



Students admitted in this University are required to study all approved courses of the respective discipline. They are also needed to complete a course titled "Community Service (EA-200)" during the Four Years Studies.

Students with an HSC/equivalent with Computer Science Group and who are admitted into any Engineering Programme at this university must take a non-credit Essentials of Chemistry (CY-100) course during the first semester of their studies.

Subject to changes and modifications by the University the courses of studies for Bachelors Degree programmes shall be as follows:

3.1 Bachelor of Engineering Programmes

3.1.1 Civil Engineering

FIRST YEAR

Fall Semester				Spring Semester					
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
CE-107	Engineering Drawing-I	1	2	3	CE-109	Engineering Surveying-I	2	1	3
CE-102	Statics and Dynamics	3	1	4	CE-110	Chemistry for Civil Engineers	1	1	2
CE-108	Engineering Materials	2	1	3	CE-111	Introduction to Computing for Civil Engineers	1	2	3
EE-123	Basic Electrical Engineering	2	0	2	ME-110	Basic Mechanical Engineering	2	0	2
MT-114	Calculus	3	0	3	EA-111	Functional English	2	0	2
ES-106	Pakistan Studies OR	1	0	1	MT-221	Linear Algebra & Ordinary Differential Equations	3	0	3
ES-127	Pakistan Studies (for Foreigners)								

SECOND YEAR

Fall Semester					Spring Semester				
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
CE-201	Engineering Surveying-II	3	1	4	CE-222	Engineering Drawing-II	1	2	3
CE-205	Mechanics of Solids-I	3	1	4	CE-221	Structural Analysis-I	3	0	3
CE-220	Geology for Engineers	2	1	3	CE-219	Fluid Mechanics-I	3	1	4
ES-205	Islamic Studies OR	2	0	2	MT-331	Probability & Statistics	3	0	3
ES-209	Ethical Behaviour (for Non-Muslims)				EA-219	Professional Ethics	2	0	2
EA-218	Business Communication	2	1	3	CF-303	Applied Economics for Engineers	3	0	3
AR-309	Architecture and Town Planning	3	0	3	EA-200	Community Service	-	-	NC

THIRD YEAR

Fall Semester				Spring Semester					
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
CE-320	Reinforced Concrete Design-I	3	0	3	CE-305	Soil Mechanics-I	3	1	4
CE-302	Transportation Engineering-I	3	1	4	CE-232	Quantity & Cost Estimation	3	0	3
CE-321	Construction Engineering	3	0	3	CE-314	Structural Analysis-II	3	0	3
CE-319	Fluid Mechanics-II	3	1	4	CE-322	Mechanics of Solids-II	3	0	3
MT-443	Numerical Analysis	3	0	3	CE-424	Essentials in Construction Project Management	3	0	3
					EA/ES-###	Foreign Language-I			NC



FINAL YEAR

Fall Semester

Course Code	Course Title	Credit Hours		
		Th	Pr	Total
CE-403	Soil Mechanics-II	3	1	4
CE-418	Hydraulic and Water Resources Engineering-I	3	1	4
CE-420	Reinforced Concrete Design-II	3	0	3
EN-301	Environmental Engineering-I	2	1	3
CE-409	Civil Engineering Project*	0	3	3
EA/ES-###	Foreign Language-II	-	-	NC
##-###	Social Sciences Elective	2	0	2

Spring Semester

Course Code	Course Title	Credit Hours		
		Th	Pr	Total
CE-421	Design of Steel Structures	3	0	3
CE-432	Transportation Engineering-II	2	0	2
##-###	Civil Engineering Elective	3/2/1	0/1/2	3
##-###	Management Sciences Elective	3	0	3
EN-401	Environmental Engineering-II	2	1	3
CE-409	Civil Engineering Project	0	3	3

Civil Engineering Elective (to be chosen from the following)

CE-419	Applied Hydraulics	3	0	3
CE-422	Structural Design & Drawing	3	0	3
CE-423	Masonry Structures	3	0	3
CE-426	Building Information Modeling	1	2	3
CE-429	Geosynthetics and their Applications	3	0	3
CE-431	Geoinformatics Applications	2	1	3
CE-433	Coastal and Harbour Engineering	3	0	3
CE-438	Hydraulics and Water Resource Engineering-II	3	0	3
CN-424	Environmental Issues in Construction	3	0	3
CN-430	Disaster and Reconstruction Management	3	0	3
CE-440	Commute and Mass Transit	3	0	3

Management Sciences Elective (to be chosen from the following)

CN-423	Management and marketing of Construction Services	3	0	3
CN-432	Leadership and Human Skills in Management	3	0	3
CE-425	Modern Aspects of Construction Project Management	3	0	3
CE-434	Procurement Management	3	0	3
CE-435	Construction Contract Management			

Social Sciences Elective (to be chosen from the following)

CE-427	Introduction to Entrepreneurship & Opportunity Assessment	2	0	2
CE-439	Engineer and Society	2	0	2
MG-228	Sociology and Development	2	0	2
CE-441	Professional Ethics in Construction Industry	2	0	2

* Duration one academic year: Requires literature survey and preliminary work during this Semester





3.1.2 Civil Engineering (Specialisation in Construction)

FIRST YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
CE-107	Engineering Drawing-I	1 2 3	CE-109	Engineering Surveying-I	2 1 3
CE-102	Statics and Dynamics	3 1 4	CE-110	Chemistry for Civil Engineers	1 1 2
EE-123	Basic Electrical Engineering	2 0 2	CE-111	Introduction to Computing for Civil Engineers	1 2 3
CE-108	Engineering Materials	2 1 3	ME-110	Basic Mechanical Engineering	2 0 2
MT-114	Calculus	3 0 3	EA-111	Functional English	2 0 2
ES-106	Pakistan Studies OR	1 0 1	MT-221	Linear Algebra & Ordinary Differential Equations	3 0 3
ES-127	Pakistan Studies (for foreigners)				

SECOND YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
CE-201	Engineering Surveying-II	3 1 4	CE-222	Engineering Drawing-II	1 2 3
CE-205	Mechanics of Solids-I	3 1 4	CE-221	Structural Analysis-I	3 0 3
CE-220	Geology for Engineers	2 1 3	CE-219	Fluid Mechanics-I	3 1 4
ES-205	Islamic Studies OR	2 0 2	MT-331	Probability & Statistics	3 0 3
ES-209	Ethical Behaviour (for Non-Muslims)		EA-219	Professional Ethics	2 0 2
EA-218	Business Communication	2 1 3	CN-223	Fundamentals of Applied Economics for Engineers	3 0 3
AR-309	Architecture and Town Planning	3 0 3	EA-200	Community Service	NC

THIRD YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
CE-320	Reinforced Concrete Design-I	3 0 3	CE-305	Soil Mechanics-I	3 1 4
CE-321	Construction Engineering	3 0 3	CE-323	Quantity & Cost Estimation	3 0 3
CN-323	Construction Contracts	3 0 3	CN-331	Construction Jobsite Engineering and Management	3 0 3
CE-302	Transportation Engineering-I	3 1 4	CN-333	Construction Economic Analysis	2 0 2
CN-336	Accounting and Financial Management	3 0 3	CE-424	Essentials in Construction Project Management	3 0 3
			CN-433	Introduction to Entrepreneurship and Opportunity Assessment	2 0 2
			EA/ES-###	Foreign Language-I	

FINAL YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
CN-428	Sustainable Construction	3 0 3	##-###	Civil Engineering Elective	
CN-435	Systems in Building Construction	3 0 3	CN-429	Building Information Modeling	1 2 3
CE-418	Hydraulics and Water Resources Engineering-I	3 1 4	CN-427	Quality and Safety Aspects in Construction Engineering	2 0 2
CN-416	Legal and Regulatory Environment in the Construction Industry	3 0 3	CN-434	Temporary Structures in Construction	3 0 3
EN-301	Environmental Engineering-I	2 1 3	CN-436	Heavy Construction Equipment and Operations	3 0 3
CE-409	Civil Engineering Project*	0 3 3	CE-409	Civil Engineering Project	0 3 3
EA/ES-###	Foreign Language-II				

Civil Engineering Elective (to be chosen from the following)

CE-419	Applied Hydraulics	3 0 3	CE-433	Coastal and Harbour Engineering	3 0 3
CE-422	Structural Design & Drawing	3 0 3	CE-438	Hydraulics and Water Resource Engineering-II	3 0 3
CE-423	Masonry Structures	3 0 3	CN-424	Environmental Issues in Construction	3 0 3
CE-429	Geosynthetics and their Applications	3 0 3	CN-430	Disaster and Reconstruction Management	3 0 3
CE-431	Geoinformatics Applications	2 1 3	MG-228	Sociology and Development	2 0 2

* Duration one academic year: Requires literature survey and preliminary work during this Semester





3.1.3 Civil Engineering (Specialisation in Urban)

FIRST YEAR

Fall Semester				Spring Semester					
Course Code	Course Title	Credit Th	Hours Pr	Total	Course Code	Course Title	Credit Th	Hours Pr	Total
UE-151	Engineering Drawing-I	1	2	3	UE-153	Engineering Surveying-I	2	1	3
EE-123	Basic Electrical Engineering	2	0	2	UE-154	Chemistry for Civil Engineers	1	1	2
UE-102	Statics and Dynamics	3	1	4	UE-155	Introduction to Computing for Civil Engineering	1	2	3
MT-114	Calculus	3	0	3					
UE-152	Engineering Materials	2	1	3	ME-110	Basic Mechanical Engineering	2	0	2
ES-106	Pakistan Studies OR	1	0	1	MT-221	Linear Algebra & Ordinary Differential Equations	3	0	3
ES-107	Pakistan Studies (for Foreigners)				EA-111	Functional English	2	0	2

SECOND YEAR

Fall Semester				Spring Semester					
Course Code	Course Title	Credit Th	Hours Pr	Credit Hours Total	Course Code	Course Title	Credit Th	Hours Pr	Credit Hours Total
UE-201	Engineering Surveying-II	3	1	4	UE-253	Engineering Drawing-II	1	2	3
UE-251	Mechanics of Solids-I	3	1	4	UE-254	Fluid Mechanics-I	3	1	4
UE-252	Geology for Engineers	2	1	3	UE-255	Structural Analysis-I	3	0	3
EA-218	Business Communication	2	1	3	EA-219	Professional Ethics	2	0	2
ES-205	Islamic Studies OR	2	0	2	MT-331	Probability & Statistics	3	0	3
ES-209	Ethical Behaviour (for Non-muslims)				CF-303	Applied Economics for Engineers	3	0	3
					EA-200	Community Service			NC

THIRD YEAR

Fall Semester				Spring Semester					
Course Code	Course Title	Credit Th	Hours Pr	Credit Hours Total	Course Code	Course Title	Credit Th	Hours Pr	Credit Hours Total
UE-351	Reinforced Concrete Design-I	3	0	3	AR-309	Architecture and Town Planning	3	0	3
UE-352	Construction Engineering	3	0	3	UE-305	Soil Mechanics-I	3	1	4
UE-353	Quantity & Cost Estimations	3	0	3	UE-356	Traffic Engineering and Management	3	0	3
UE-455	Municipal Engineering and Urban Management	2	0	2	UE-218	Law and Regulatory Control Studies	2	0	2
MT-443	Numerical Analysis	3	0	3	UE-355	Essential in Construction Project Management	3	0	3
UE-361	Planning & Design of Transportation System	3	1	4	UE-453	Reinforced Concrete Design-II	3	0	3
					EA/ES-###	Foreign Language-I			NC

FINAL YEAR

Fall Semester				Spring Semester			
Course Code	Course Title	Credit Hours		Course Code	Course Title	Credit Hours	
		Th	Pr			Th	Pr
UE-403	Soil Mechanics-II	3	1	4	###-###	Engineering Elective	3/1/2
UE-452	Urban Mass Transportation	2	0	2	UE-435	Financial Resource Management	0/2/1
UE-451	Hydraulic Engineering and Water Resources Engineering-I	3	1	4	UE-460	Geoinformatics	2
UE-359	Structural Analysis-II	2	0	2	UE-454	Design of Steel Structures	1
EN-301	Environmental Engineering-I	2	1	3	EN-401	Environmental Engineering-II	3
UE-415	Urban Engineering Project*	0	3	3	UE-360	Mechanics of Solids-II	2
EA/ES-###	Foreign Language-II				UE-415	Urban Engineering Project	0
							3

Inter-Disciplinary Elective (to be chosen from the following)

CE-419	Applied Hydraulics	3	0	3	CN-430	Disaster and Reconstruction Management	3	0	3
CE-423	Masonry Structures	3	0	3	UE-422	Traffic Impact Studies	2	1	3
CE-426	Building Information Modeling	1	2	3	UE-423	Highway and Airfield Pavement Design	2	1	3
CE-429	Geosynthetics and their applications	3	0	3	EN-403	Environmental Impact Assessment	2	0	2
CE-438	Hydraulics and Water Resource Engineering-II	3	0	3	UE-421	Modern Aspects of Construction Project Management	2	1	3
CN-424	Environmental Issues in Construction	3	0	3	UE-436	Urban Sociology	3	0	3

* Duration one academic year: Requires literature survey and preliminary work during this Semester





3.1.4 Petroleum Engineering

FIRST YEAR

Fall Semester				Spring Semester					
Course Code	Course Title	Credit		Hours	Course Code	Course Title	Credit		Hours
		Th	Pr	Total			Th	Pr	Total
PE-103	Fundamentals of Petroleum Engineering	2	0	2	PE-104	Applied Petroleum Geology	2	1	3
EE-124	Basic Electricity and Electronics	2	1	3	ME-101	Engineering Mechanics	3	1	4
ME-111	Engineering Drawing	2	1	3	PE-105	Computer Programming & Application	1	2	3
CY-109	Applied Chemistry	3	1	4	PH-127	Applied Physics for Engineers	2	1	3
MT-114	Calculus	3	0	3	EA-111	Functional English	2	0	2
ES-106	Pakistan Studies OR	1	0	1	ES-205	Islamic Studies OR	2	0	2
ES-107	Pakistan Studies (for Foreigners)				ES-209	Ethical Behaviour (For Non Muslims)			

SECOND YEAR

Fall Semester				Spring Semester					
Course Code	Course Title	Credit		Hours	Course Code	Course Title	Credit		Hours
		Th	Pr	Total			Th	Pr	Total
MT-221	Linear Algebra & Ordinary Differential Equations	3	0	3	PE-211	Introduction to Data Sciences	2	1	3
EA-218	Business Communication	2	1	3	PE-212	Reservoir Fluid Properties	2	1	3
PE-208	Reservoir Petrophysics	2	1	3	PE-209	Fluid Mechanics	3	1	4
CE-212	Mechanics of Solids	3	1	4	PE-213	Drilling Engineering-I	2	1	3
PE-210	Thermodynamics – I	2	1	3	MT-331	Probability & Statistics	3	0	3
UE-270	Surveying and Geo informatics	1	1	2	##-###	Social Sciences Elective	2	0	2
					EA-200	Community Service			NC

THIRD YEAR

Fall Semester				Spring Semester					
Course Code	Course Title	Credit		Hours Total	Course Code	Course Title	Credit		Hours Total
		Th	Pr				Th	Pr	
PE-314	Petroleum Production Economics	2	0	2	PE-318	Drilling Engineering-II	3	1	4
PE-315	Structural Geology & Geophysical Exploration	3	0	3	###-###	Elective-I	2	0	2
PE-316	Subsurface Production Engineering	3	0	3	PE-319	Reservoir Engineering – I	3	1	4
PE-317	Natural Gas Engineering	2	1	3	PE-320	Fundamentals of Well Logging	2	1	3
EL-305	Instrumentation & Control	3	1	4	MT-471	Applied Numerical Methods	2	1	3
EA-219	Professional Ethics	2	0	2	EA/ES-###	Foreign Language-I			NC

FINAL YEAR

Fall Semester				Spring Semester					
Course Code	Course Title	Credit Hours		Course Code	Course Title	Credit Hours			
		Th	Pr	Total		Th	Pr	Total	
PE-415	Reservoir Simulation	3	1	4	PE-418	Oil and Gas Field Production Facilities	3	1	4
PE-416	Reservoir Engineering-II	2	1	3	PE-419	Water Flooding and Enhanced Oil Recovery	3	1	4
##-###	Elective-II	3	1	4	PE-421	Well Testing	3	1	4
PE-417	Project Planning & Management	3	0	3	PE-422	Petroleum Property Env. & Safety	3	0	3
PE-410	Petroleum Engineering Project*	0	3	3		Management			
EA/ES-###	Foreign Language-II			NC	PE-410	Petroleum Engineering Project	0	3	3

Social Sciences Elective Courses (to be chosen from the following)

EA-229	Anthropology	2	0	2	MG-257	Organizational Behavior	2	0	2
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Elective-I Courses (to be chosen from the following)

PE-321	Principles of Corrosion Control	2	0	2	PE-323	Renewable Energy-I	2	0	2
PE-322	Introduction to Unconventional Oil, Gas & Energy Resources	2	0	2					

Elective-II Courses (to be chosen from the following)

PE-423	Petroleum Refinery Engineering	3	1	4	PE-424	Renewable Energy-II	3	1	4
CS-323	Artificial Intelligence	3	1	4					

* Duration one academic year: Requires literature survey and preliminary work during this Semester





3.1.5 Mechanical Engineering

FIRST YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
CY-111	Applied Chemistry	2 0 2	PH-112	Applied Physics	2 1 3
MT-114	Calculus	3 0 3	EA-111	Functional English	2 0 2
EE-124	Basic Electricity and Electronics	2 1 3	ME-112	Thermodynamics	3 0 3
ME-111	Engineering Drawing	2 1 3	ME-104	Workshop Practice	0 2 2
ES-105	Pakistan Studies OR	2 0 2	ME-115	Statics	3 0 3
ES-127	Pakistan Studies (for Foreigners)		ME-214	Computer Programming & Applications	2 1 3
ME-113	Computer Aided Drawing	0 1 1			
EA-200	Community Service	- - NC			

SECOND YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
MT-223	Ordinary Differential Equations & Fourier Series	3 0 3	MT-330	Applied Probability & Statistics	2 1 3
ME-221	Fluid Mechanics - I	3 0 3	ME-218	Solid Mechanics - I	3 0 3
ME-222	Dynamics	3 0 3	ME-209	Materials & Metallurgy	3 1 4
ME-223	Engineering Mechanics Lab	0 1 1	ES-205/	Islamic Studies OR	2 0 2
ME-224	Internal Combustion Engines	3 0 3	ES-209	Ethical Behaviour	
ME-220	Manufacturing Processes - I	3 1 4	ME-219	Mechanics of Machine	3 0 3
			EA-208	Business Communication & Ethics	3 0 3

THIRD YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
ME-317	Manufacturing Processes - II	3 1 4	MT-332	Advanced Calculus & Linear Algebra	3 0 3
ME-321	Power Plant Engineering	3 0 3	EL-305	Instrumentation and Control	3 1 4
ME-322	IC Engine and Power Plant Lab	0 1 1	ME-323	Machine Design	3 0 3
ME-302	Solid Mechanics - II	3 1 4	ME-318	Heat & Mass Transfer	3 0 3
ME-316	Fluid Mechanics-II	3 1 4	ME-319	Refrigeration & Air Conditioning	3 0 3
##-###	Social Science (Elective)	2 0 2	ME-320	RAC and Heat Transfer Lab	0 1 1
			EA/ES-###	Foreign Language-I	- - NC

FINAL YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
MF-303	Applied Economics for Engineers	3 0 3	MG-481	Entrepreneurship	3 0 3
ME-436	Mechanical Vibrations	3 0 3	MT-441	Advanced Mathematical Techniques	3 0 3
ME-437	Machine Design and Vibration Lab	0 1 1	ME-417	Compressible Flow and Propulsion Systems	3 0 3
ME-419	Stress Analysis	3 0 3	ME-409	Mechanical Engineering Project	0 3 3
ME-409	Mechanical Engineering Project*	0 3 3	ME-435	Operations Management	3 0 3
##-###	Management Elective	2 0 2	##-###	Technical Elective 2	3/2 0/1 3
##-###	Technical Elective 1	3/2 0/1 3			
EA/ES-###	Foreign Language-II	- - NC			

Technical Elective (to be chosen from the following)

Management Elective (to be chosen from the following)

Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
ME-421	Gas Turbines	3 0 3	ME-432	Health, Safety & Environment	2 0 2
ME-422	Nuclear Power	3 0 3	ME-433	Law for Engineers	2 0 2
ME-423	Computer Aided Design/Computer Aided Manufacturing	2 1 3	ME-434	Total Quality Management	2 0 2
ME-424	Clean Energy Technology	3 0 3	Social Sciences Elective (to be chosen from the following)		
ME-425	Finite Element Analysis	2 1 3			
ME-426	Plant Maintenance	3 0 3			
ME-429	Water Treatment & Desalination	3 0 3			
ME-439	Mechatronics	2 1 3			
ME-431	Tribology	3 0 3	EA-219	Professional Ethics	2 0 2
ME-438	AI and Internet of Things	2 1 3	MG-228	Sociology & Development	2 0 2
			EA-229	Anthropology	2 0 2
			MG-257	Organizational Behaviour	2 0 2

* Duration one academic year: Requires literature survey and preliminary work during this Semester





3.1.6 Industrial and Manufacturing Engineering

FIRST YEAR

Fall Semester					Spring Semester				
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
MT-114	Calculus	3	0	3	PH-122	Applied Physics	3	1	4
ME-101	Engineering Mechanics	3	1	4	EA-111	Functional English	2	0	2
EE-122	Basic Electricity and Electronics	3	0	3	ME-111	Engineering Drawing	2	1	3
ME-104	WorkShop Practice	0	2	2	IM-101	Computer Applications in Engineering	2	1	3
ES-105	Pakistan Studies OR	2	0	2	IM-105	Thermofluids	3	1	4
ES-127	Pakistan Studies for Foreigners								

SECOND YEAR

Fall Semester					Spring Semester				
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
IM-208	Materials Engineering	3	1	4	MT-225	Linear Algebra & Ordinary Differential Equations	3	0	3
IM-209	Mechanics of Materials	3	1	4					
IM-203	Manufacturing Processes	3	1	4	MF-303	Applied Economics for Engineers	3	0	3
MT-252	Introduction to Probability and Statistics	3	1	4	IM-211	Machine Design	3	1	4
ES-205	Islamic Studies OR	2	0	2	IM-212	Computer Aided Engineering Design	2	1	3
ES-209	Ethical Behaviour				IM-213	Metrology and Quality Control	3	1	4
					EA-200	Community Service	-	-	NC

THIRD YEAR

Fall Semester					Spring Semester				
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
EA-304	Business Communication & Ethics	3	0	3	IM-308	Operations Research	3	1	4
IM-303	Production Management	3	1	4	IM-307	Advanced Manufacturing Processes	3	1	4
MT-333	Advanced Calculus & Fourier Analysis	3	0	3	IM-408	Automation & Robotics	3	1	4
IM-312	Applied Thermo Fluids	3	1	4	IM-411	Methods Engineering	2	1	3
IM-310	Tool Design	3	1	4	IM-320	Modeling and Simulation	2	1	3
					EA/ES-###	Foreign Language-I	-	-	NC

FINAL YEAR

Fall Semester					Spring Semester				
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
IM-405	Finite Element Analysis	3	1	3	MG-481	Entrepreneurship	3	0	3
IM-402	Computer Aided Manufacturing	3	1	4	IM-417	Health, Safety & Environment	2	1	3
MG-450	Principles of Supply Chain Management	3	0	3	MT-441	Advanced Mathematical Techniques	3	0	3
##-###	Elective Course	3	1	4	IM-413	Plant Engineering	3	1	4
IM-409	Manufacturing Engineering Project*	0	3	3	IM-409	Manufacturing Engineering Project	0	3	3
EA/ES-###	Foreign Language-II	-	-	NC					

Elective Courses (to be chosen from the following)

IM-416	Management Information System	IM-420	Basics of Additive Manufacturing
IM-418	Condition Monitoring	IM-421	Smart Manufacturing Systems
IM-419	Project Management	IM-422	Ergonomics in Workplace Design

* Duration one academic year: Requires literature survey and preliminary work during this Semester





3.1.7 Textile Engineering

FIRST YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
TE-113	Introduction to Textile Engineering	2 0 2	TE-111	Textile Chemistry	3 1 4
PH-122	Applied Physics	3 1 4	ME-112	Thermodynamics	3 0 3
ME-111	Engineering Drawing	2 1 3	ME-104	Workshop Practice	0 2 2
MT-114	Calculus	3 0 3	EE-122	Basic Electricity & Electronics	3 0 3
ES-105	Pakistan Studies OR	2 0 2	ME-101	Engineering Mechanics	3 1 4
ES-127	Pakistan Studies (for Foreigner)		TE-224	Polymer & Fibre Science	2 0 2
EA-114	Functional English	2 0 2			

SECOND YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
MM-205	Mechanics of Material	3 1 4	TE-211	Textile Yarn Manufacturing	3 1 4
TE-208	Material Science	2 1 3	TE-205	Pre-treatment of Textile	3 1 4
TE-203	Computer Programming & Application	2 1 3	TE-207	Machine Design	3 0 3
TE-206	Fluid Mechanics for Textiles	2 1 3	ME-311	Manufacturing Processes	3 1 4
MT-225	Linear Algebra & Ordinary Differential Equations	3 0 3	ES-205	Islamic Studies OR	2 0 2
			ES-209	Ethical Behaviour	
			EA-200	Community Service	- - NC

THIRD YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
TE-312	Textile Fabric Manufacturing Processes	3 1 4	TE-453	Garment Manufacturing	3 0 3
TE-307	Utilities for Textile Industry	3 1 4	TE-313	Textile Product Evaluation-I	3 1 4
MF-303	Applied Economics for Engineers	3 0 3	TE-319	Heat & Mass Transfer	2 1 3
TE-326	Textile Dyeing	3 1 4	TE-318	Textile & Environment	2 0 2
EA-304	Business Communication & Ethics	3 0 3	TE-305	Quality Control in Textiles	2 0 2
			MT-333	Advanced Calculus & Fourier Analysis	3 0 3
			EA/ES-###	Foreign Language-I	- - NC

FINAL YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
MG-482	Organizational Behavior	3 0 3	MG-481	Entrepreneurship	3 0 3
TE-462	Advanced Fabric Manufacturing Mechanism	3 1 4	TE-451	Automation & Control in Textiles	3 0 3
##-###	Elective	3 1 4	##-###	Elective	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	- - NC			

Inter-Disciplinary Elective (to be chosen from the following)

TE-461	Advanced Yarn Manufacturing Mechanism	3 1 4	TE-406	Textile Production Management	3 0 3
TE-452	Textile Finishing	3 1 4	TE-454	Textile Merchandising	3 0 3
TE-455	Advanced Garment Manufacturing	3 1 4			

* Duration one academic year: Requires literature survey and preliminary work during this Semester





3.1.8 Automotive Engineering

FIRST YEAR

Fall Semester				Spring Semester					
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
PH-122	Applied Physics	3	1	4	ME-106	Statistics	2	1	3
AU-113	Introduction to Automotive Systems	2	0	2	ME-112	Thermodynamics	3	0	3
EA-104	Functional English	3	0	3	AU-112	Engineering Drawing and Computer Graphics	2	1	3
MT-114	Calculus	3	0	3					
ES-105	Pakistan Studies OR	2	0	2	EE-118	Basic Electricity and Electronics	3	1	4
ES-127	Pakistan Studies (for Foreigner)				CY-109	Applied Chemistry	3	1	4
ME-104	Workshop Practice	0	2	2					

SECOND YEAR

Fall Semester				Spring Semester					
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
AU-241	Automotive Propulsion	3	1	4	IM-209	Mechanics of Materials	3	1	4
AU-212	Computer Programming and Applications	2	1	3	ME-311	Manufacturing Processes	3	1	4
AU-225	Fundamentals of Analogue and Digital Electronics	2	1	3	EE-376	Feedback Control Systems	3	0	3
MT-223	Ordinary Differential Equations & Fourier Series	3	0	3	MT-330	Applied Probability & Statistics	2	1	3
ME-222	Dynamics	3	0	3	ME-209	Materials & Metallurgy	3	1	4
ES-205	Islamic Studies OR	2	0	2	EA-200	Community Service	-	-	NC
ES-209	Ethical Behaviour (for Non-Muslims)								

THIRD YEAR

Fall Semester				Spring Semester					
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
AU-313	Combustion, Emission and Pollution	3	0	3	AU-323	Vehicle Noise & Vibration	3	0	3
MT-332	Advanced Calculus & Linear Algebra	3	0	3	MF-303	Applied Economics for Engineers	3	0	3
EA-304	Business Communication & Ethics	3	0	3	AU-316	Vehicle Ride & Handling Lab	0	1	1
AU-317	Fluid Mechanics	3	0	3	AU-332	Automobile Instrumentation	2	1	3
AU-331	Automotive Embedded System	2	0	2	ME-315	Heat & Mass Transfer	3	1	4
AU-315	Design of Machine Elements	3	0	3	AU-333	Chassis System Design	2	0	2
AU-312	Modeling & Simulation Lab	0	1	1	###-###	Social Elective	2	0	2
					EA/ES-###	Foreign Language-I	-	-	NC

FINAL YEAR

Fall Semester				Spring Semester					
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
AU-424	Design for Manufacturing	2	0	2	AU-438	Electric & Hybrid Electric Vehicles	2	0	2
##-###	Technical Elective-I	2	0	2	AU-430	Quality Management & Reliability	2	0	2
AU-425	Thermal Management for Automotive	2	0	2	AU-428	Automotive Health Safety & Environment	2	0	2
##-###	Management Elective	2	0	2	AU-499	Automotive Engineering Project	0	3	3
ME-435	Operation Management	3	0	3	##-###	Technical Elective-II	3/2	1/0	3
AU-314	Vehicle Dynamics	2	0	2	MG-481	Entrepreneurship	3	0	3
AU-499	Automotive Engineering Project*	0	3	3					
EA/ES-###	Foreign Language-II	-	-	NC					

Technical Electives-I (to be chosen from the following)

AU-422	Automotive Transmission & Drives	2	0	2
AU-429	Vehicle Development	2	0	2
AU-435	Automotive Vendor Development	2	0	2
AU-436	Automotive Structure Design	2	0	2

Technical Electives-II (to be chosen from the following)

AU-417	Automotive Paints and Coatings	3	0	3
AU-442	FEM and FVM: Applications in Automotive Engineering	2	1	3
AU-434	Automotive Service & Dealership	3	0	3
ME-438	AI and Internet of Things	2	1	3

Management Electives (to be chosen from the following)

IM-###	Project Management	2	0	2
MG-483	Supply Chain Management	2	0	2
ME-434	Total Quality Management	2	0	2

Social Science Electives (to be chosen from the following)

MG-228	Sociology & Development	2	0	2
MG-257	Organizational Behavior	2	0	2
EA-321	Logic & Critical Thinking	2	0	2

* Duration one academic year: Requires literature survey and preliminary work during this Semester





3.1.9 Electrical Engineering

FIRST YEAR

Fall Semester					Spring Semester				
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
EE-125	Basic Electrical Engineering	3	1	4	EE-156	Engineering Drawing	0	2	2
PH-122	Applied Physics	3	1	4	EE-126	Circuit Analysis	3	1	4
EA-111	Functional English	2	0	2	MT-227	Differential Equation	3	0	3
ME-116	Basic Mechanical Engineering	3	0	3	CE-109	Engineering Surveying-I	2	1	3
MT-114	Calculus	3	0	3	EE-163	Computer and Programming	3	1	4
CS-113	Introduction to Computing	1	1	2	ES-105	Pakistan Studies OR	2	0	2
					ES-127	Pakistan Studies (For Foreigners)			

SECOND YEAR

Fall Semester					Spring Semester				
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
EL-240	Electronic Devices & Circuits	3	1	4	EE-282	Electromagnetic Fields	3	0	3
EE-264	Data Structures and Algorithms	2	1	3	EE-223	Instrumentation and Measurement	2	1	3
MT-272	Linear Algebra & Geometry	3	0	3	EE-232	Signals and Systems	3	1	4
MT-226	Multi Variable Calculus	3	0	3	TC-201	Digital Logic Design	2	1	3
EA-214	Academic Writing	3	0	3	MT-331	Probability and Statistics	3	0	3
ES-205	Islamic Studies OR	2	0	2	EA-200	Community Service	-	-	NC
ES-209	Ethical Behaviour								

THIRD YEAR

Fall Semester					Spring Semester				
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
EE-346	Electrical Machines-I	2	1	3	EE-362	Power System Analysis	3	1	4
EE-395	Digital Signal Processing	2	1	3	EE-347	Electrical Machines-II	2	1	3
EE-359	Electrical Power Distribution and Utilization	3	1	4	EE-354	Embedded Systems	2	1	3
EE-313	Power Electronics	3	1	4	TC-306	Communication Systems	3	0	3
MT-442	Numerical Methods	3	0	3	EA-304	Business Communication & Ethics	3	0	3
					EA/ES-###	Foreign Language-I	-	-	NC

FINAL YEAR

Fall Semester					Spring Semester				
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
EE-457	Electrical Power System Protection	3	1	4	MG-482	Organizational Behavior	3	0	3
EF-304	Occupational Safety and Health	2	0	2	MG-481	Entrepreneurship	3	0	3
EE-352	Electrical Power Transmission	3	0	3	CS-439	Computer Communication Networks	2	0	2
EE-375	Feedback Control Systems	3	1	4	EE-414	Power Generation	3	0	3
EE-401	Electrical Engineering Project*	0	3	3	EF-305	Engineering Economics & Management	3	0	3
EA/ES-###	Foreign Language-II	-	-	NC	EE-401	Electrical Engineering Project	0	3	3

* Duration one academic year: Requires literature survey and preliminary work during this Semester





3.1.10 Computer Systems Engineering

FIRST YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
CS-114	Fundamentals of Computer Engineering	3 1 4	EL-103	Basic Electronics	3 1 4
EE-120	Basic Electrical Engineering	3 1 4	CS-116	Object Oriented Programming	3 1 4
EA-111	Functional English	2 0 2	PH-122	Applied Physics	3 1 4
CS-115	Computer Programming	3 1 4	CS-117	Discrete Structures	3 0 3
ES-106	Pakistan Studies OR	1 0 1	ES-205	Islamic Studies OR	2 0 2
ES-107	Pakistan Studies (For Foreigners)		ES-209	Ethical Behaviour	
MT-114	Calculus	3 0 3			

SECOND YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
CS-220	Digital Logic Design	3 1 4	CS-221	Computer Organization & Design	3 1 4
MT-224	Complex Variable & Fourier Analysis	3 0 3	CS-215	Signals and Systems	2 1 3
EE-217	Circuit Theory	2 0 2	CS-222	Database Management Systems	3 1 4
CS-218	Data Structures and Algorithms	3 1 4	MT-222	Linear Algebra & Ordinary Differential Equation	3 0 3
EA-218	Business Communication	2 1 3	EA-219	Professional Ethics	2 0 2
CS-219	Computer Engineering Workshop	0 1 1	EA-200	Community Service	- - NC

THIRD YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
MT-335	Probability and Statistics	3 0 3	CS-329	Operating Systems	3 1 4
CS-326	Software Engineering	3 1 4	CS-301	Microprocessor Based System Design	3 1 4
CS-327	Computer Communication Networks	3 1 4	##-###	Elective-I	3 1 4
CS-328	Computer Architecture	3 0 3	MT-442	Numerical Methods	3 0 3
CS-323	Artificial Intelligence	3 1 4	EF-305	Engineering Economics & Management	3 0 3
			EA/ES-###	Foreign Language-I	- - NC

FINAL YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
CS-425	Entrepreneurship of Computer Engineers	3 0 3	CS-406	Computer Engineering Project	0 3 3
CS-419	Digital Signal Processing	3 1 4	CS-438	Computer Systems Modelling	3 0 3
CS-431	Digital System Design	3 1 4	CS-432	Distributed Computing	2 1 3
CS-406	Computer Engineering Project*	0 3 3	##-###	Elective-3	2 1 3
##-###	Elective-2	2 0 2	MG-482	Organizational Behaviour	3 0 3
EA/ES-###	Foreign Language-II	- - NC			

Elective-1 (3+1) (to be chosen from the following)

CS-330 Digital Communication Systems
CS-324 Machine Learning
CS-325 Software Development & Testing

Elective-2 (2+0) (to be chosen from the following)

CS-433 Internet Computing
CS-434 Bioinformatics
CS-435 Software Project Management

Elective-3 (2+1) (to be chosen from the following)

CS-426 Computer Systems Security
CS-436 Computer Vision
CS-437 Parallel Programming

* Duration one academic year: Requires literature survey and preliminary work during this Semester





3.1.11 Electronic Engineering

FIRST YEAR

Fall Semester					Spring Semester				
Course Code	Course Title	Credit Th	Hours Pr	Total	Course Code	Course Title	Credit Th	Hours Pr	Total
EA-111	Functional English	2	0	2	EE-121	Circuit Analysis	3	1	4
EE-120	Basic Electrical Engineering	3	1	4	EL-106	Basic Electronic	3	1	4
MT-171	Differential & Integral Calculus	3	0	3	MT-227	Differential Equations	3	0	3
EL-104	Electronic Engineering Drawing and Workshop	0	2	2	ME-110	Basic Mechanical Engineering	2	0	2
PH-112	Applied Physics	2	1	3	CY-110	Applied Chemistry for Engineers	2	1	3
EL-105	Computer and Programming	3	1	4	ES-105	Pakistan Studies OR	2	0	2
					ES-127	Pakistan Studies (For Foreigners)			

SECOND YEAR

Fall Semester					Spring Semester				
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
EL-201	Electronic Devices and Circuits	3	1	4	EL-202	Integrated Circuits	3	1	4
EA-214	Academic Writing	3	0	3	CS-216	Data Structure & Algorithms	3	0	3
TC-202	Signals and Systems	2	1	3	EE-223	Instrumentation and Measurement	2	1	3
EE-382	Electromagnetic Fields	2	0	2	EE-246	Electrical Machines	2	1	3
MT-272	Linear Algebra & Geometry	3	0	3	ES-205	Islamic Studies OR	2	0	2
TC-201	Digital Logic Design	2	1	3	ES-209	Ethical Behaviour			
					TC-212	Digital Signal Processing	2	1	3
					EA-200	Community Service	-	-	NC

THIRD YEAR

Fall Semester					Spring Semester				
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
MT-331	Probability and Statistics	3	0	3	CS-430	Microprocessor Programming & Interfacing	3	1	4
TC-307	Communication Systems	3	1	4	EA-304	Business Communication & Ethics	3	0	3
EF-304	Occupational Safety & Health	2	0	2	EF-305	Engineering Economics & Management	3	0	3
EL-307	Power Electronics	3	1	4	EL-309	Artificial Intelligence and Machine Learning	2	0	2
EE-374	Feedback Control Systems	3	1	4	EL-308	Industrial Electronics	2	1	3
					EA/ES-###	Foreign Language-I	-	-	NC

FINAL YEAR

Fall Semester					Spring Semester				
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
MT-442	Numerical Methods	3	0	3	TC-421	Telecommunication Networks	3	1	4
EL-409	VLSI Systems Design	2	1	3	EL-421	Embedded Electronics	3	1	4
MG-482	Organizational Behavior	3	0	3	###-###	Elective	2	0	2
EL-422	Robotics	3	1	4	MG-481	Entrepreneurship	3	0	3
EL-401	Electronic Engineering Project*	0	3	3	EL-401	Electronic Engineering Project	0	3	3
EA/ES-###	Foreign Language-II	-	-	NC					

Elective Courses (to be chosen from the following)

EL-410	Nanoelectronics	2	0	2
EL-411	Optoelectronics	2	0	2
EL-412	Microwave and RF Circuits	2	0	2

* Duration one academic year: Requires literature survey and preliminary work during this Semester





3.1.12 Telecommunications Engineering

FIRST YEAR

Fall Semester					Spring Semester				
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
EA-111	Functional English	2	0	2	EL-103	Basic Electronics	3	1	4
TC-106	Computer Programming	3	1	4	CY-110	Applied Chemistry for Engineers	2	1	3
EE-120	Basic Electrical Engineering	3	1	4	EE-121	Circuit Analysis	3	1	4
MT-114	Calculus	3	0	3	EL-104	Electronic Engineering Drawing and Workshop	0	2	2
ES-105	Pakistan Studies OR	2	0	2	MT-227	Differential Equations	3	0	3
ES-127	Pakistan Studies (For Foreigners)								
PH-112	Applied Physics	2	1	3					

SECOND YEAR

Fall Semester					Spring Semester				
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
EE-382	Electromagnetic Fields	2	0	2	EF-305	Engineering Economics & Management	3	0	3
CS-216	Data Structure & Algorithms	3	0	3	EE-223	Instrumentation and Measurement	2	1	3
ES-205	Islamic Studies OR	2	0	2	EA-214	Academic Writing	3	0	3
ES-209	Ethical Behaviour (for Non-Muslims)				MT-272	Linear Algebra & Geometry	3	0	3
TC-205	Digital Logic Design	3	1	4	MT-331	Probability & Statistics	3	0	3
TC-206	Signals & Systems	3	0	3	TC-212	Digital Signal Processing	2	1	3
EL-201	Electronic Devices and Circuits	3	1	4	EA-200	Community Service	-	-	NC

THIRD YEAR

Fall Semester					Spring Semester				
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
EA-304	Business Communication and Ethics	3	0	3	TC-421	Telecommunication Networks	3	1	4
TC-317	Artificial Intelligence and Machine Learning	2	1	3	EF-304	Occupational Safety & Health	2	0	2
EE-374	Feedback Control System	3	1	4	TC-314	Wireless & Mobile Communication	3	1	4
TC-313	Antenna and Microwave Engineering	3	1	4	TC-315	Optical Fiber Communication	3	1	4
TC-307	Communication Systems	3	1	4	TC-311	Digital Communications and Information Theory	3	1	4
					EA/ES-###	Foreign Language-I	-	-	NC

FINAL YEAR

Fall Semester				Spring Semester					
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
MT-442	Numerical Methods	3	0	3	MG-481	Entrepreneurship	3	0	3
CS-430	Microprocessor Programming and Interfacing	3	1	4	TC-431	Wireless Technologies and RF Planning	2	0	2
##-###	Elective-I	2	0	2	TC-434	Telecommunication Switching Systems	2	1	3
MG-482	Organizational Behaviour	3	0	3	##-###	Elective-II	2	0	2
TC-490	Telecomm Engineering Project*	0	3	3	TC-490	Telecomm Engineering Project	0	3	3
EA/ES-###	Foreign Language-II	-	-	NC	TC-432	Communication Security	2	0	2

Elective-I (to be chosen from the following)

Elective-II (to be chosen from the following)

TC-429	Telecom Policies & Standards	2	0	2	TC-422	Satellite Communication	2	0	2
TC-430	Multimedia Communication Systems	2	0	2	TC-423	Navigational Aids and Radar Systems	2	0	2
TC-433	Internet of Things	2	0	2	TC-427	Digital Image Processing	2	0	2

* Duration one academic year: Requires literature survey and preliminary work during this Semester





3.1.13 Biomedical Engineering

FIRST YEAR

Fall Semester					Spring Semester				
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
MT-100	Introduction to Mathematics	4	0	4	MT-114	Calculus	3	0	3
BM-120	Introduction to Biology	3	1	4	EE-119	Fundamentals of Electrical Engineering	3	1	4
BM-101	Introduction to Biomedical Engineering	1	0	1	BM-114	Anatomy	3	1	4
CY-110	Applied Chemistry for Engineers	2	1	3	BM-115	Physiology-I	2	1	3
PH-127	Applied Physics for Engineers	2	1	3	ES-105	Pakistan Studies OR	2	0	2
EA-111	Functional English	2	0	2	ES-127	Pakistan Studies (for Foreigners)			
CS-113	Introduction to Computing	1	1	2	BM-130	Computer Aided Engineering Graphics	1	1	2

SECOND YEAR

Fall Semester				Spring Semester					
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
EE-217	Circuit Theory	2	0	2	BM-222	Engineering Mechanics for Biomedical Engineers	3	0	3
BM-209	Basic Electronics	3	1	4	MT-223	Ordinary Differential Equations & Fourier Series	3	0	3
CS-109	Computer Programming	2	1	3	BM-203	Cellular and Molecular Biology	2	0	2
MT-272	Linear Algebra & Geometry	3	0	3	TC-201	Digital Logic Design	2	1	3
BM-230	Biochemistry	2	1	3	ES-205	Islamic Studies OR	2	0	2
BM-116	Physiology-II	2	1	3	ES-209	Ethical Behaviour			
					BM-208	Biomedical Electronics	3	1	4
					EA-200	Community Service	-	-	NC

THIRD YEAR

Fall Semester				Spring Semester					
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
BM-307	Bioinformatics	2	1	3	BM-310	Control Systems for Biomedical Engineers	2	1	3
BM-312	Biostatistics	2	1	3	BM-311	Bioinstrumentation & Measurements-II	3	1	4
EF-305	Engineering Economics and Management	3	0	3	EA-202	Business Communication	3	0	3
BM-306	Bioinstrumentation & Measurements-I	3	1	4	BM-313	Biomaterials	3	1	4
CS-430	Microprocessor Programming and Interfacing	3	1	4	EE-493	Digital Signal Processing	3	1	4
					EA/ES-###	Foreign Language-I	-	-	NC

FINAL YEAR

Fall Semester					Spring Semester				
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
##-###	Electives-1	3/2	0/1	3	BM-413	Bio-Medical Engineering Project	0	3	3
##-###	Electives-2	3/2	0/1	3	MG-481	Entrepreneurship	3	0	3
BM-401	Numerical Methods for Biomedical Engineering	3	0	3	BM-452	Modelling and Simulation for Biomedical Engineers	2	1	3
BM-406	Biomedical Imaging	2	1	3					
BM-451	Biosignal Processing	2	1	3	##-###	Electives-3	3/2	0/1	3
BM-413	Bio-Medical Engineering Project*	0	3	3	EA-219	Professional Ethics	2	0	2
EA/ES-###	Foreign Language-II	-	-	NC	##-###	Electives-4	3/2	0/1	3

Elective Courses (to be chosen from the following)

BM-421	Genetic Engineering	3	0	3	BM-426	Ergonomics	3	0	3
BM-422	Biotechnology	2	1	3	BM-427	Product Design in Biomedical Engineering	3	0	3
BM-423	Introduction to Robotics	2	1	3	BM-429	Tissue Engineering	2	1	3
BM-424	Fluid Dynamics	3	0	3	BM-430	Rehabilitation Engineering	2	1	3
BM-425	Telemedicine	3	0	3	BM-431	Biophotonics	3	0	3
BM-404	Biomechanics	2	1	3	BM-432	Neuroscience & Neural Networks	2	1	3
BM-435	Biophysics	3	0	3					

* Duration one academic year: Requires literature survey and preliminary work during this Semester





3.1.14 Software Engineering

FIRST YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
SE-101	Programming Fundamentals	2 1 3	SE-201	Object Oriented Concepts & Programming	3 1 4
CT-174	Fundamentals of Information Technology	2 1 3	PH-122	Applied Physics	3 1 4
CT-162	Discrete Structures	3 0 3	SE-207	Software Engineering	3 0 3
EA-111	Functional English	2 0 2	EA-115	Academic Reading and Writing	3 0 3
MT-173	Calculus	3 0 3	ES-205	Islamic Studies OR	2 0 2
ES-105	Pakistan Studies OR	2 0 2	ES-209	Ethical Behaviour	
ES-127	Pakistan Studies (for Foreigners)				
EF-100	Occupational Health and Safety	1 0 1			

SECOND YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
CT-157	Data Structure Algorithms & Applications	3 1 4	MT-224	Complex Variables & Fourier Analysis	3 0 3
SE-308	Software Design & Architecture	2 1 3	MT-331	Probability & Statistics	3 0 3
SE-209	Computer Architecture and Logic Design	3 1 4	SE-312	Software Construction & Development	2 1 3
MT-273	Differential Equations & Linear Algebra	3 0 3	SE-204	Database Management Systems	3 1 4
EA-208	Business Communications	3 0 3	EF-206	Engineering Economics and Management	2 0 2
			CT-363	Design and Analysis of Algorithms	3 0 3
			EA-200	Community Service	- - NC

THIRD YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
CS-351	Computer Communication Networks	3 1 4	SE-322	Software Quality Engineering	3 0 3
MG-212	Technology Management	3 0 3	SE-310	Software Project Management	3 0 3
SE-303	Operating Systems	3 1 4	SE-313	Formal Methods in Software Engineering	3 0 3
SE-311	E-Commerce	3 0 3	##-###	Elective I	3 0 3
MT-471	Applied Numerical Methods	2 1 3	SE-304	Human Computer Interaction	2 1 3
			SE-412	Artificial Intelligence	3 0 3
			EA/ES-###	Foreign Language-I	- - NC

FINAL YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
SE-401	Information Security	3 0 3	SE-491	Entrepreneurship & Marketing for Software Engineers	2 0 2
SE-490	Cloud Computing	2 1 3	SE-403	Internet of Things	3 0 3
SE-484	Software Testing Strategies & Techniques	3 1 4	SE-485	Software Reliability Engineering	3 0 3
##-###	Elective II	2 1 3	##-###	Elective III	3 1 4
SE-499	Software Engineering Project*	0 3 3	SE-499	Software Engineering Project	0 3 3
EA/ES-###	Foreign Language-II	- - NC			
Elective – I (to be chosen from the following)			Elective – II (to be chosen from the following)		
SE-486	Information Systems Engineering	3 0 3	SE-458	Mobile Application Development	2 1 3
SE-318	Social Network Analysis	3 0 3	SE-455	Distributed Processing	2 1 3
CT-358	Fuzzy Systems	3 0 3	SE-456	Data Warehouse Mining	2 1 3
CT-359	Knowledge Based Systems	3 0 3	SE-402	Embedded Systems	2 1 3
SE-408	Design Patterns	3 0 3	CT-403	Blockchain Technologies	2 1 3
			SE-317	Machine Learning	2 1 3
Elective – III (to be chosen from the following)					
SE-315	Big Data Analytics	3 1 4	CS-330	Digital Communication System	3 1 4
SE-488	Computer Vision Fundamentals	3 1 4	SE-468	Deep Learning	3 1 4
CT-485	Natural Language Processing	3 1 4	SE-469	Reinforcement Learning	3 1 4
SE-316	Data Encryption and Security	3 1 4			

* Duration one academic year: Requires literature survey and preliminary work during this Semester





3.1.15 Chemical Engineering

FIRST YEAR

Fall Semester				Spring Semester			
Course Code	Course Title	Credit Hours		Course Code	Course Title	Credit Hours	
		Th	Pr Total			Th	Pr Total
CH-104	Chemical Engineering Principles	3	1 4	CH-106	Applied Chemistry	2	1 3
ME-101	Engineering Mechanics	3	1 4	CH-107	Chemical Engineering Thermodynamics-I	2	1 3
ME-104	Workshop Practice	0	2 2	ME-111	Engineering Drawing	2	1 3
EA-104	Functional English	3	0 3	EE-118	Basic Electricity & Electronics	3	1 4
PH-122	Applied Physics	3	1 4	MT-114	Calculus	3	0 3
				ES-105	Pakistan Studies OR	2	0 2
				ES-127	Pakistan Studies (for Foreigners)		

SECOND YEAR

Fall Semester				Spring Semester			
Course Code	Course Title	Credit Hours		Course Code	Course Title	Credit Hours	
		Th	Pr Total			Th	Pr Total
CH-208	Analytical Chemistry	2	1 3	CH-213	Chemical Process Industries	2	0 2
CH-210	Chemical Engineering Thermodynamics-II	2	1 3	ME-209	Materials & Metallurgy	3	1 4
CH-209	Fluid Mechanics-I	2	1 3	CH-211	Fluid Mechanics-II	2	1 3
MM-205	Mechanics of Materials	3	1 4	MT-223	Differential Equation & Fourier Series	3	0 3
IM-207	Computer Programming & Drafting	2	1 3	ES-205	Islamic Studies OR	2	0 2
				ES-209	Ethical Behaviour		
				CH-212	Particulate Technology	2	1 3
				EA-200	Community Service	-	- NC

THIRD YEAR

Fall Semester				Spring Semester			
Course Code	Course Title	Credit Hours		Course Code	Course Title	Credit Hours	
		Th	Pr Total			Th	Pr Total
CH-310	Fuel & Energy	2	1 3	CH-302	Separation Processes	3	1 4
CH-307	Heat Transfer	3	1 4	CH-306	Chemical Process Control	3	1 4
CH-309	Chemical Reaction Engineering	3	1 4	EA-304	Business Communication & Ethics	3	0 3
CH-311	Mass Transfer	3	1 4	MT-331	Probability and Statistics	3	0 3
MT-332	Advanced Calculus & Linear Algebra	3	0 3	PF-303	Applied Economics for Engineers	3	0 3
				EA/ES-###	Foreign Language-I	-	- NC

FINAL YEAR

Fall Semester				Spring Semester			
Course Code	Course Title	Credit Hours		Course Code	Course Title	Credit Hours	
		Th	Pr Total			Th	Pr Total
CH-401	Process Modelling & Simulation	3	1 4	CH-417	Industrial Safety & Maintenance Management	2	0 2
CH-414	Chemical Plant Design	2	0 2	CH-418	Industrial Organization & Management	2	0 2
CE-427	Introduction to Entrepreneurship & Opportunity Assessment	2	0 2	###-###	Elective Course	3	1 4
CH-416	Petroleum Refinery & Petrochemical	2	1 3	CH-404	Chemical Process Optimization	3	1 4
MT-441	Advanced Mathematical Techniques	3	0 3	CH-415	Transport Phenomena	3	0 3
CH-499	Chemical Engineering Project*	0	3 3	CH-499	Chemical Engineering Project	0	3 3
EA/ES-###	Foreign Language-II	-	- NC				

Inter-Disciplinary Elective (to be chosen from the following)

- CH-408 Polymer Technology
- CH-410 Water Purification Process
- CH-411 Environmental Pollution Control
- CH-412 Biochemical Engineering
- CH-413 Gas Engineering

* Duration one academic year: Requires literature survey and preliminary work during this Semester





3.1.16 Polymer & Petrochemical Engineering

FIRST YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
PP-105	Introduction to Petrochemicals	2 0 2	PP-104	Introduction to Polymers	3 1 4
PP-106	Thermodynamics-I	2 0 2	ME-101	Engineering Mechanics	3 1 4
EA-104	Functional English	3 0 3	ME-111	Engineering Drawing	2 1 3
PH-122	Applied Physics	3 1 4	ES-105	Pakistan Studies OR	2 0 2
MT-114	Calculus	3 0 3	ES-127	Pakistan Studies (for Foreigners)	
PP-103	Workshop Practice	0 1 1	EE-118	Basic Electricity and Electronics	3 1 4

SECOND YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
PP-203	Principles of Chemical Processes	2 1 3	PP-202	Polymer Physics	3 0 3
PP-207	Fluid Mechanics	3 0 3	PP-205	Petroleum & Petrochemical Products	2 0 2
PP-209	Thermodynamics-II	3 0 3	PP-212	Polymeric Materials & Their Characterization	3 0 3
PP-211	Computer Programming and Application	2 1 3	MM-205	Mechanics of Material	3 1 4
MT-330	Applied Probability and Statistics	2 1 3	MT-215	Differential Equations & Complex Variables	3 0 3
ES-205/	Islamic Studies OR	2 0 2	PP-222	Polymer & Petrochemical Lab-II	0 1 1
ES-209	Ethical Behaviour		EA-200	Community Service	- - NC
PP-221	Polymer & Petrochemical Lab-I	0 1 1			

THIRD YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
PP-210	Polymer Processing	2 0 2	PP-301	Process Control & Instrumentation	3 0 3
PP-307	Polymer Composites	3 0 3	PP-305	Fuels & Combustion	2 0 2
PP-308	Heat Transfer	3 0 3	PP-310	Industrial Organization and Management	2 1 3
PP-309	Mass Transfer	3 0 3	PP-311	Chemical Reaction Engineering	3 0 3
MT-471	Applied Numerical Method	2 1 3	PF-303	Applied Economics for Engineers	3 0 3
PP-321	Polymer & Petrochemical Lab-III	0 1 1	EA-304	Business Communication and Ethics	3 0 3
PP-322	Polymer & Petrochemical Lab-IV	0 1 1	PP-323	Polymer & Petrochemical Lab-V	0 1 1
			EA/ES-###Foreign Language-I		- - NC

FINAL YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
PP-402	Petrochemical Processes	3 1 4	PP-403	Plant Utilities & Safety	2 1 3
PP-406	Process Equipment Design	3 0 3	PP-430	Mechanical Properties of Polymers	2 0 2
PP-410	Polymer Reaction Engineering	3 0 3	PP-414	Petroleum Refinery Engineering	2 1 3
PP-411	Separation Processes	3 1 4	##-###	Elective Course	2/1 0/1 2
PP-413	Process Optimization	3 0 3	MG-481	Entrepreneurship	3 0 3
PP-421	Polymer & Petrochemical Lab-VI	0 1 1	PP-408	Polymer and Petrochemical Engineering Project	0 3 3
PP-408	Polymer and Petrochemical Engineering Project*	0 3 3			
EA/ES-###	Foreign Language-II	- - NC			

Elective Courses (to be chosen from the following)

PP-412	Environmental Engineering	2 0 2
PP-425	Polymer Rheology	2 0 2
PP-427	Rubber Technology	2 0 2
PP-428	Process Modeling & Simulation	1 1 2
PP-429	Gas Engineering	2 0 2

* Duration one academic year: Requires literature survey and preliminary work during this Semester





3.1.17 Materials Engineering

FIRST YEAR

Fall Semester				Spring Semester					
Course Code	Course Title	Credit		Hours Total	Course Code	Course Title	Credit		Hours Total
		Th	Pr				Th	Pr	
MM-102	Introduction to Engineering Materials	2	0	2	EE-118	Basic Electricity & Electronics	3	1	4
ME-101	Engineering Mechanics	3	1	4	AU-102	Engineering Drawing and Computer Graphics	2	1	3
ME-104	Workshop Practice	0	2	2	CY-109	Applied Chemistry	3	1	4
PH-122	Applied Physics	3	1	4	MT-114	Calculus	3	0	3
EA-104	Functional English	3	0	3	ES-105	Pakistan Studies OR	2	0	2
					ES-127	Pakistan Studies (for Foreigners)			

SECOND YEAR

Fall Semester					Spring Semester				
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
MM-201	Physical Metallurgy	3	1	4	ES-205	Islamic Studies OR	2	0	2
MM-204	Engineering Ceramics and Refractory Materials	3	0	3	ES-209	Ethical Behaviour			
MM-205	Mechanics of Materials	3	1	4	IM-207	Computer Programming and Drafting	2	1	3
MT-215	Differential Equations and Complex Variables	3	0	3	MM-202	Production and Refining of Materials	3	0	3
MY-211	Metallurgical Thermodynamics & Kinetics	3	0	3	MM-208	Fundamentals of Modern Manufacturing and Foundry	3	1	4
					MM-307	Joining of Materials	3	1	4
					MM-309	Construction Materials	2	0	2
					EA-200	Community Service	-	-	NC

THIRD YEAR

Fall Semester				Spring Semester					
Course Code	Course Title	Credit		Hours Total	Course Code	Course Title	Credit		Hours Total
		Th	Pr				Th	Pr	
MM-301	Corrosion: Protection and Prevention	3	1	4	MM-305	Polymer and Composite Materials	3	1	4
MM-303	Inspection and Testing of Materials	3	1	4	MM-308	Materials Characterisation and Analytical Techniques	3	1	4
MM-304	Heat Treatment of Materials	3	1	4					
EA-304	Business Communication and Ethics	3	0	3	PF-303	Applied Economics for Engineers	3	0	3
MT-315	Mathematical Methods	3	0	3	MG-481	Entrepreneurship	3	0	3
					MT-441	Advanced Mathematical Techniques	3	0	3
					EA/ES-###	Foreign Language-I	-	-	NC

FINAL YEAR

Fall Semester				Spring Semester					
Course Code	Course Title	Credit Hours		Course Code	Course Title	Credit Hours			
		Th	Pr			Total	Th	Pr	Total
MM-404	Phase Transformations in Materials	3	1	4	MM-402	Design and Selection of Materials	2	1	3
MM-411	Nanomaterials and Nanotechnology	3	0	3	##-###	Elective-II	3	0	3
MM-412	Surface Engineering	2	1	3	MM-415	Material Deformations and Failures: Mechanism and Analysis	3	0	3
##-###	Elective-I	2	0	2					
MM-414	Total Quality Management	3	0	3	MM-416	Biomedical and Functional Materials	2	0	2
MM-410	Materials Engineering Project*	0	3	3	IM-417	Health, Safety and Environment	2	1	3
EA/ES-###	Foreign Language-II	-	-	NC	MM-410	Materials Engineering Project	0	3	3

Elective – I (2 + 0) (to be chosen from the following)

Elective – II (3 + 0) (to be chosen from the following)

MM-413	Nuclear Materials	2	0	2	MY-402	Advanced Materials	3	0	3
MY-411	Vacuum Metallurgy	2	0	2	MY-409	Metallurgical Plants and Quality Control	3	0	3
MY-412	Metallurgy of Advanced Steels	2	0	2					

* Duration one academic year: Requires literature survey and preliminary work during this Semester





3.1.18 Metallurgical Engineering

FIRST YEAR

Fall Semester				Spring Semester					
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
MY-101	Introduction to Metallurgical Engg.	2	1	3	EE-116	Principles of Electrical Engineering	3	1	4
EA-111	Functional English	2	0	2	ME-101	Engineering Mechanics	3	1	4
PH-122	Applied Physics	3	1	4	CY-109	Applied Chemistry	3	1	4
ME-111	Engineering Drawing	2	1	3	ME-104	Workshop Practice	0	2	2
MT-114	Calculus	3	0	3	ES-105	Pakistan Studies OR	2	0	2
					ES-127	Pakistan Studies (for Foreigners)			

SECOND YEAR

Fall Semester				Spring Semester					
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
MT-215	Differential Equation and Complex Variables	3	0	3	MY-210	Iron Making Processes	2	0	2
MY-211	Metallurgical Thermodynamics and Kinetics	3	0	3	MY-208	Mineral Processing	2	1	3
MM-201	Physical Metallurgy	3	1	4	IM-207	Computer Programming and Drafting	2	1	3
EE-221	Instrumentation	3	1	4	MY-207	Mechanical Behaviour of Materials	2	1	3
ES-205	Islamic Studies OR	2	0	2	MY-209	Metal Forming and Shaping Processes	2	1	3
ES-209	Ethical Behaviour				MY-206	Furnances and Refractories	3	1	4
					EA-200	Community Service	-	-	NC

THIRD YEAR

Fall Semester				Spring Semester					
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
MM-303	Inspection and Testing of Materials	3	1	4	MY-304	Metallurgy of Welding	2	1	3
MY-308	Polymer & Composite Materials	2	1	3	MY-310	Non-Ferrous Extractive Metallurgy	3	0	3
MT-315	Mathematical Methods	3	0	3	EA-304	Business Communication and Ethics	3	0	3
MY-303	Foundry: Principles, Methods and Practice	3	1	4	MM-304	Heat Treatment of Materials	3	1	4
MG-481	Entrepreneurship	3	0	3	PF-303	Applied Economics for Engineers	3	0	3
					MY-309	Steel Making Processes	2	0	2
					EA/ES-###	Foreign Language-I	-	-	NC

FINAL YEAR

Fall Semester					Spring Semester				
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
MY-407	Design, Selection and Characterisation of	3	1	4	MY-409	Metallurgical Plants and Quality Control	3	0	3
MY-410	Engineering Materials	2	1	3	MY-406	Powder Metallurgy	2	1	3
MY-413	Fracture Mechanics and Failure Analysis	2	1	3	CH-407	Industrial Organization & Management	2	1	3
	Corrosion Engineering				MY-411	Vacuum Metallurgy	2	0	2
IM-417	Health Safety and Environment	2	1	3	MY-408	Metallurgical Engineering Project	0	3	3
MY-408	Metallurgical Engineering Project*	0	3	3	##-###	Elective-II	3	0	3
EA/ES-###	Foreign Language-II	-	-	NC					
##-###	Elective-I	2	0	2					

Elective – I (2 + 0) (to be chosen from the following)

Elective – II (3 + 0) (to be chosen from the following)

MM-408	High Temperature Materials and Superalloys	2	0	2	MY-402	Advanced Materials	3	0	3
MM-413	Nuclear Materials	2	0	2	MM-411	Nanomaterials and Nanotechnology	3	0	3
MY-412	Metallurgy of Advanced Steels	2	0	2					

* Duration one academic year: Requires literature survey and preliminary work during this Semester





3.1.19 Food Engineering

FIRST YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
BM-108	Computer Aided Engineering Graphics	1 2 3	ES-105	Pakistan Studies OR	2 0 2
CY-110	Applied Chemistry for Engineers	2 1 3	ES-127	Pakistan Studies (for Foreigners)	
FD-104	Introduction to Food Engineering	2 0 2	CS-103	Programming Languages	2 2 4
EA-104	Functional English	3 0 3	CY-108	Analytical Chemistry	3 1 4
MT-114	Calculus	3 0 3	EL-232	Electronics	3 1 4
PH-127	Applied Physics for Engineers	2 1 3	FD-105	Food Engineering Principles	2 0 2

SECOND YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
BM-201	Engineering Mechanics	3 1 4	FD-208	Food Biochemistry	2 1 3
FD-201	Thermodynamics	3 1 4	FD-210	Fluid Mechanics-II	2 1 3
FD-207	Food Chemistry	3 0 3	MM-205	Mechanics of Materials	3 1 4
FD-209	Fluid Mechanics-I	3 1 4	MT-332	Advance Calculus & Linear Algebra	3 0 3
MT-223	Differential Equ. & Fourier Series	3 0 3	ES-205	Islamic Studies OR	2 0 2
			ES-209	Ethical Behaviour	
			EA-200	Community Service	- - NC

THIRD YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
FD-301	Unit Operations in Food Engg.-I	3 1 4	FD-304	Food Microbiology	3 1 4
FD-309	Machine Design for Food Engineers	3 0 3	FD-307	Heat & Mass Transfer	3 1 4
FD-306	Instrumentation & Measurement for Food Engineers	3 1 4	FD-308	Unit Operations in Food Engg.-II	3 1 4
MT-330	Applied Probability & Statistics	2 1 3	MT-442	Numerical Method	3 0 3
EA-304	Business Communications & Ethics	3 0 3	BF-303	Applied Economics for Engineers	3 0 3
			EA/ES-###	Foreign Language-I	- - NC

FINAL YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
FD-410	Food Processing	3 0 3	FD-408	Food Regulations and Legislation	2 0 2
FD-402	Food Quality Control	3 0 3	###-###	Electives-III (Management Sciences)	3 0 3
FD-419	Process Control in Food Industry	2 1 3	###-###	Electives-IV (Social Sciences)	2 0 2
###-###	Electives-I (Food Engineering)	2 1 3	FD-420	Fundamentals of Food Packaging	3 1 4
###-###	Electives-II (Food Engineering)	2 1 3	FD-411	Food Plant Layout and Design	2 1 3
FD-430	Food Engineering Project*	0 3 3	FD-430	Food Engineering Project	0 3 3
EA/ES-###	Foreign Language-II	- - NC			

Elective-I and Elective - II (Food Engineering)

FD-403	Food Biotechnology	2 1 3	FD-414	Beverage Processing	2 1 3
FD-404	Sugar and Confectionery	2 1 3	FD-415	Meat, Poultry and Egg Processing	2 1 3
FD-409	Post Harvest Processing	2 1 3	FD-416	Food Product Development	2 1 3
FD-412	Dairy Processing	2 1 3	FD-417	Oil and Fats Processing	2 1 3
FD-413	Cereal Processing	2 1 3	FD-418	Food Plant Hygiene and Sanitation	2 1 3

Elective-III (Management Sciences)

CH-405	Ind. Safety and Maintenance Management	2 1 3
CH-407	Industrial Organisation and Management	3 0 3

Elective-IV (Social Sciences)

EA-219	Professional Ethics	2 0 2
MG-228	Sociology and Development	2 0 2

* Duration one academic year: Requires literature survey and preliminary work during this Semester





3.2 Bachelor of Science Programmes

3.2.1 Computer Science

FIRST YEAR (Common to all Specialisations)

Fall Semester					Spring Semester				
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
CT-175	Programming Fundamentals	3	1	4	CS-251	Logic Design and Switching Theory	3	1	4
CT-174	Fundamentals of Information Technology	2	1	3	CT-162	Discrete Structures	3	0	3
EA-104	Functional English	3	0	3	CT-260	Object Oriented Programming	3	1	4
PH-122	Applied Physics	3	1	4	MT-171	Differential and Integral Calculus	3	0	3
ES-205	Islamic Studies OR	2	0	2	ES-105	Pakistan Studies OR	2	0	2
ES-209	Ethical Behaviour (for Non-Muslims)				ES-127	Pakistan Studies (for Foreigners)			
MT-001	Mathematics-1 (for Pre-Medical)			NC	MT-002	Mathematics-2 (for Pre-Medical)			NC

SECOND YEAR (Common to all Specialisations)

Fall Semester					Spring Semester				
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
CT-159	Data Structure Algorithms and Applications	3	1	4	CS-252	Computer Architecture and Organization	3	1	4
MT-227	Differential Equations	3	0	3	CT-261	Database Management Systems	3	1	4
EA-115	Academic Reading and Writing	3	0	3	EA-218	Business Communication	2	1	3
EA-219	Professional Ethics	2	0	2	EC-209	Financial and Cost Accounting	3	0	3
MT-331	Probability and Statistics	3	0	3	MT-272	Linear Algebra and Geometry	3	0	3
					EA-200	Community Service			NC

THIRD YEAR (Computer Science)

Fall Semester				Spring Semester					
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
##-###	Computer Science Elective I	2	1	3	##-###	Computer Science Elective III	3	0	3
##-###	Computer Science Elective II	3	0	3	CT-376	Computer Communication Networks	3	1	4
CT-365	Software Engineering	3	0	3	CT-353	Operating Systems	3	1	4
CT-262	Introduction to Artificial Intelligence	2	1	3	CT-362	Web Engineering	3	1	4
CT-363	Design and Analysis of Algorithms	3	0	3	CT-367	Theory of Programming Languages	3	0	3
CT-364	Theory of Automata and Formal Languages	3	0	3	EA/ES-###	Foreign Language - I			NC

FINAL YEAR (Computer Science)

Fall Semester					Spring Semester				
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
CT-499	Computer Science Project*	0	3	3	CT-499	Computer Science Project	0	3	3
MG-482	Organisational Behaviour	3	0	3	##-###	Computer Science Elective V	3	1	4
##-###	Computer Science Elective IV	3	1	4	CS-428	Parallel and Distributed Computing	3	1	4
CT-486	Network and Information Security	3	1	4	CT-465	Compiler Design	3	0	3
CT-407	Human Computer Interaction	3	0	3	MG-481	Entrepreneurship	3	0	3
EA/ES-###	Foreign Language – II			NC					

Elective – I Computer Science (to be chosen from the following)

Elective – II Computer Science (to be chosen from the following)

CT-263	Object Oriented Analysis and Design	2	1	3	MT-442	Numerical Methods	3	0	3
CT-264	Programming for Artificial Intelligence	2	1	3	CT-377	Data Mining	3	0	3
CT-368	Fundamentals of Data Science	2	1	3	CT-378	Machine Learning	3	0	3
CT-266	Fundamentals of Cybersecurity	2	1	3					
CT-267	Fundamentals of Game Development	2	1	3					





Elective – III Computer Science (to be chosen from the following)

CT-366	E-Commerce	3	0	3
CT-485	Natural Language Processing	3	0	3
CT-403	Blockchain Technologies	2	1	3
CT-464	Modeling and Simulation	3	0	3

Elective – IV Computer Science (to be chosen from the following)

CT-352	Computer Graphics	3	1	4
CT-487	Visual Programming	3	1	4
CT-488	Distributed Computing	3	1	4

Elective – V Computer Science (to be chosen from the following)

CT-463	Data Warehouse Mining	3	1	4
CT-481	Wireless Network and Mobile Computing	3	1	4
CT-484	Introduction to Cyber Security	3	1	4

THIRD YEAR (Specialisation: Artificial Intelligence)

Fall Semester				Spring Semester			
Course Code	Course Title	Credit Hours		Course Code	Course Title	Credit Hours	
Th	Pr	Total		Th	Pr	Total	
##-###	Artificial Intelligence Elective I	2	1	##-###	Artificial Intelligence Elective III	3	0
##-###	Artificial Intelligence Elective II	3	0	CT-363	Design and Analysis of Algorithms	3	0
CT-361	Artificial Intelligence and Expert Systems	3	1	CT-376	Computer Communication Networks	3	1
CT-353	Operating Systems	3	1	CS-428	Parallel and Distributed Computing	3	1
CT-365	Software Engineering	3	0	CT-354	Machine Learning	3	1
				EA/ES-###	Foreign Language - I		NC

FINAL YEAR (Specialisation: Artificial Intelligence)

Fall Semester				Spring Semester			
Course Code	Course Title	Credit Hours		Course Code	Course Title	Credit Hours	
Th	Pr	Total		Th	Pr	Total	
CT-499	Computer Science Project*	0	3	CT-499	Computer Science Project	0	3
##-###	Artificial Intelligence Elective IV	3	0	##-###	Artificial Intelligence Elective V	3	0
CT-466	Artificial Neural Networks	3	0	CT-486	Network and Information Security	3	1
CT-485	Natural Language Processing	3	0	CT-467	Image Processing and Computer Vision	3	1
MG-482	Organisational Behaviour	3	0	MG-481	Entrepreneurship	3	0
CT-351	Knowledge Representation and Reasoning	3	0				
EA/ES-###	Foreign Language - II		NC				

Elective – I Artificial Intelligence (to be chosen from the following)

CT-263	Object Oriented Analysis and Design	2	1	3
CT-264	Programming for Artificial Intelligence	2	1	3
CT-368	Fundamentals of Data Science	2	1	3
CT-266	Fundamentals of Cybersecurity	2	1	3
CT-267	Fundamentals of Game Development	2	1	3

Elective – II & III Artificial Intelligence (to be chosen from the following)

CT-358	Fuzzy Systems	3	0	3
CT-359	Knowledge Based Systems	3	0	3
CT-377	Data Mining	3	0	3
CT-357	Speech Processing	3	0	3

Elective – IV Artificial Intelligence (to be chosen from the following)

CT-468	Deep Learning	3	0	3
CT-403	Blockchain Technologies	2	1	3
CT-470	Swarm Intelligence	3	0	3

Elective – V Artificial Intelligence (to be chosen from the following)

CT-469	Reinforcement Learning	3	0	3
CT-410	Generative AI	3	0	3

THIRD YEAR (Specialisation: Data Science)

Fall Semester				Spring Semester			
Course Code	Course Title	Credit Hours		Course Code	Course Title	Credit Hours	
Th	Pr	Total		Th	Pr	Total	
##-###	Data Science Elective I	2	1	##-###	Data Science Elective III	3	0
##-###	Data Science Elective II	3	0	CT-356	Data Mining	3	1
CT-265	Introduction to Tools and Techniques for Data Science	2	1	CT-376	Computer Communication Networks	3	1
CT-365	Software Engineering	3	0	CT-363	Design and Analysis of Algorithms	3	0
CT-361	Artificial Intelligence and Expert Systems	3	1	CT-353	Operating Systems	3	1
				EA/ES-###	Foreign Language - I		NC





FINAL YEAR (Specialisation: Data Science)

Fall Semester					Spring Semester				
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
CT-499	Computer Science Project*	0	3	3	CT-499	Computer Science Project	0	3	3
##-###	Data Science Elective IV	3	0	3	##-###	Data Science Elective V	3	0	3
CT-472	Data Warehousing and Business Intelligence	3	1	4	MG-482	Organisational Behaviour	3	0	3
CT-471	Data Analysis and Visualisation	3	1	4	MG-481	Entrepreneurship	3	0	3
CS-428	Parallel and Distributed Computing	3	1	4	CT-355	Information Security	3	0	3
EA/ES-###	Foreign Language - II			NC	CT-410	Generative AI	3	0	3
Elective – I Data Science (to be chosen from the following)					Elective – II & III Data Science (to be chosen from the following)				
CT-263	Object Oriented Analysis and Design	2	1	3	CT-369	Business Process Analysis	3	0	3
CT-264	Programming for Artificial Intelligence	2	1	3	CT-370	Platform and Architecture for Data Science	3	0	3
CT-368	Fundamentals of Data Science	2	1	3	CT-378	Machine Learning	3	0	3
CT-266	Fundamentals of Cybersecurity	2	1	3	CT-357	Speech Processing	3	0	3
CT-267	Fundamentals of Game Development	2	1	3					
Elective – IV Data Science (to be chosen from the following)					Elective – V Data Science (to be chosen from the following)				
CT-466	Artificial Neural Networks	3	0	3	CT-468	Deep Learning	3	0	3
CT-403	Blockchain Technologies	2	1	3	CT-473	Cloud Computing	3	0	3
CT-475	Privacy Preservation	3	0	3	CT-474	Text Mining	3	0	3

THIRD YEAR (Specialisation: Cyber Security)

Fall Semester				Spring Semester					
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
##-###	Cyber Security Elective I	2	1	3	##-###	Cyber Security Elective III	3	0	3
##-###	Cyber Security Elective II	3	0	3	MG-482	Organisational Behaviour	3	0	3
CT-363	Design and Analysis of Algorithms	3	0	3	CT-361	Artificial Intelligence and Expert Systems	3	1	4
CT-365	Software Engineering	3	0	3	CT-353	Operating Systems	3	1	4
CT-476	Information Assurance	3	0	3	CT-376	Computer Communication Networks	3	1	4
CT-355	Information Security	3	0	3	EA/ES-###	Foreign Language - I			NC

FINAL YEAR (Specialisation: Cyber Security)

Fall Semester					Spring Semester				
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
CT-499	Computer Science Project*	0	3	3	CT-499	Computer Science Project	0	3	3
##-###	Cyber Security Elective IV	3	0	3	##-###	Cyber Security Elective V	3	0	3
CT-486	Network and Information Security	3	1	4	CT-477	Secure Software Design and Development	3	1	4
CS-428	Parallel and Distributed Computing	3	1	4	MG-481	Entrepreneurship	3	0	3
CT-371	Vulnerability Assessment and Reverse Engineering	3	1	4	CT-478	Digital Forensics	2	1	3
EA/ES-###	Foreign Language - II			NC					
Elective – I Cyber Security (to be chosen from the following)					Elective – II & III Cyber Security (to be chosen from the following)				
CT-263	Object Oriented Analysis and Design	2	1	3	CT-374	Cybersecurity Laws and Regulations	3	0	3
CT-264	Programming for Artificial Intelligence	2	1	3	CT-375	Cryptography and Cryptanalysis	3	0	3
CT-368	Fundamentals of Data Science	2	1	3	CT-372	Wireless and Mobile Security	3	0	3
CT-266	Fundamentals of Cybersecurity	2	1	3	CT-373	Penetration Testing	3	0	3
CT-267	Fundamentals of Game Development	2	1	3					
Elective – IV Cyber Security (to be chosen from the following)					Elective – V Cyber Security (to be chosen from the following)				
CT-479	Hardware Security	3	0	3	CT-480	Malware Analysis	3	0	3
CT-403	Blockchain Technologies	2	1	3	CT-483	Quantum Security	3	0	3
CT-482	Embedded Systems Security	3	0	3					



THIRD YEAR (Specialisation: Gaming and Animation)

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
##-###	Gaming and Animation Elective I	3 0 3	##-###	Gaming and Animation Elective III	3 0 3
##-###	Gaming and Animation Elective II	2 1 3	CT-353	Operating Systems	3 1 4
CT-379	Game Programming	3 1 4	CT-376	Computer Communication Networks	3 1 4
CT-363	Design and Analysis of Algorithms	3 0 3	CT-382	Game Design and Development	3 1 4
CT-365	Software Engineering	3 0 3	CT-383	Design of AR and VR Applications	1 2 3
CT-380	Regulations and Ethics in Gaming Industry	2 0 2	EA/ES-###	Foreign Language - I	NC

FINAL YEAR (Specialisation: Gaming and Animation)

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
CT-499	Computer Science Project*	0 3 3	CT-499	Computer Science Project	0 3 3
##-###	Gaming and Animation Elective IV	3 0 3	##-###	Gaming and Animation Elective V	3 0 3
CT-361	Artificial Intelligence and Expert Systems	3 1 4	CT-404	Motion Capture and Digital Animation	3 1 4
CT-409	Mobile Application Development	2 1 3	CS-428	Parallel and Distributed Computing	3 1 4
CT-486	Network and Information Security	3 1 4	MG-481	Entrepreneurship	3 0 3
EA/ES-###	Foreign Language - II	NC			

Elective – I Gaming and Animation (to be chosen from the following)

Elective – II & III Gaming and Animation (to be chosen from the following)

CT-263	Object Oriented Analysis and Design	2 1 3	CT-384	Graphics Design	2 1 3
CT-264	Programming for Artificial Intelligence	2 1 3	CT-381	Modeling and Animation	1 2 3
CT-368	Fundamentals of Data Science	2 1 3	CT-364	Theory of Automata and Formal Languages	3 0 3
CT-266	Fundamentals of Cybersecurity	2 1 3	CT-385	Art for Games	2 1 3
CT-267	Fundamentals of Game Development	2 1 3	CT-386	Storyboarding and Previsualization	3 0 3
			CT-387	Video Games and Creative Writing	3 0 3

Elective – IV Gaming and Animation (to be chosen from the following)

Elective – V Gaming and Animation (to be chosen from the following)

CT-401	Web 3D Programming	2 1 3	CT-406	Metaverse and its Applications	2 1 3
CT-402	Multicore and GPU Programming	2 1 3	CT-407	Human Computer Interaction	3 0 3
CT-403	Blockchain Technologies	2 1 3	CT-408	Interactive Games and Audio	3 0 3
CT-405	Software Security	2 1 3			





3.2.2 Textile Sciences

FIRST YEAR

Fall Semester				Spring Semester					
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
TE-111	Textile Chemistry	3	1	4	TE-211	Textile Yarn Manufacturing Processes	3	1	4
ME-110	Basic Mechanical Engineering	2	0	2	MT-114	Calculus	3	0	3
EA-114	Functional English	2	0	2	ES-105	Pakistan Studies OR	2	0	2
TS-119	Introduction to Textiles	2	0	2	ES-127	Pakistan Studies (for foreigners)			
TE-234	Polymer & Fibre Science	2	1	3	PH-122	Applied Physics	3	1	4
ES-205	Islamic Studies OR	2	0	2	EA-115	Academic Reading and Writing	3	0	3
ES-209	Ethical Behaviour (for non muslims)								
MT-100	Introduction to Mathematics	-	-	NC					

SECOND YEAR

Fall Semester					Spring Semester				
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
IM-207	Computer Programming & Drafting	2	1	3	MF-303	Applied Economics for Engineers	3	0	3
TS-209	Colour Science	2	1	3	TS-364	Knitting Technology	3	1	4
TS-341	Advanced Yarn Production Processes	3	1	4	TS-480	Technical Textiles	3	0	3
TE-322	Textile Fabric Manufacturing Processes	3	1	4	TS-245	Pre-treatment in Textiles	3	1	4
MT-225	Linear Algebra & Ordinary Differential Equations	3	0	3	TS-243	Textile Testing-I	2	1	3
					EA-200	Community Service	-	-	NC

THIRD YEAR

Fall Semester					Spring Semester				
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
TS-465	Advanced Febric Manufacturing Techniques	3	0	3	TE-318	Textile & Environment	2	0	2
TE-307	Utilities for Textile Industry	3	1	4	TE-453	Garment Manufacturing	3	0	3
TS-356	Textile Dyeing	3	1	4	TS-358	Textile Printing	3	1	4
TS-357	CAD/CAM in Apparel Industry	3	1	4	TS-371	Textile Testing-II	2	1	3
EA-304	Business Communication & Ethics	3	0	3	TS-359	Denim Manufacturing Process	3	0	3
					EA/ES-###	Foreign Language-I	-	-	NC

FINAL YEAR

Fall Semester					Spring Semester				
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
##-###	Elective-1	3	1	4	##-###	Elective-2	3	1	4
TE-452	Textile Finishing	3	1	4	MG-481	Entrepreneurship	3	0	3
TE-305	Quality Control in Textiles	2	0	2	TE-454	Textile Merchandizing	3	0	3
TS-458	Project*	0	3	3	TE-406	Textile Production Management	3	0	3
MG-482	Organizational Behaviour	3	0	3	TS-458	Project	0	3	3
EA/ES-###	Foreign Language-II	-	-	NC					

Elective-I (to be chosen from the following)

Elective-II (to be chosen from the following)

TE-455 Advanced Garment Manufacturing Process
TS-460 Smart Textiles
TS-462 Textile Composites

TS-456 Industrial Engineering in Apparel
TS-459 Protective Textiles
TS-457 Geo Textiles
TS-461 Fashion Designing

* Duration one academic year: Requires literature survey and preliminary work during this Semester



3.2.3 Development Studies

FIRST YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
DS-131	Concept in Development Studies	3 0 3	DS-162	Sociology of Development	3 0 3
DS-141	Communication Skills for Development-I	2 2 4	MT-256	Macroeconomics	3 0 3
MT-253	Microeconomics	3 0 3	DS-143	Computer Applications in Development-I	1 2 3
EA-104	Functional English	3 0 3	DS-142	Communication Skills for Development-II	2 2 4
DS-104	Introduction to Sociology	3 0 3	DS-103	Introduction to Accounting	3 0 3
			ES-105	Pakistan Studies OR	2 0 2
			ES-127	Pakistan Studies (for foreigners)	

SECOND YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
DS-241	Introduction to Research Methodology-I	2 2 4	DS-245	Statistical Applications in Development-II	2 1 3
DS-231	Theory and Practice in Development Work	1 2 3	DS-246	Participatory Development	2 1 3
DS-243	Computer Applications in Development-II	1 2 3	DS-251	Theory and Management of Organisations	3 0 3
DS-244	Statistical Applications in Development-I	2 1 3	DS-242	Introduction to Research Methodology-II	2 2 4
DS-271	Development Economics	3 0 3	DS-203	Human Development	3 0 3
			ES-205	Islamic Studies OR	2 0 2
			ES-209	Ethical Behaviour (for non muslims)	
			EA-200	Community Service	- - NC

THIRD YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
###-###	Elective-I	3 0 3	DS-306	Public Administration	3 0 3
DS-316	Gender and Development	3 0 3	DS-334	Rural Planning and Development	2 1 3
DS-331	Development Planning Workshop-I	1 2 3	DS-332	Development Planning Workshop-II	1 2 3
DS-303	Legal Issues in Development	3 0 3	DS-371	Political Economy	3 0 3
DS-333	Urban Planning and Development	2 1 3	###-###	Elective-II	3 0 3
DS-341	Mapping Applications in Planning and Development	1 2 3	EA/ES-###	Foreign Language-I	- - NC

FINAL YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
DS-430	Development Studies Project*	0 3 3	DS-408	Sustainability in Development	3 0 3
DS-431	Development Planning Workshop-III	1 2 3	DS-410	Development Planning in Pakistan	3 0 3
DS-404	Entrepreneurship	3 0 3	DS-430	Development Studies Project	0 3 3
DS-406	Environmental Issues in Development	3 0 3	DS-471	Microfinance	3 0 3
###-###	Elective-III	3 0 3	###-###	Elective-IV	3 0 3
EA/ES-###	Foreign Language-II	- - NC			

Elective-I & II Courses (to be chosen from the following)

DS-310	Budgeting in Development Project
DS-356	Development Project Planning and Management
DS-312	Public Health
DS-314	Taraqiati Sargarmiyon Main Urdu Ka Istemal (Usage of Urdu in Development)

Elective-III & IV Courses (to be chosen from the following)

DS-419	Case Studies in Development Project
DS-421	Corporate Social Responsibility and Application in Development
DS-422	Case Studies in Agricultural Development
DS-475	Public Finance
DS-476	Migration and Development

* Duration one academic year: Requires literature survey and preliminary work during this Semester





3.2.4 Computational Finance

FIRST YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
MT-151	Calculus-I	3 0 3	MT-152	Calculus-II	3 0 3
MT-153	Principles of Economics	3 0 3	MT-255	Introduction to Mathematical Finance	3 0 3
EA-104	Functional English	3 0 3	CT-157	Data Structure Algorithm & Application	3 1 4
MT-155	Introduction to Financial Accounting	3 0 3	MT-156	Discrete Mathematics	3 0 3
ES-205/	Islamic Studies OR	2 0 2	ES-105	Pakistan Studies OR	2 0 2
ES-209	Ethical Behavior (Non-Muslim)		ES-127	Pakistan Studies (for Foreigners)	
CT-153	Programming Languages	2 1 3	EC-202	Cost Accounting	3 0 3

SECOND YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
MT-272	Linear Algebra & Geometry	3 0 3	MT-257	Stochastic Calculus	3 0 3
MT-251	Multivariate Calculus	4 0 4	MT-254	Statistical Inference	3 0 3
MT-252	Introduction to Probability & Statistics	3 1 4	MT-154	Computer Applications in Finance	1 2 3
EA-201	Oral Communications	2 1 3	MT-227	Differential Equations	3 0 3
MT-253	Microeconomics	3 0 3	MT-256	Macroeconomics	3 0 3
			EA-200	Community Service	- - NC

THIRD YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
MT-351	Operations Research	3 0 3	MT-442	Numerical Methods	3 0 3
MT-352	Financial Management	3 0 3	SE-307	E-Commerce	3 1 4
MT-353	Discrete-Time Finance	3 0 3	MT-355	Financial Risk Management	3 0 3
MT-354	Financial Derivatives	3 0 3	MT-356	Stochastic Models in Finance	3 0 3
EA-301	Business and Organizational Communications	3 0 3	EA-311	Logic & Critical Thinking	3 0 3
			EA/ES-###	Foreign Language-I	- - NC

FINAL YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
MG-481	Entrepreneurship	3 0 3	MT-455	Econometrics	3 0 3
MT-451	Continuous-Time Finance	3 0 3	MT-456	Financial Engineering	3 0 3
##-###	Elective-1	3 0 3	##-###	Elective-3	3 0 3
##-###	Elective-2	3 0 3	##-###	Elective-4	3 0 3
MT-460	Computational Finance Project*	0 3 3	MT-460	Computational Finance Project	0 3 3
EA/ES-###	Foreign Language-II	- - NC			

Elective Courses (to be chosen from the following)

MT-452	Financial Modelling	3 0 3	MT-458	Islamic Banking & Financial System	3 0 3
MT-453	Organizational Design and Implementation	3 0 3	MT-459	Actuarial Science	3 0 3
MT-454	Fuzzy Sets and Fuzzy Logic	3 0 3	MT-461	Financial Modelling and Business Valuation	2 1 3
MT-457	Numerical Computing in Finance	3 0 3			

* Duration one academic year: Requires literature survey and preliminary work during this Semester





3.2.5 Physics

FIRST YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
PH-101	Mechanics & Properties of Matter	3 0 3	PH-104	Waves & Oscillations	2 0 2
PH-102	Heat & Thermodynamics	2 0 2	PH-105	Electricity & Magnetism	3 0 3
PH-103	Physics Lab-I	0 1 1	PH-106	Physics Lab-II	0 1 1
ES-105	Pakistan Studies OR	2 0 2	CY-122	General Chemistry	2 1 3
ES-127	Pakistan Studies(for Foreigners)		MT-227	Differential Equations	3 0 3
CT-174	Fundamentals of Information Technology	2 1 3	CT-175	Programming Fundamentals	3 1 4
MT-173	Calculus	3 0 3	ES-205	Islamic Studies OR	2 0 2
EA-104	Functional English	3 0 3	ES-209	Ethical Behaviour (for Non-Muslims)	
MT-100	Introduction to Mathematics (For Pre-Medical students)	- - NC			

SECOND YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
PH-202	Modern Physics	3 0 3	PH-205	Classical Mechanics	3 0 3
PH-207	Optics and Laser	3 0 3	PH-204	Introduction to Material Science	3 0 3
MT-272	Linear Algebra & Geometry	3 0 3	PH-203	Physics Lab-III	0 1 1
EL-232	Electronics	3 1 4	MT-331	Probability & Statistics	3 0 3
CT-262	Introduction to Artificial Intelligence	2 1 3	EA-214	Academic Writing	3 0 3
			EL-238	Digital Electronics	3 1 4
			EA-200	Community Service	- - NC

THIRD YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
PH-301	Quantum Mechanics-I	3 0 3	PH-307	Mathematical Physics-II	3 0 3
PH-303	Mathematical Physics-I	3 0 3	PH-309	Electromagnetic Theory-II	3 0 3
PH-304	Electromagnetic Theory-I	3 0 3	PH-311	Physics Lab-V	0 1 1
PH-310	Solid State Physics-I	3 0 3	PH-403	Solid State Physics-II	3 0 3
PH-206	Physics Lab-IV	0 1 1	PH-415	Statistical Mechanics	2 0 2
EA-301	Business & Organizational Communication	3 0 3	MG-110	Fundamentals of Management	2 0 2
			EA/ES-###	Foreign Language-I	- - NC

FINAL YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
PH-308	Quantum Mechanics-II	3 0 3	PH-407	Physics Project	0 3 3
PH-312	Physics Lab-VI	0 1 1	##-###	Elective-2	3 0 3
PH-407	Physics Project*	0 3 3	##-###	Elective-3	3 0 3
PH-409	Atomic & Molecular Physics	2 0 2	##-###	Elective-4	3 0 3
PH-417	Nuclear Physics	2 0 2	MG-481	Entrepreneurship	3 0 3
PH-418	Computational Physics	3 0 3			
##-###	Elective-1	3 0 3			
EA/ES-###	Foreign Language-II	- - NC			

Elective Courses (to be chosen from the following)

MY-402	Advanced Materials	3 0 3	PH-424	Essentials of Health Physics	3 0 3
PH-313	Cosmology and Theory of Relativity	3 0 3	PH-425	Microwave Systems	3 0 3
PH-411	Applications of Space Physics	3 0 3	PH-426	Essentials of Quantum Field Theory	3 0 3
PH-419	Fundamentals of Medical Physics	3 0 3	PH-427	Dielectric Materials	3 0 3
PH-420	Nano Science and Nanotechnology	3 0 3	PH-428	Renewable Energy Sources	3 0 3
PH-421	Vacuum Science	3 0 3	PH-429	Environmental Physics	3 0 3
PH-422	Plasma Physics	3 0 3	PH-430	Optoelectronic Devices	3 0 3
PH-423	Surface Science and Applications	3 0 3			

* Duration one academic year: Requires literature survey and preliminary work during this Semester





3.2.6 Industrial Chemistry

FIRST YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
CY-113	Inorganic Chemistry-I	3 0 3	CY-120	Analytical Chemistry-I	3 0 3
CY-114	Organic Chemistry-I	3 0 3	CY-117	Physical Chemistry-I	3 0 3
CY-118	Industrial Chemistry Lab-I	0 1 1	CY-119	Industrial Chemistry Lab-II	0 1 1
EA-104	Functional English	3 0 3	EE-119	Fundamentals of Electrical Engineering	3 1 4
PH-123	General Physics-I	2 1 3	MT-173	Calculus	3 0 3
MT-100	Introduction to Mathematics (for Pre-Medical)	- - NC	PH-124	General Physics-II	2 1 3
CT-158	Fundamental of Information Technology	2 0 2			
ES-105	Pakistan Studies OR	2 0 2			
ES-127	Pakistan Studies (Foreigners)				

SECOND YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
CY-205	Inorganic Chemistry-II	3 0 3	CY-209	Analytical Chemistry-II	3 0 3
CY-208	Organic Chemistry-II	3 0 3	CY-210	Physical Chemistry-II	3 0 3
CY-206	Industrial Chemistry Lab-III	0 1 1	CY-207	Industrial Chemistry Lab-IV	0 1 1
ES-205	Islamic Studies OR	2 0 2	EA-201	Oral Communication	2 1 3
ES-209	Ethical Behavior (for Non-Muslim)		CH-202	Fluid Mechanics-I	3 1 4
MT-223	Ordinar Differential Equations & Fourier Series	3 0 3	EL-102	Basic Electronics	3 1 4
MT-331	Probability & Statistics	3 0 3	EA-200	Community Service	- - NC
CT-153	Programming Languages	2 1 3			

THIRD YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
EA-301	Business & Organizational Communication	3 0 3	CY-404	Seperation Techniques	3 0 3
CH-206	Thermodynamics	3 1 4	CY-303	Reaction Kinetics	3 0 3
CY-312	Spectroscopy	3 0 3	CY-308	Unit Processes	3 0 3
CY-313	Polymer Science	3 0 3	CY-311	Industrial Chemistry Lab VI	0 1 1
CY-305	Industrial Stoichiometry	3 0 3	CY-314	Natural Products	3 0 3
CY-310	Industrial Chemistry Lab V	0 1 1	CY-315	Nuclear & Radiation Chemistry	3 0 3
			CH-203	Chemical Process Industries	3 0 3
			EA/ES-###	Foreign Language-I	- - NC

FINAL YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
CY-402	Environmental Chemistry	3 0 3	CY-417	Quality Assurance for Chemists	3 0 3
CH-405	Industrial Safety & Maintenance Management	2 1 3	##-###	Elective-3	3/2 0/1 3
##-###	Elective-1	3/2 0/1 3	##-###	Elective-4	3/2 0/1 3
##-###	Elective-2	3/2 0/1 3	CY-415	Industrial Chemistry Project	0 3 3
CY-415	Industrial Chemistry Project*	0 3 3			
EA/ES-###	Foreign Language-II	- - NC			

Elective Courses (to be chosen from the following)

CH-406	Petroleum Refining & Petrochemicals	3 0 3	CY-413	Surfactants and Cosmetics	3 0 3
CY-403	Beverage Technology	3 0 3	CY-414	Pharmaceutical Chemistry	3 0 3
CY-406	Fat & Oil Processing	3 0 3	CH-407	Industrial Organization & Management	2 1 3
CY-408	Polymer Technology	3 0 3	CY-416	Nanotechnology	3 0 3
CY-411	Surface Coatings	3 0 3			

* Duration one academic year: Requires literature survey and preliminary work during this Semester





3.2.7 English Linguistics

FIRST YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
EA-104	Functional English	3 0 3	EA-115	Academic Reading & Writing	3 0 3
ES-105	Pakistan Studies OR	2 0 2	ES-119	Islamic Studies OR	2 0 2
ES-127	Pakistan Studies (for Foreigners)		ES-209	Ethical Behaviour (for non muslims)	
EA-116	Anthropology	3 0 3	CT-173	Introduction to Computer Applications	2 1 3
EA-117	Foundation of Education	3 0 3	EA-118	Media Studies	3 0 3
EA-120	Introduction to English Litreture-I	3 0 3	EA-122	History of English Literature-I	3 0 3
EA-121	Introduction to Linguistics	3 0 3	EA-123	Phonetics & Phonology	3 0 3

SECOND YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
EA-201	Oral Communication	2 1 3	EA-202	Business Communication	3 0 3
EA-210	Philosophy	3 0 3	EA-203	Organizational Behaviour	3 0 3
EC-211	Principles of Economics	3 0 3	EA-204	Human Rights & Citizenship	3 0 3
EA-217	Visionary Discourse	3 0 3	EA-213	History of English Literature-II	3 0 3
EA-211	Morphology & Syntax-I	3 0 3	EA-215	Semantics	3 0 3
EA-212	Introduction to English Literature-II	3 0 3	EA-200	Community Service	- - NC

THIRD YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
MT-337	Introduction to Statistics	3 0 3	EA-319	Introduction to Research	3 0 3
EA-305	Morphology & Syntax-II	3 0 3	EA-308	Lexical Studies	3 0 3
EA-306	Sociolinguistics	3 0 3	EA-309	Discourse Analysis	3 0 3
EA-307	Pedagogical Grammar	3 0 3	EA-310	Psycholinguistics	3 0 3
##-###	Elective-I	3 0 3	MG-317	Human Resource Management	3 0 3
##-###	Elective-II	3 0 3	##-###	Elective-III	3 0 3
			EA/ES-###	Foreign Language-I	- - NC

FINAL YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
EA-402	Research Methods in Linguistics	3 0 3	EA-406	Stylistics	3 0 3
EA-411	Second Language Acquisition	3 0 3	EA-407	Language, Culture & Identity	3 0 3
EA-412	Language Teaching Methodologies	3 0 3	EA-408	Genre Analysis	3 0 3
EA-418	Pragmatics	3 0 3	EA-421	Syllabus Designing & Testing	3 0 3
EA-401	Project*	0 3 3	EA-401	Project	0 3 3
EA/ES-###	Foreign Language-II	- - NC			

Elective Courses (to be chosen from the following)

EA-312	Translation Studies	EA-316	English for Specific Purposes
EA-313	Media Discourse Analysis	EA-317	Language & Gender
EA-314	World Englishes	EA-318	Anthropological Studies
EA-315	Language in Education		

* Duration one academic year: Requires literature survey and preliminary work during this Semester





3.2.8 Economics & Finance

FIRST YEAR

Fall Semester					Spring Semester				
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
EC-101	Microeconomics-I	3	0	3	EC-103	Macroeconomics-I	3	0	3
MT-100	Introduction to Mathematics	-	-	NC	EC-104	Financial Accounting	3	0	3
EC-102	Principles of Accounting	3	0	3	EC-105	Information Technology in Business	2	1	3
CT-173	Introduction to Computer Applications	2	1	3		Economics			
EA-104	Functional English	3	0	3	EA-115	Academic Reading & Writing	3	0	3
ES-105	Pakistan Studies OR	2	0	2	EC-106	Principles of Management	3	0	3
ES-127	Pakistan Studies for Foreigners								

SECOND YEAR

Fall Semester				Spring Semester					
Course Code	Course Title	Credit Th	Hours Pr	Total	Course Code	Course Title	Credit Th	Hours Pr	Total
EC-201	Microeconomics-II	3	0	3	EC-204	Macroeconomics-II	3	0	3
MT-230	Statistics & Probability	3	0	3	EC-205	Development Economics	3	0	3
EC-202	Cost Accounting	3	0	3	EC-206	Economy of Pakistan	3	0	3
EC-203	Computer Application to Business & Finance	2	1	3	MT-231	Statistics Inference	3	0	3
EA-201	Oral Communication	2	1	3	EC-207	Managerial Accounting	3	0	3
ES-205	Islamic Studies OR	2	0	2	EC-208	Introduction to Business Finance	3	0	3
ES-209	Ethical Behavior (for Non-Muslim)				EA-200	Community Service	-	-	NC

THIRD YEAR

Fall Semester				Spring Semester					
Course Code	Course Title	Credit Th	Hours Pr	Total	Course Code	Course Title	Credit Th	Hours Pr	Total
EC-301	Political Economics	3	0	3	EC-305	Comparative Economic System	3	0	3
EC-302	Mathematical Economics-I	3	0	3	EC-306	Mathematical Economics-II	3	0	3
EC-303	Econometrics-I	3	0	3	EC-307	Econometric-II	3	0	3
EC-304	Money and Banking	3	0	3	EC-308	Business Research Methods	3	0	3
EA-301	Business and Organizational Communication	3	0	3	EC-309	Financial Management	3	0	3
					EA/ES-###	Foreign Language-I	-	-	NC

FINAL YEAR

Fall Semester					Spring Semester				
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
EC-401	Public Finance	3	0	3	EC-404	Islamic Economics	3	0	3
EC-402	International Trade Theory	3	0	3	###-###	Elective-III (Economics)	3	0	3
EC-403	Applied Economics	2	1	3	###-###	Elective-IV (Finance)	3	0	3
###-###	Elective-I (Economics)	3/2	0/1	3	###-###	Elective-V (Economics / Finance)	3	0	3
###-###	Elective-II (Finance)	3	0	3	EC-405	Project	0	3	3
EC-405	Project*	0	3	3					
EA/ES-###	Foreign Language-II	-	-	NC					

Inter-Disciplinary Elective (to be chosen from the following)

Economics					Finance				
EC-417	Studies of Urban Economics	3	0	3	EC-411	International Finance	3	0	3
EC-407	Industrial Economics	3	0	3	EC-412	Corporate Finance	3	0	3
EC-408	Transport Economics	3	0	3	EC-413	Project Appraisal & Investment Analysis	3	0	3
EC-409	Environmental Economics	3	0	3	EC-414	Behavioural Finance	3	0	3
EC-410	Labor Economics	3	0	3	EC-416	Audit and Assurance	3	0	3
EC-415	Time Series analysis	2	1	3	EC-418	Islamic Banking and Finance	3	0	3

* Duration one academic year: Requires literature survey and preliminary work during this Semester





3.2.9 Management Sciences

FIRST YEAR

Fall Semester				Spring Semester					
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
EA-104	Functional English	3	0	3	EC-104	Financial Accounting	3	0	3
CT-158	Fundamental of I.T.	2	0	2	MT-153	Principles of Economics	3	0	3
MT-113	Business Mathematics	3	0	3	MG-112	Introduction to Sociology	3	0	3
MG-110	Fundamentals of Management	3	0	3	MG-114	Introduction to Business	3	0	3
MG-111	Principles of Marketing	3	0	3	ES-205	Islamic Studies OR	2	0	2
ES-105	Pakistan Studies OR	3	0	3	ES-209	Ethical Behaviour (for Non-Muslims)			
ES-127	Pakistan Studies (for foreigners)								

SECOND YEAR

Fall Semester				Spring Semester					
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
EA-201	Oral Communications	2	1	3	MT-214	Applied Statistics	3	0	3
MG-211	Strategic Management	3	0	3	MG-214	Human Resource Management	3	0	3
MG-212	Technology Management	3	0	3	MG-215	Business Law & Policy	3	0	3
MG-213	Introduction to Business Finance	3	0	3	MG-216	Managerial Accounting	3	0	3
EC-101	Microeconomics-I	3	0	3	EC-103	Macroeconomics-I	3	0	3
CT-153	Programming Languages	2	1	3	EA-200	Community Service	-	-	NC

THIRD YEAR

Fall Semester					Spring Semester				
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
EA-301	Business & Organizational Communication	3	0	3	MT-355	Financial Risk Management	3	0	3
MG-311	Product & Brand Management	3	0	3	MG-317	Operations Research	2	1	3
MG-312	Business Research Methods	3	0	3	MG-315	Business & Economic Forecasting	2	1	3
MG-313	Business Ethics & Corporate Social Responsibility	3	0	3	MG-481	Entrepreneurship	3	0	3
IM-416	Management Information System	2	1	3	MG-318	Consumer Behaviour	3	0	3
IM-303	Production Management	3	1	4	EA/ES-###	Foreign Language-I	-	-	NC

FINAL YEAR

Fall Semester				Spring Semester					
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
MG-###	Specialization-1	3	0	3	MG-###	Specialization-6	3	0	3
MG-###	Specialization-2	3	0	3	MG-###	Specialization-7	3	0	3
MG-###	Specialization-3	3	0	3	CT-461	E-Commerce	3	1	4
MG-###	Specialization-4	3	0	3	MG-480	Business Process Management	2	1	3
MG-###	Specialization-5	3	0	3	MG-499	Final Year Project	0	3	3
MG-499	Final Year Project*	0	3	3					
EA/ES-###	Foreign Language-II	-	-	NC					

Supply Chain Management (to be chosen from the following)

Marketing (to be chosen from the following)

MG-450	Principles of Supply Chain Management	3	0	3	MG-460	Marketing Strategy	3	0	3
MG-451	Green Supply Chain Management	3	0	3	MG-461	Global Entrepreneurial Marketing	3	0	3
MG-452	Information Technology for SCM	3	0	3	MG-463	Corporation & Consumer Behaviour	3	0	3
MG-453	Supply Chain Inventory	3	0	3	MG-464	Personal Selling and Public Relation	3	0	3
MG-454	Supply Planning & Control Systems	3	0	3	MG-465	Trade and Consumer Promotions	3	0	3
MG-455	Business Process Simulation	3	0	3	MG-467	Strategies of Advertising	3	0	3
MG-456	Procurement Management	3	0	3	MG-468	Digital Marketing	3	0	3
					MG-469	Corporate Strategy	3	0	3
					MG-470	Public Relations	3	0	3
					MG-471	Retail Management	3	0	3
					MG-472	Sales Management	3	0	3

* Duration one academic year: Requires literature survey and preliminary work during this Semester





3.3 Bachelor of Architecture

FIRST YEAR

Fall Semester				Spring Semester					
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
AR-101	Basic Design-I	1	3	4	AR-102	Basic Design-II	1	3	4
AR-121	Introduction to Environmental Studies	2	1	3	AR-111	Introduction to History, Theory and Culture	2	1	3
AR-143	Communications and Allied Skills-I	1	2	3	AR-144	Communication and Allied Skills-II	1	2	3
EA-104	Functional English	3	0	3	AR-151	Construction and Materials-I	1	2	3
MT-112	Mathematics for Architects	3	0	3	CE-112	Fundamentals of Statics	2	0	2
PH-114	Physics for Architects	2	0	2	ES-105/	Pakistan Studies OR	2	0	2
CY-111	Basic Chemistry for Architects	1	1	2	ES-127	Pakistan Studies (for Foreigners)			

SECOND YEAR

Fall Semester					Spring Semester				
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
AR-201	Architectural Design-I	1	4	5	AR-202	Architectural Design-II	1	4	5
AR-211	History and Theory-I	2	1	3	AR-212	History and Theory-II	2	1	3
AR-243	Communication and Allied Skills-III	1	2	3	AR-221	Development Studies	2	1	3
AR-251	Construction and Materials-II	1	2	3	AR-231	Environmental Design and Systems-I	2	1	3
CE-113	Surveying for Architects	2	1	3	AR-244	Communication and Allied Skills-IV	1	2	3
ES-205/	Islamic Studies OR	2	0	2	CE-252	Structure for Architects-I	2	0	2
ES-209	Ethical Behaviour (for Non-Muslims)				EA-200	Community Service	-	-	NC

THIRD YEAR

Fall Semester				Spring Semester					
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
AR-301	Architectural Design-III	1	5	6	AR-302	Architectural Design-IV	1	5	6
AR-381	Introduction to Landscape Architecture	1	2	3	AR-312	History and Theory-IV	2	1	3
AR-311	History and Theory-III	2	1	3	AR-321	Housing and Community Development	2	1	3
AR-331	Environmental Design and Systems-II	2	1	3	AR-342	Communication and Allied Skills-V	1	2	3
AR-351	Construction and Materials-III	1	2	3	AR-352	Construction and Materials-IV	1	2	3
AR-361	Introduction to Architectural Conservation	2	1	3	CE-352	Structure for Architects-II	2	0	2
					EA/ES-###	Foreign Language-I	-	-	NC

FOURTH YEAR

Fall Semester				Spring Semester					
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
AR-401	Architectural Design-V	1	5	6	AR-402	Architectural Design-VI	1	5	6
AR-403	Introduction to Interior Design	1	2	3	AR-421	Urban Planning and Design	2	1	3
AR-411	History and Theory-V	2	1	3	AR-431	Environmental Design and Systems-III	2	1	3
AR-442	Communication and Allied Skills-VI	1	2	3	AR-461	Research Methodologies	2	1	3
AR-451	Construction and Materials-V	1	2	3	###-###	Elective	-	-	3
EA/ES-###	Foreign Language-II	-	-	NC					

FINAL YEAR

Fall Semester					Spring Semester				
Course Code	Course Title	Credit Hours			Course Code	Course Title	Credit Hours		
		Th	Pr	Total			Th	Pr	Total
AR-503	Architectural Design Project*	0	4	4	AR-503	Architectural Design Project	2	8	10
AR-522	Comprehensive Environmental Design	1	5	6	AR-561	Professional Practice	2	1	3
AR-552	Construction and Materials-VI	2	1	3					

Elective Courses (to be chosen from the following)

AR-472	Documentation Techniques in Architecture	1	2	3	AR-473	Studies in Critical Regionalism	2	1	3
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* Duration one academic year: Requires literature survey and preliminary work during this Semester



3.4 Thar Institute of Engineering, Sciences and Technology (TIEST)

3.4.1 Civil Engineering

FIRST YEAR

Fall Semester				Spring Semester			
Course Code	Course Title	Credit	Hours	Course Code	Course Title	Credit	Hours
		Th	Pr Total			Th	Pr Total
CE-107	Engineering Drawing-I	1	2 3	CE-109	Engineering Surveying-I	2	1 3
CE-102	Statics and Dynamics	3	1 4	CE-110	Chemistry for Civil Engineers	1	1 2
CE-108	Engineering Materials	2	1 3	CE-111	Introduction to Computing for Civil Engineers	1	2 3
EE-123	Basic Electrical Engineering	2	0 2	ME-110	Basic Mechanical Engineering	2	0 2
MT-114	Calculus	3	0 3	EA-111	Functional English	2	0 2
ES-106/	Pakistan Studies OR	1	0 1	MT-221	Linear Algebra & Ordinary Differential Equations	3	0 3
ES-127	Pakistan Studies (for Foreigners)						

SECOND YEAR

Fall Semester				Spring Semester			
Course Code	Course Title	Credit	Hours	Course Code	Course Title	Credit	Hours
		Th	Pr Total			Th	Pr Total
CE-201	Engineering Surveying-II	3	1 4	CE-222	Engineering Drawing-II	1	2 3
CE-205	Mechanics of Solids-I	3	1 4	CE-219	Fluid Mechanics-I	3	1 4
CE-220	Geology for Engineers	2	1 3	CE-221	Structural Analysis-I	3	0 3
ES-205/	Islamic Studies OR	2	0 2	EA-219	Professional Ethics	2	0 2
ES-209	Ethical Behaviour (for Non-Muslims)			MT-331	Probability & Statistics	3	0 3
EA-218	Business Communication	2	1 3	CF-303	Applied Economics for Engineers	3	0 3
AR-309	Architecture and Town Planning	3	0 3	EA-200	Community Service	-	- NC

THIRD YEAR

Fall Semester				Spring Semester			
Course Code	Course Title	Credit	Hours	Course Code	Course Title	Credit	Hours
		Th	Pr Total			Th	Pr Total
CE-320	Reinforced Concrete Design-I	3	0 3	CE-323	Quantity & Cost Estimation	3	0 3
CE-321	Construction Engineering	3	0 3	CE-305	Soil Mechanics-I	3	1 4
CE-302	Transportation Engineering-I	3	1 4	CE-314	Structural Analysis-II	3	0 3
CE-319	Fluid Mechanics-II	3	1 4	CE-322	Mechanics of Solids-II	3	0 3
MT-443	Numerical Analysis	3	0 3	CE-424	Essentials in Construction Project Management	3	0 3
				EA/ES-###	Foreign Language-I	-	- NC

FINAL YEAR

Fall Semester				Spring Semester			
Course Code	Course Title	Credit	Hours	Course Code	Course Title	Credit	Hours
		Th	Pr Total			Th	Pr Total
CE-403	Soil Mechanics-II	3	1 4	###-###	Civil Engineering Elective	3/1/2	0/2/1 3
###-###	Social Sciences Elective	2	0 2	###-###	Management Sciences Elective	3	0 3
CE-418	Hydraulic and Water Resources Engineering-I	3	1 4	CE-432	Transportation Engineering-II	2	0 2
CE-420	Reinforced Concrete Design-II	3	0 3	CE-421	Design of Steel Structures	3	0 3
EN-301	Environmental Engineering-I	2	1 3	EN-401	Environmental Engineering-II	2	1 3
CE-409	Civil Engineering Project*	0	3 3	CE-409	Civil Engineering Project	0	3 3
EA/ES-###	Foreign Language-II	-	- NC				

Civil Engineering Elective Courses (to be chosen from the following)

CE-419	Applied Hydraulics	3	0 3	CE-433	Coastal and Harbour Engineering	3	0 3
CE-422	Structural Design & Drawing	3	0 3	CE-438	Hydraulics and Water Resource Engineering-II	3	0 3
CE-423	Masonry Structures	3	0 3	CN-424	Environmental Issues in Construction	3	0 3
CE-426	Building Information Modeling	1	2 3	CN-430	Disaster and Reconstruction Management	3	0 3
CE-429	Geosynthetics and their Applications	3	0 3	CE-440	Commute and Mass Transit	3	0 3
CE-431	Geoinformatics Applications	2	1 3				

Management Sciences Elective Courses (to be chosen from the following)

CN-423	Management and marketing of Construction Services	3	0 3	CE-425	Modern Aspects of Construction Project Management		
CN-432	Leadership and Human Skills in Management	3	0 3	CE-435	Construction Contract Management	3	0 3
CE-434	Procurement Management	3	0 3				

Social Sciences Elective Courses (to be chosen from the following)

CE-427	Introduction to Entrepreneurship & Opportunity Assessment	2	0 2	MG-228	Sociology and Development	2	0 2
CE-439	Engineer and Society	2	0 2	CE-441	Professional Ethics in Construction Industry	2	0 2

* Duration one academic year: Requires literature survey and preliminary work during this Semester





3.4.2 Computer Science

FIRST YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
CT-175	Programming Fundamentals	3 1 4	CS-251	Logic Design & Switching Theory	3 1 4
CT-174	Fundamentals of Information Technology	2 1 3	CT-162	Discrete Structures	3 0 3
EA-104	Functional English	3 0 3	CT-260	Object Oriented Programming	3 1 4
PH-122	Applied Physics	3 1 4	MT-171	Differential & Integral Calculus	3 0 3
ES-205	Islamic Studies OR	2 0 2	ES-105	Pakistan Studies OR	2 0 2
ES-209	Ethical Behaviour	- - -	ES-127	Pakistan Studies (for Foreigners)	- - -
MT-001	Mathematics - 1 (for Pre-Medical)	- - NC	MT-002	Mathematics - 2 (for Pre-Medical)	- - NC

SECOND YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
CT-159	Data Structure Algorithms & Applications	3 1 4	CS-252	Computer Architecture & Organisation	3 1 4
MT-227	Differential Equations	3 0 3	CT-261	Database Management Systems	3 1 4
EA-115	Academic Reading and Writing	3 0 3	EA-218	Business Communications	2 1 3
EA-219	Professional Ethics	2 0 2	EC-209	Financial & Cost Accounting	3 0 3
##-###	Elective I	2 1 3	MT-272	Linear Algebra & Geometry	3 0 3
			EA-200	Community Service	- - NC

THIRD YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
CT-365	Software Engineering	3 0 3	CT-376	Computer Communication Networks	3 1 4
CT-353	Operating Systems	3 1 4	CT-361	Artificial Intelligence & Expert Systems	3 1 4
CT-363	Design and Analysis of Algorithms	3 0 3	CT-362	Web Engineering	3 1 4
MT-331	Probability & Statistics	3 0 3	CT-367	Theory of Programming Languages	3 0 3
CT-364	Theory of Automata and Formal Languages	3 0 3	MT-442	Numerical Methods	3 0 3
			EA/ES-###	Foreign Language-I	- - NC

FINAL YEAR

Fall Semester			Spring Semester		
Course Code	Course Title	Credit Hours Th Pr Total	Course Code	Course Title	Credit Hours Th Pr Total
CT-486	Network & Information Security	3 1 4	CS-428	Parallel & Distributed Computing	3 1 4
MG-482	Organisational Behaviour	3 0 3	CT-465	Compiler Design	3 0 3
##-###	Elective II	3 0 3	MG-481	Entrepreneurship	3 0 3
##-###	Elective III	3 1 4	##-###	Elective IV	3 1 4
CT-499	Software Based Project*	0 3 3	CT-499	Software Based Project	0 3 3
EA/ES-###	Foreign Language-II	- - NC			

Elective-I (to be chosen from the following)

Elective-II (to be chosen from the following)

CT-263 Object Oriented Analysis & Design
CT-264 Programming for Artificial Intelligence
CT-368 Fundamentals of Data Science
CT-266 Fundamentals of Cybersecurity
CT-267 Fundamentals of Game Development

CT-366 E-Commerce
CT-485 Natural Language Processing
CT-464 Modeling & Simulation

Elective-III (to be chosen from the following)

Elective-IV (to be chosen from the following)

CT-352 Computer Graphics
CT-487 Visual Programming
CT-488 Distributed Computing

CT-463 Data Warehouse Mining
CT-481 Wireless Network & Mobile Computing
CT-484 Introduction to Cyber Security

* Duration one academic year: Requires literature survey and preliminary work during this Semester

