect costs, accident causes and their control, principles and processes of loss control, and knowledge of existing safety codes and standards.

Hazards and Risk:
Hazard identification, risk assessment, risk control.

Accident Prevention and Control:
Fire safety, electrical safety, safety in boilers and unfired pressure vessels and high-pressure systems, safety in material handling and storage, safety in production operations.

Industrial Hygiene and Worker Protection:
Understanding industrial hygiene, various hazards encountered in the workplace, types of personal protective equipment (PPE), availability in the market, their design standards, and selection criteria.

Process Safety Management:
Development of facility operation and procedures, analysis of process hazards, permit-to-work systems, hazard communication (Material Safety Data Sheet), chemical inventory record, accident reporting and investigation, OHSAS 18001:1999, ISO 45000.

COURSE LEARNING OUTCOME AND ITS MAPPING WITH PROGRAMME LEARNING OUTCOME

Sr. No.	CLOs	Taxonomy level	Programme learning outcome (PLO)
At the end of the course, the student will be able to:			
1.	Discuss potential occupational safety and health hazards in an industrial environment and identify measures to reduce or eliminate these hazards.	C2	The Engineer and the World
2.	Apply risk management principles to identify, evaluate, and control physical, chemical, biological and ergonomic hazards	C3	The Engineer and the World

REMARKS (if any):

Recommended by: _____ **Approved by:** _____

(Chairperson/Date) (Dean/Date)