PROGRAM SPECIFICATION

PROFORMA

INTERNATIONAL ISLAMIC UNIVERSITY ISLAMABAD

Program Name: Bachelor of Science Mechanical Engineering (BSME)
Qualification Level: Bachelor Studies (BS)
Department: Mechanical Engineering
Faculty: Engineering & Technology

Content

A. Program Identification and General Information

1. Program Name:

Bachelor of Science Mechanical Engineering Degree

2. Eligibility

Admission Criteria of BS Mechanical Engineering is adopted as per PEC guidelines.

HSSC (Pre-Engineering) (Mathematics / Physics / Chemistry) or equivalent with minimum 60% marks. A combination of Physics, Mathematics and Computer Studies (ICS) is allowed for admission in all Engineering programs, with chemistry as remedial course in 1st semester after admission. In addition, HSSC (Pre-Medical) (Biology / Physics / Chemistry) or equivalent with minimum 60% marks is allowed for admission in all Engineering programs, with 8 week condensed semester of Mathematics as a remedial course.

Admission Merit Criteria

Under Graduate		
Academic Qualification	50%	
	HSSC 40%	SSC 10%
Admission Test	50%	

3. Duration (Min. Normal, Maximum)

Min.: 4 Years, Maximum: 7 Years

4. Department/Faculty Offering the Program:

Department of Mechanical Engineering/ Faculty of Engineering & Technology

5. Reasons for Establishing the Program (New Program Proposals):
(Economic, social, cultural, and technological reasons, and national needs and development, etc.)

The program was established with the aim to be a leader in providing undergraduate mechanical engineering education, serving industry and government agencies both in Pakistan and abroad. Our goal for students is to give them a high-quality engineering education that includes hands-on experience. For this purpose, each of our faculty members is ready and willing to work with students, industry and other academic institutions on multi-disciplinary ideas and projects. We strive to ensure that all our students have strong education along with a well-rounded personality. The department follows an open-door policy for its students to encourage them to gain from the experience of faculty and to grow as competent engineers and above all, as responsible members of society.

6. Total Credit Hours for Completing the Program: (136)
Min: 136 Credit Hours

7. Professional Occupations/Jobs:

- Mechanical Design Engineer
- Project engineer
- Sales engineer
- Product quality engineer
- Process engineer etc.

B. Mission, Goals, and Learning Outcomes

1. Program Mission:

The mission of BS Mechanical Engineering Program is to prepare **competent mechanical engineers** equipped with **knowledge, skills** and **ethical values** to address challenges in the **transformation of the society.**

2. Program Goals:

Program Education Objectives

***PEO1*:** To produce competent graduates with relevant **knowledge** and **skills.**

***PEO2*:** To produce graduates through **professional developments** and **entrepreneurship skills** to serve **industry and society**.

PEO3: To produce graduates with **leadership qualities** having **Islamic values**, **interpersonal** and **managerial skills**.

1. .

3. Relationship between Program Mission and Goals and the Mission and Goals of the Institution/College.

Vision & Mission of University and Department		Program Educational Objectives		
		1	2	3
University Vision	To be an excellent university in **diversity**, **knowledge, research**, and **innovation** for the benefits of **society** and the Muslim Ummah.	✓	✓	✓
University Mission	To transform the **society** by promoting **education**, training, **research, technology**, and collaboration for reconstruction of human thought in all its forms on the foundations of Islam.	✓	✓	✓
Department Mission	The mission of BS Mechanical Engineering Program is to prepare **competent mechanical engineers** equipped with **knowledge, skills** and **ethical values** to address challenges in the **transformation of the society.**	✓	✓	✓

4. Graduate Attributes: (PLOs)

PLO-1 Engineering Knowledge: Apply knowledge of mathematics, natural science, engineering fundamentals and Engineering specialization to the solution of complex engineering problems (WK1-WK4).

PLO-2 Problem Analysis: Identify, formulate, conduct research literature, and analyze complex Engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences (WK1-WK4).

PLO-3 Design/Development of Solutions: An ability to design solutions for complex engineering problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations (WK-5).

PLO-4 Investigation: Conduct investigation of complex Engineering problems using research-based knowledge and research methods, including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions (WK-8).

PLO-5 Tool Usage: Create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modeling, to complex Engineering problems, with an understanding of the limitations (WK-2 and WK-6).

PLO-6 The Engineer and the World: Analyze and evaluate sustainable development impacts to society, the economy, sustainability, health and safety, legal frameworks, and the environment while solving complex engineering problems (WK-1, WK-5, and WK-7).

PLO-7 Ethics: Apply ethical principles and commit to professional ethics and norms of engineering practice and adhere to relevant national and international laws. Demonstrate an understanding of the need for diversity and inclusion (WK-9).

PLO-8 Individual and Collaborative Teamwork: Function effectively as an individual, and as a member or leader in diverse and inclusive teams and in multi-disciplinary, face-to-face, remote and distributed settings (WK-9).

PLO-9 Communication: Communicate effectively and inclusively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, and make effective presentations, taking into account cultural, language, and learning differences (WK-1 and WK-9).

PLO-10 Project Management and Finance: Demonstrate knowledge and understanding of engineering management principles and economic decision- making and apply these to one's own work, as a member and leader in a team, to manage projects in multidisciplinary environments (WK-2 and WK-5).

PLO-11 Lifelong Learning: Recognize the need for, and have the preparation and ability for i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change (WK-8 and WK-9).

5. Mapping of PLOs and PEOs

PLO No.	PEC Graduates Attributes (PLOs)	Program Education Objective (PEOs)		
		PEO 1	PEO 2	PEO 3
1	Engineering Knowledge	✓		
2	Problem Analysis	✓		
3	Design / Development of Solutions	✓		
4	Investigation	✓		
5	Tool Usage	✓		
6	The Engineer and the World		✓	
7	Ethics		✓	
8	Individual and Collaborative Teamwork			✓
9	Communication			✓
10	Project Management and Finance			✓
11	Lifelong Learning		✓	

6. Learning Level (Bloom Taxonomy)

6.1. Cognitive

S. No.	Level (C-x)	Learner Action	Question Ques
1	Remember (C-1)	Exhibit memory of previously learned material by recalling facts, terms, basic concepts, and answers.	List, Define, Label, Identify, Name
2	Understand (C-2)	Demonstrate understanding of facts and ideas by organizing, comparing, translating, interpreting, giving descriptions, and stating main ideas.	Describe, Associate, Categorize, Summarize
3	Apply (C-3)	Solve problems to new situations by applying acquired knowledge, facts, techniques and rules in a different way.	Apply, Calculate, Illustrate, Solve
4	Analyze (C-4)	Examine and break information into parts by identifying motives or causes. Make inferences and find evidence to support generalizations.	Analyze, Compare, Separate, Order, Explain
5	Evaluate (C-5)	Present and defend opinions by making judgments about information, validity of ideas, or quality of work based on a set of criteria.	Combine, Modify, Rearrange, "What-if"
6	Create (C-6)	Compile information together in a different way by combining elements in a new pattern or proposing alternative solutions.	Assess, Decide, Grade, Recommend, Explain, Judge

6.2. Psychomotor Domain

S. No.	Level (P-x)	Learner Action	Question Ques

C. Curriculum

Semester-wise Scheme of Studies

Semester-wise scheme of studies for Bachelor of Science Mechanical Engineering program spanning 4 years, spread over 8 semesters, and totaling 136 credit hours is presented below:

1st Year					
1st Semester					
Sr. No	Course Code	Course Title	(Credit Hours)		Total Credit Hours
			Theory	Lab	
1.	FRC101	Chemistry (For ICS Students)	0	0	0
2.	FRC131	Occupational Health & Safety	1	0	1
3.	FRC111	Calculus and Analytical Geometry	3	0	3
4.	GEC114	Applications of ICT	2	0	2
5.	GEC114L	Applications of ICT Lab	0	1	1
6.	FRC121	Applied Physics	2	0	2
7.	FRC121L	Applied Physics Lab	0	1	1
8.	GEC103/GEC104	Islamic Studies/Ethics	2	0	2
9.	GEC102	Functional English	3	0	3
Total			13	2	15

1st Year					
2nd Semester					
Sr. No	Course Code	Course Title	(Credit Hours)		Total Credit Hours
			Theory	Lab	
10.	ME-115	Materials Engineering	2	0	2
11.	EE-101	Electrical Engineering	2	0	2
12.	CS-101	Computer Systems and Program	2	0	2
13.	CS-101L	Computer Systems and Program Lab	0	1	1
14.	ME-113	Engineering Mechanics-I: (Statics)	3	0	3
15.	ME-111	Engineering Drawing and Graphics	1	0	1
16.	ME-111L	Engineering Drawing and Graphics Lab	0	1	1
17.	ME-112L	Workshop Practice	0	2	2
18.	GS-101	Linear Algebra & Ordinary Differential Equations	3	0	3
19.	ME-116L	Computer Aided Drawing	0	1	1
Total			13	5	18

2nd Year					
3rd Semester					
Sr. No	Course Code	Course Title	(Credit Hours)		Total Credit Hours
			Theory	Lab	
1.	ME-211	Engineering Mechanics-II: (Dynamics)	2	0	2
2.	ME-212	Mechanics of Materials-I	3	0	3
3.	ME-221	Thermodynamics- I	3	0	3
4.	ME-211 L	Engineering Mechanics Lab	0	1	1
5.	GS-201	Complex Variables & Partial Differential Equation's	3	0	3
6.	GEC205	Expository Writing	3	0	3
7.	URC-201	Functional Arabic	3	0	3
Total			17	1	18

2nd Year					
4th Semester					
Sr. No	Course Code	Course Title	(Credit Hours)		Total Credit Hours
			Theory	Lab	
1.	ME-223	Thermodynamics-II	2	0	2
2.	ME-214	Mechanics of Materials-II	3	0	3
3.	ME-222	Fluid Mechanics-I	3	0	3
4.	ME-215	Machine Design-I	2	0	2
5.	ME-214 L	Mechanics of Materials Lab	0	1	1
6.	ME-223 L	Thermodynamics Lab	0	1	1
7.	GEC206	Ideology and Constitution of Pakistan	2	0	2
8.	GEC207	Civics and Community Engagement	2	0	2
9.	GEC216	Entrepreneurship	2	0	2
Total			16	02	18

3rd Year					
5th Semester					
Sr. No	Course Code	Course Title	(Credit Hours)		Total Credit Hours
			Theory	Lab	
1.	ME-311	Manufacturing Processes	2	0	2
2.	ME-311 L	Manufacturing Processes Lab	0	1	1
3.	ME-322	Fluid Mechanics-II	2	0	2
4.	ME-322 L	Fluid Mechanics Lab	0	1	1
5.	ME-313	Control Engineering	2	0	2
6.	ME-321	Heat & Mass Transfer	3	0	3
7.	GS-301	Numerical Analysis	2	0	2
8.	GS-301L	Numerical Analysis Lab	0	1	1
9.	EE-301	Electronics Engineering	2	0	2
10.	EE-301L	Electrical and Electronics Engineering Lab	0	1	1
Total			13	4	17

3rd Year					
6th Semester					
Sr. No	Course Code	Course Title	(Credit Hours)		Total Credit Hours
			Theory	Lab	
1.	GS-3xx	Social Sciences Elective	2	0	2
2.	ME-323	Heating, Ventilating and Air Conditioning	2	0	2
3.	ME-315	Machine Design-II	2	0	2
4.	ME-314	Measurement and Instrumentation	2	0	2
5.	ME-314 L	M&I and Control Lab	0	1	1
6.	ME-323L	HVAC and H&M Lab	0	1	1
7.	GS-302	Applied Statistics	2	0	2
8.	ME-312	Mechanics of Machines	2	0	2
9.	URC-302	Understanding Quran	3	0	3
Total			15	2	17

4th Year					
7th Semester					
Sr. No	Course Code	Course Title	(Credit Hours)		Total Credit Hours
			Theory	Lab	
1.	ME-411	Mechanical Vibrations	3	0	3
2.	ME-413	Finite Element Methods	2	0	2
3.	ME-413L	Finite Element Methods Lab	0	1	1
4.	ME-412	Applied Artificial Intelligence & Machine learning	2	0	2
5.	ME-412 L	Applied Artificial Intelligence & Machine learning Lab	0	1	1
6.	ME-411 L	Mechanisms and Mechanical Vibration Lab	0	1	1
7.	MS-401	Project Management	2	0	2
8.	ME-499 L	Final Year Design Project-I	0	3	3
9.	ME-4xx	Technical Elective-I	3	0	3
Total			12	6	18

4th Year					
8th Semester					
Sr. No	Course Code	Course Title	(Credit Hours)		Total Credit Hours
			Theory	Lab	
1.	ME-414	ReverseEngineering and Inspection Techniques	2	0	2
2.	ME-414 L	ReverseEngineering and Inspection Techniques Lab	0	1	1
3.	ME-415	Mechatronics & Robotics Engineering	2	0	2
4.	ME-415 L	Mechatronics & Robotics Engineering Lab	0	1	1
5.	ME-421	Internal Combustion Engines	2	0	2
6.	ME-421 L	Internal Combustion Engines Lab	0	1	1
7.	ME-499 L	Final Year Design Project-II	0	3	3
8.	ME-4xx	Technical Elective-II	2	0	2
9.	ME-4xx L	Technical Elective-II Lab	0	1	1
Total			8	7	15

Social Science Electives:

Course Code	Social Science Electives Course Title	Credit Hrs	Pre-requisite Courses (if any)
GS-303	Human Resource Management	(2,0)	Nil
GS-304	Organizational Behavior	(2,0)	Nil
GS-305	Engineering Economics	(2,0)	Nil
GS-306	Engineering Management	(2,0)	Nil

Technical Electives-I for 7th semester:

Course Code	Technical Electives Course Title	Credit Hrs	Knowledge Area	Pre-requisite Courses (if any)
ME-431	Maintenance Engineering	(3,0)	Major Based Core (Breadth)	Nil
ME-416	Product Design & Development	(3,0)	Major Based Core (Breadth)	Nil
ME-422	Renewable Energy Technology	(3,0)	Major Based Core (Breadth)	Nil
ME-417	Composite Materials	(3,0)	Major Based Core (Breadth)	Nil

Technical Electives-II for 8th semester:

Course Code	Social Science Electives Course Title	Credit Hrs	Knowledge Area	Pre-requisite Courses (if any)
ME-423	Power Plant	02	Major Based Core (Depth)	Nil
ME-423 L	Power Plant Lab	01	Major Based Core (Depth)	Nil
ME-418	Stress Analysis	02	Major Based Core (Depth)	Nil
ME-418 L	Stress Analysis Lab	01	Major Based Core (Depth)	Nil
ME-424	Computational Fluid Dynamics	02	Major Based Core (Depth)	Nil
ME-424 L	Computational Fluid Dynamics Lab	01	Major Based Core (Depth)	Nil
ME-419	Mechanical Engineering Design Analysis	02	Major Based Core (Depth)	Nil
ME-419 L	Mechanical Engineering Design Analysis Lab	01	Major Based Core (Depth)	Nil

Course codes:

0 non-mechanical

1, 3 Design

2 Thermo-Fluid

9 Project

Course code methodology

The following course code methodology is followed for the curriculum and syllabus of this program The first two alphabets in the course code indicate the discipline being referred to, for example, ME for Mechanical Engineering The first digit in the course code indicates the academic year during which the course is offered. The second digit indicates the stream and third digit indicates the sequence of the course in the respective area in that year.

Second Digit Stream

0 Non-Mechanical Engineering Courses

1,3 Design and Manufacturing Courses

2 Thermo-fluid Courses

For different domain abbreviations used are as follow

ME: Mechanical Engineering

EE: Electrical Engineering

CS: Computer Systems Engineering

GS: General Sciences

EN: English Sciences

MS: Management Sciences

URC: University Requirement Course

GEC: General Education Course

Salient Feature	PEC 2024	DME 2024
Duration	4 years	4 years
Number of Semesters	8	8
Number of weeks per semester	15 – 18	16
Number of credit hours per semester	15 – 18	14 – 18
Total number of credit hours	130 – 136	136
Engineering Courses (minimum)	72 CH	72
Non-Engineering Courses (minimum)	38 CH	42
Multi-disciplinary Engineering Courses	6 CH	6
FYDP / Capstone Project	6 CH	6
Additional Engg / Non-Engg Courses	8 – 14 CH	8

List of Courses Non-Engineering Domain

Knowledge Profiles (WK)	Knowledge Area	Sub Area	Course Code	Name of Course	Theory CH	Lab CH	Credit Hours	Total CH
1,5,7,8,9	Humanities	English	GEC102	Functional English	3	0	3	6
			GEC205	Expository Writing	3	0	3	
		Culture	URC-201	Functional Arabic	3	0	3	10
			URC-302	Understanding Quran	3	0	3	
			GEC103/GEC104	Islamic Studies/ Ethics	2	0	2	
			GEC206	Ideology and Constitution of Pakistan	2	0	2	
		Social Science	GEC207	Civics and Community Engagement	2	0	2	4
			GS-3xx	Social Sciences Elective *	2	0	2	
	Management Sciences	Professional Practice	MS-401	Project Management	2	0	2	4
			GEC216	Entrepreneurship	2	0	2	
	Computer Science	Basic Computing	GEC114	Applications of ICT	2	0	2	3
			GEC114L	Applications of ICT Lab	0	1	1	
1,2	Natural Science	Mathematics	FRC111	Calculus and Analytical Geometry	3	0	3	12
			GS-201	Linear Algebra & Ordinary Differential Equations	3	0	3	
			GS-202	Complex Variables & Partial Differential Equation's	3	0	3	
			GS-301	Numerical Analysis	2	0	2	
			GS-301L	Numerical Analysis Lab	0	1	1	
		Natural Sciences	FRC101	Chemistry (for ICS Students)	0	0	0	3
			FRC121	Applied Physics	2	0	2	
			FRC121L	Applied Physics Lab	0	1	1	
Non-Engineering Credit Hours: Total					**39**	**3**	**42**	**42**

List of Courses Engineering Domain							
Knowledge Profiles (WK)	**Knowledge Area**	**Course Code**	**Name of Course**	**Theory CH**	**Lab CH**	**Credit Hours**	**Total CH**
2, 4, 5, 6	Computer Engineering	CS-101	Computer Systems and Program	2	0	2	03
		CS-101L	Computer Systems and Program Lab	0	1	1	
2, 3	Engineering Foundation	ME-111	Engineering Drawing and Graphics	1	0	1	23
		ME-111L	Engineering Drawing and Graphics Lab	0	1	1	
		ME-113	Engineering Mechanics-I: (Statics)	3	0	3	
		ME-112L	Workshop Practice	0	2	2	
		ME-211	Engineering Mechanics-II: (Dynamics)	2	0	2	
		ME-212	Mechanics of Materials-I	3	0	3	
		ME-221	Thermodynamics- I	3	0	3	
		ME-222	Fluid Mechanics-I	3	0	3	
		ME-211L	Engineering Mechanics Lab	0	1	1	
		ME-115	Materials Engineering	2	0	2	
		ME-312	Mechanics of Machines	2	0	2	
		ME-116L	Computer Aided Drawing	0	1	1	
1,2,4,5	Major Based Core (Breadth)	ME-223	Thermodynamics-II	2	0	2	22
		ME-214	Mechanics of Materials-II	3	0	3	
		ME-322	Fluid Mechanics-II	2	0	2	
		ME-215	Machine Design-I	2	0	2	
		ME-322L	Fluid Mechanics Lab	0	1	1	
		ME-214L	Mechanics of Materials Lab	0	1	1	
		ME-223L	Thermodynamics Lab	0	1	1	
		ME-311	Manufacturing Processes	2	0	2	
		ME-311L	Manufacturing Processes Lab	0	1	1	
		ME-321	Heat & Mass Transfer	3	0	3	
		ME-315	Machine Design-II	2	0	2	
		ME-323L	HVAC and H&M Lab	0	1	1	
4, 5, 6	Major Based Core (Depth)	ME-313	Control Engineering	2	0	2	26
		ME-413	Finite Element Methods	2	0	2	
		ME-413L	Finite Element Methods Lab	0	1	1	
		ME-323	Heating, Ventilating and Air Conditioning	2	0	2	
		ME-411	Mechanical Vibrations	3	0	3	
		ME-421	Internal Combustion Engines	2	0	2	
		ME-421L	Internal Combustion Engines Lab	0	1	1	
		ME-411L	Mechanisms and Mechanical Vibration Lab	0	1	1	
		ME-412	Applied Artificial Intelligence & Machine learning	2	0	2	
		ME-412L	Applied Artificial Intelligence & Machine learning Lab	0	1	1	
		ME-414	Reverse Engineering and Inspection Techniques	2	0	2	

		ME-414L	Reverse Engineering and Inspection Techniques Lab	0	1	1	
		ME-4xx	Technical Elective-I	3	0	3	
		ME-4xx	Technical Elective-II	2	0	2	
		ME-4xxL	Technical Elective-II Lab	0	1	1	
1, 2, 3, 4	Multi-Disciplinary Engineering	EE-101	Electrical Engineering	2	0	2	6
		EE-301	Electronics Engineering	2	0	2	
		EE-301L	Electrical and Electronics Engineering Lab	0	1	1	
		FRC131	Occupational Health & Safety	1	0	1	
1,2,3,4,5, 6, 7, 8	Senior Design Project	ME-499L	Final Year Design Project-I	0	3	3	6
		ME-499L	Final Year Design Project-II	0	3	3	
6, 7	Internship		Six – Eight Weeks Internship	Mandatory			
1, 2, 3, 4	Flexible Engineering / Non-Engineering	ME-314	Measurement and Instrumentation	2	0	2	8
		ME-314L	M&I and Control Lab	0	1	1	
		ME-415	Mechatronics & Robotics Engineering	2	0	2	
		ME-415L	Mechatronics & Robotics Engineering Lab	0	1	1	
		GS-302	Applied Statistics	2	0	2	
			Engineering Domain CH Total:	**68**	**26**	**94**	
			Non-Engineering Domain CH Total:	**39**	**3**	**42**	
			Total Credit Hours:	**107**	**29**	**136**	

Total Engineering Domain = 69.12%
Total Non- Engineering Domain = 30.88 %

PLOs Mapping Matrix

Course Code	Course Title	Type of Course	PLO-01	PLO-02	PLO-03	PLO-04	PLO-05	PLO-06	PLO-07	PLO-08	PLO-09	PLO-10	PLO-11
			Engineering Knowledge	Problem Analysis	Design/ Development of Solutions	Investigation	Tool Usage	The Engineer and the World	Ethics	Individual and Collaborative Teamwork	Communication	Project Management and Finance	Lifelong Learning
FRC131	Occupational Health & Safety	T						1					
FRC111	Calculus and Analytical Geometry	T	1										
GEC114	Applications of ICT	T	1	1									
GEC114L	Applications of ICT Lab	L	1				1				1		
FRC121	Applied Physics	T	1	1									
FRC121L	Applied Physics Lab	L		1			1			1			
GEC103/ GEC104	Islamic Studies/ Ethics	T							1				
GEC102	Functional English	T						1				1	
ME-115	Materials Engineering	T	1		1								
EE-101	Electrical Engineering	T	1										
CS-101	Computer Systems and Program	T	1				1						
CS-101 L	Computer Systems and Program Lab	L	1		1						1		
ME-113	Engineering Mechanics-I: (Statics)	T	1	1	1								
ME-111	Engineering Drawing and Graphics	T	1	1									
ME-111L	Engineering Drawing and Graphics Lab	L	1						1				
ME-112L	Workshop Practice Lab	L					1			1		1	

GS-101	Linear Algebra & Ordinary Differential Equations	T	1	1									
ME-116L	Computer Aided Drawing Lab	L					1						
ME-211	Engineering Mechanics-II: (Dynamics)	T	1	1				1					
ME-212	Mechanics of Materials-I	T	1	1									
ME-221	Thermodynamics- I	T	1	1									
ME-211 L	Engineering Mechanics Lab	L				1				1			
GS-201	Complex Variables & Partial Differential Equation's	T	1	1									
GEC205	Expository Writing	T							1		1		
URC-201	Functional Arabic	T											1
ME-223	Thermodynamics-II	T	1										
ME-214	Mechanics of Materials-II	T	1	1									
ME-222	Fluid Mechanics-I	T	1	1									
ME-215	Machine Design-I	T	1		1						1		
ME-214 L	Mechanics of Materials Lab	L				1				1			
ME-223 L	Thermodynamics Lab	L		1		1				1			
GEC206	Ideology and Constitution of Pakistan	T						1	1				
GEC207	Civics and Community Engagement	T						1					
GEC216	Entrepreneurship	T	1	1						1			
ME-311	Manufacturing Processes	T	1				1	1					
ME-311 L	Manufacturing Processes Lab	L					1			1		1	
ME-322	Fluid Mechanics-II	T		1	1								
ME-322 L	Fluid Mechanics Lab	L				1				1			

ME-313	Control Engineering	T		1	1								
ME-321	Heat & Mass Transfer	T	1	1	1								
GS-301	Numerical Analysis	T	1										
GS-301 L	Numerical Analysis Lab	L	1										
EE-301	Electronics Engineering	T	1										
EE-301 L	Electrical and Electronics Engineering Lab	L				1				1			
GS-3xx	Social Science Elective	T											
GS-303	Human Resource Management	T							1			1	
GS-304	Organizational Behavior	T							1			1	
GS-305	Engineering Economics	T	1	1			1					1	
ME-323	Heating, Ventilating and Air Conditioning	T	1	1			1						
ME-315	Machine Design-II	T		1	1								
ME-314	Measurement and Instrumentation	T	1	1	1								
ME-314 L	M&I and Control Lab	L				1	1						
ME-323 L	HVAC and H&M Lab	L				1				1			
GS-302	Applied Statistics	L	1	1	1								
ME-312	Mechanics of Machines	T	1	1	1								
URC-302	Understanding Quran	T						1					1
ME-411	Mechanical Vibrations	T		1	1	1							
ME-413	Finite Element Methods	T	1	1			1						
ME-413 L	Finite Element Methods lab	T					1						
ME-412	Applied Artificial Intelligence & Machine learning	T	1				1						

ME-412 L	Applied Artificial Intelligence & Machine learning Lab	L		1			1						
ME-411 L	Mechanisms and Mechanical Vibration Lab	L				1				1			
MS-401	Project Management	T										1	
ME-499 L	Final Year Design Project-I	L	1	1	1	1	1	1	1	1	1	1	1
ME-4xx	Technical Elective-I	T											
ME-431	Maintenance Engineering	T	1	1									1
ME-416	Product Design & Development	T			1			1					1
ME-422	Renewable Energy Technology	T	1			1	1	1					
ME-417	Composite Materials	T	1		1								1
ME-414	Reverse Engineering and Inspection Techniques	T		1		1	1						
ME-414 L	Reverse Engineering and Inspection Techniques Lab	L				1		1					
ME-415	Mechatronics & Robotics Engineering	T	1	1	1								
ME-415 L	Mechatronics & Robotics Engineering Lab	L			1	1	1						
ME-421	Internal Combustion Engines	T	1	1				1					
ME-421 L	Internal Combustion Engines Lab	L				1				1			
ME-499 L	Final Year Design Project-II	L	1	1	1	1	1	1	1	1	1	1	1
ME-4xx	Technical Elective-II	T											
ME-423	Power Plant	T		1									1
ME-418	Stress Analysis	T	1										1
ME-424	Computational Fluid Dynamics	T		1									1
ME-419	Mechanical Engineering Design Analysis	T	1	1									1

ME-4xx L	Technical Elective-II Lab	L											
ME-423 L	Power Plant Lab	L				1				1			
ME-418 L	Stress Analysis Lab	L				1	1						
ME-424 L	Computational Fluid Dynamics Lab	L					1						
ME-419 L	Mechanical Engineering Design Analysis Lab	L				1				1			
			42	35	18	19	21	13	8	16	6	9	11
			21%	18%	9%	10%	11%	7%	4%	8%	3%	5%	6%

Taxonomy Mapping Matrix1

Code	Taxonomy	C1	C2	C3	C4	C5	C6	P1	P2	P3	P4	P5	P6	P7	A1	A2	A3	A4	A5
	Title	Remember	Understanding	Applying	Analyzing	Evaluating	Creating	Perception	Set	Guided Response	Mechanism	Complex Overt Response	Adaptation	Origination	Receiving	Responding	Valuing	Organization	Characterization
FRC131	Occupational Health & Safety		1	1															
FRC111	Calculus and Analytical Geometry		1																
GEC114	Applications of ICT		1	1															
GEC114L	Applications of ICT Lab			1						1						1			
FRC121	Applied Physics		1	1															
FRC121L	Applied Physics Lab			1						1						1			
GEC103/ GEC104	Islamic Studies/ Ethics		1	1															
GEC102	Functional English			1													1		
ME-115	Materials Engineering			1	1														
EE-101	Electrical Engineering			1	1														
CS-101	Computer Systems and Program		1	1															
CS-101 L	Computer Systems and Program Lab			1												1			
ME-113	Engineering Mechanics-I: (Statics)	1		1	1														
ME-111	Engineering Drawing and Graphics		1																
ME-111L	Engineering Drawing and Graphics Lab									1							1		

ME-112L	Workshop Practice Lab								1							1			
GS-101	Linear Algebra & Ordinary Differential Equations			1	1														
ME-116L	Computer Aided Drawing Lab									1						1			
ME-211	Engineering Mechanics-II: (Dynamics)			1	1														
ME-212	Mechanics of Materials-I	1	1	1															
ME-221	Thermodynamics- I		1	1	1														
ME-211 L	Engineering Mechanics Lab		1	1	1														
GS-201	Complex Variables & Partial Differential Equation's				1				1							1			
GEC205	Expository Writing		1	1															
URC-201	Functional Arabic		1																
ME-223	Thermodynamics-II		1	1	1														
ME-214	Mechanics of Materials-II		1	1	1														
ME-222	Fluid Mechanics-I		1	1	1														
ME-215	Machine Design-I		1		1														
ME-214 L	Mechanics of Materials Lab		1						1							1			
ME-223 L	Thermodynamics Lab		1							1							1		
GEC206	Ideology and Constitution of Pakistan		1	1													1		
GEC207	Civics and Community Engagement		1	1															
GEC216	Entrepreneurship		1	1														1	
ME-311	Manufacturing Processes		1	1	1														
ME-311 L	Manufacturing Processes Lab						1			1						1			
ME-322	Fluid Mechanics-II			1	1														

ME-322 L	Fluid Mechanics Lab		1						1							1			
ME-313	Control Engineering			1	1	1													
ME-321	Heat & Mass Transfer		1	1	1														
GS-301	Numerical Analysis						1												
GS-301 L	Numerical Analysis Lab									1									
EE-301	Electronics Engineering			1															
EE-301 L	Electrical and Electronics Engineering Lab							1	1							1			
GS-3xx	Social Science Elective																		
GS-303	Human Resource Management		1		1		1												
GS-304	Organizational Behavior				1	1													
GS-305	Engineering Economics	1	1																
ME-323	Heating, Ventilating and Air Conditioning		1	1			1												
ME-315	Machine Design-II			1	1	1													
ME-314	Measurement and Instrumentation		1		1	1													
ME-314 L	M&I and Control Lab										1								
ME-323 L	HVAC and H&M Lab									1							1		
GS-302	Applied Statistics		1	1		1													
ME-312	Mechanics of Machines			1	1														
URC-302	Understanding Quran			1	1														
ME-411	Mechanical Vibrations			1	1														
ME-413	Finite Element Methods		1	1		1													
ME-413 L	Finite Element Methods lab		1					1		1									

ME-412	Applied Artificial Intelligence & Machine learning		1	1															
ME-412 L	Applied Artificial Intelligence & Machine learning Lab			1													1		
ME-411 L	Mechanisms and Mechanical Vibration Lab										1					1			
MS-401	Project Management	1		1		1													
ME-499 L	Final Year Design Project-I																		
ME-4xx	Technical Elective-I																		
ME-431	Maintenance Engineering		1	1	1														
ME-416	Product Design & Development		1	1															
ME-422	Renewable Energy Technology			1	1	1			1										
ME-417	Composite Materials			1	1														
ME-414	Reverse Engineering and Inspection Techniques																		
ME-414 L	Reverse Engineering and Inspection Techniques Lab																		
ME-415	Mechatronics & Robotics Engineering		1	1															
ME-415 L	Mechatronics & Robotics Engineering Lab										1								
ME-421	Internal Combustion Engines		1	1			1												
ME-421 L	Internal Combustion Engines Lab										1						1		
ME-499 L	Final Year Design Project-II																		
ME-4xx	Technical Elective-II																		
ME-423	Power Plant	1			1														
ME-418	Stress Analysis		1						1		1								

ME-424	Computational Fluid Dynamics		1		1														
ME-419	Mechanical Engineering Design Analysis	1		1	1														
ME-4xx L	Technical Elective-II Lab																		
ME-423 L	Power Plant Lab										1						1		
ME-418 L	Stress Analysis Lab								1		1								
ME-424 L	Computational Fluid Dynamics Lab				1					1									
ME-419 L	Mechanical Engineering Design Analysis Lab				1												1		
Appearance of Taxonomy Level in Number of Subjects		6	38	46	32	8	5	2	8	10	7	0	0	0	0	11	9	1	0

Sustainable Development Goals (SDGs) Mapping Matrix

Course Code	Course Title	Type of Course	SDG-1	SDG-2	SDG-3	SDG-4	SDG-5	SDG-6	SDG-7	SDG-8	SDG-9	SDG-10	SDG-11	SDG-12	SDG-13	SDG-14	SDG-15	SDG-16	SDG-17
FRC131	Occupational Health & Safety	T			1														
FRC111	Calculus and Analytical Geometry	T				1					1								
GEC114	Applications of ICT	T				1				1									
GEC114L	Applications of ICT Lab	L				1													1
FRC121	Applied Physics	T									1								
FRC121L	Applied Physics Lab	L									1							1	
GEC103/ GEC104	Islamic Studies/ Ethics	T																1	
GEC102	Functional English	T				1						1							
ME-115	Materials Engineering	T			1						1			1					
EE-101	Electrical Engineering	T									1								
CS-101	Computer Systems and Program	T				1													
CS-101 L	Computer Systems and Program Lab	L				1													
ME-113	Engineering Mechanics-I: (Statics)	T									1		1						
ME-111	Engineering Drawing and Graphics	T				1					1								
ME-111L	Engineering Drawing and Graphics Lab	L				1					1								
ME-112L	Workshop Practice Lab	L					1				1								

GS-101	Linear Algebra & Ordinary Differential Equations	T				1					1								
ME-116L	Computer Aided Drawing Lab	L									1								
ME-211	Engineering Mechanics-II: (Dynamics)	T				1					1								
ME-212	Mechanics of Materials-I	T									1								
ME-221	Thermodynamics- I	T									1								
ME-211 L	Engineering Mechanics Lab	T							1		1								
GS-201	Complex Variables & Partial Differential Equation's	L				1													
GEC205	Expository Writing	T									1								
URC-201	Functional Arabic	T				1													
ME-223	Thermodynamics-II	T							1		1								
ME-214	Mechanics of Materials-II	T									1								
ME-222	Fluid Mechanics-I	T						1	1						1				
ME-215	Machine Design-I	T				1					1								
ME-214 L	Mechanics of Materials Lab	L									1								
ME-223 L	Thermodynamics Lab	L									1								
GEC206	Ideology and Constitution of Pakistan	T				1												1	
GEC207	Civics and Community Engagement	T										1	1						

GEC216	Entrepreneurship	T								1	1								1
ME-311	Manufacturing Processes	T				1					1								
ME-311 L	Manufacturing Processes Lab	L					1				1								
ME-322	Fluid Mechanics-II	T				1			1					1					
ME-322 L	Fluid Mechanics Lab	L									1								
ME-313	Control Engineering	T				1					1		1						
ME-321	Heat & Mass Transfer	T							1		1								
GS-301	Numerical Analysis	T									1								
GS-301 L	Numerical Analysis Lab	L									1								
EE-301	Electronics Engineering	T									1								
EE-301 L	Electrical and Electronics Engineering Lab	L									1								
GS-3xx	Social Science Elective	T																	
GS-303	Human Resource Management	T				1	1			1								1	
GS-304	Organizational Behavior	T				1				1								1	
GS-305	Engineering Economics	T								1	1	1		1					
ME-323	Heating, Ventilating and Air Conditioning	T							1		1								
ME-315	Machine Design-II	T									1								
ME-314	Measurement and Instrumentation	T									1								
ME-314 L	M&I and Control Lab	L									1								

ME-323 L	HVAC and H&M Lab	L									1								
GS-302	Applied Statistics	L				1													
ME-312	Mechanics of Machines	T								1	1								
URC-302	Understanding Quran	T			1						1								
ME-411	Mechanical Vibrations	T									1		1						
ME-413	Finite Element Methods	T							1		1								
ME-413 L	Finite Element Methods lab	T									1								
ME-412	Applied Artificial Intelligence & Machine learning	T				1			1										
ME-412 L	Applied Artificial Intelligence & Machine learning Lab	L				1			1										
ME-411 L	Mechanisms and Mechanical Vibration Lab	L									1								
MS-401	Project Management	T									1								
ME-499 L	Final Year Design Project-I	L																	
ME-4xx	Technical Elective-I	T																	
ME-431	Maintenance Engineering	T									1								
ME-416	Product Design & Development	T									1								
ME-422	Renewable Energy Technology	T							1										
ME-417	Composite Materials	T									1			1					

ME-414	Reverse Engineering and Inspection Techniques	T				1				1	1								
ME-414 L	Reverse Engineering and Inspection Techniques Lab	L									1			1					
ME-415	Mechatronics & Robotics Engineering	T																	
ME-415 L	Mechatronics & Robotics Engineering Lab	L									1								
ME-421	Internal Combustion Engines	T									1								
ME-421 L	Internal Combustion Engines Lab	L					1				1								
ME-499 L	Final Year Design Project-II	L																	
ME-4xx	Technical Elective-II	T																	
ME-423	Power Plant	T				1			1		1								
ME-418	Stress Analysis	T									1								
ME-424	Computational Fluid Dynamics	T				1			1										
ME-419	Mechanical Engineering Design Analysis	T				1					1								
ME-4xx L	Technical Elective-II Lab	L																	
ME-423 L	Power Plant Lab	L					1				1								
ME-418 L	Stress Analysis Lab	L									1								
ME-424 L	Computational Fluid Dynamics Lab	L							1		1								

ME-419 L	Mechanical Engineering Design Analysis Lab	L									1						

Professional Competence Profiles (ECs) Mapping Matrix

Course Code	Course Title	Type of Course	EC-1	EC -2	EC -3	EC -4	EC -5	EC -6	EC -7	EC -8	EC -9	EC -10	EC -11	EC -12	EC -13
FRC131	Occupational Health & Safety	T			1			1	1						
FRC111	Calculus and Analytical Geometry	T	1	1											
GEC114	Applications of ICT	T	1	1											
GEC114L	Applications of ICT Lab	L		1								1			
FRC121	Applied Physics	T	1	1	1										
FRC121L	Applied Physics Lab	L			1							1			
GEC103/ GEC104	Islamic Studies/ Ethics	T								1					
GEC102	Functional English	T	1									1			
ME-115	Materials Engineering	T	1	1		1									
EE-101	Electrical Engineering	T	1	1											
CS-101	Computer Systems and Program	T	1	1	1		1								
CS-101 L	Computer Systems and Program Lab	L	1	1		1									
ME-113	Engineering Mechanics-I: (Statics)	T	1	1	1	1									
ME-111	Engineering Drawing and Graphics	T	1	1	1										
ME-111L	Engineering Drawing and Graphics Lab	L	1	1						1					

ME-112L	Workshop Practice Lab	L			1		1						1	1	1
GS-101	Linear Algebra & Ordinary Differential Equations	T	1	1	1										
ME-116L	Computer Aided Drawing Lab	L			1		1								
ME-211	Engineering Mechanics-II: (Dynamics)	T	1	1	1			1	1						
ME-212	Mechanics of Materials-I	T												1	1
ME-221	Thermodynamics- I	T	1	1	1										
ME-211 L	Engineering Mechanics Lab	T	1	1	1										
GS-201	Complex Variables & Partial Differential Equation’s	L					1					1			
GEC205	Expository Writing	T	1	1	1										
URC-201	Functional Arabic	T								1		1			
ME-223	Thermodynamics-II	T	1	1											
ME-214	Mechanics of Materials-II	T	1	1	1										
ME-222	Fluid Mechanics-I	T	1	1	1										
ME-215	Machine Design-I	T	1	1		1						1			
ME-214 L	Mechanics of Materials Lab	L					1					1			
ME-223 L	Thermodynamics Lab	L			1		1					1			
GEC206	Ideology and Constitution of Pakistan	T							1	1					
GEC207	Civics and Community Engagement	T						1	1						
GEC216	Entrepreneurship	T	1	1	1										
ME-311	Manufacturing Processes	T	1	1	1		1	1	1						

ME-311 L	Manufacturing Processes Lab	L			1		1					1			
ME-322	Fluid Mechanics-II	T			1	1									
ME-322 L	Fluid Mechanics Lab	L					1					1			
ME-313	Control Engineering	T			1	1									
ME-321	Heat & Mass Transfer	T	1	1	1	1									
GS-301	Numerical Analysis	T	1	1											
GS-301 L	Numerical Analysis Lab	L	1	1											
EE-301	Electronics Engineering	T	1	1											
EE-301 L	Electrical and Electronics Engineering Lab	L					1					1			
GS-3xx	Social Science Elective	T													
GS-303	Human Resource Management	T								1		1			
GS-304	Organizational Behavior	T								1		1			
GS-305	Engineering Economics	T	1	1	1		1								
ME-323	Heating, Ventilating and Air Conditioning	T	1	1	1		1								
ME-315	Machine Design-II	T			1	1									
ME-314	Measurement and Instrumentation	T	1	1	1	1									
ME-314 L	M&I and Control Lab	L			1		1								
ME-323 L	HVAC and H&M Lab	L					1					1			
GS-302	Applied Statistics	L	1	1	1	1									
ME-312	Mechanics of Machines	T	1	1	1	1									

URC-302	Understanding Quran	T						1	1				1	1	1
ME-411	Mechanical Vibrations	T			1	1	1								
ME-413	Finite Element Methods	T	1	1	1		1								
ME-413 L	Finite Element Methods lab	T			1		1								
ME-412	Applied Artificial Intelligence & Machine learning	T	1	1	1		1								
ME-412 L	Applied Artificial Intelligence & Machine learning Lab	L			1		1								
ME-411 L	Mechanisms and Mechanical Vibration Lab	L					1					1			
MS-401	Project Management	T									1				
ME-499 L	Final Year Design Project-I	L	1	1	1	1	1	1	1	1	1	1	1	1	1
ME-4xx	Technical Elective-I	T													
ME-431	Maintenance Engineering	T	1	1	1	1									
ME-416	Product Design & Development	T				1		1	1						
ME-422	Renewable Energy Technology	T	1	1	1		1	1	1						
ME-417	Composite Materials	T	1	1		1									
ME-414	Reverse Engineering and Inspection Techniques	T			1		1								
ME-414 L	Reverse Engineering and Inspection Techniques Lab	L					1	1	1						
ME-415	Mechatronics & Robotics Engineering	T	1	1	1	1									
ME-415 L	Mechatronics & Robotics Engineering Lab	L			1	1	1								
ME-421	Internal Combustion Engines	T	1	1	1			1	1						

ME-421 L	Internal Combustion Engines Lab	L					1					1			
ME-499 L	Final Year Design Project-II	L	1	1	1	1	1	1	1	1	1	1	1	1	1
ME-4xx	Technical Elective-II	T													
ME-423	Power Plant	T	1	1	1										
ME-418	Stress Analysis	T	1	1											
ME-424	Computational Fluid Dynamics	T	1	1	1										
ME-419	Mechanical Engineering Design Analysis	T	1	1	1										
ME-4xx L	Technical Elective-II Lab	L													
ME-423 L	Power Plant Lab	L					1								
ME-418 L	Stress Analysis Lab	L			1		1								
ME-424 L	Computational Fluid Dynamics Lab	L			1		1								
ME-419 L	Mechanical Engineering Design Analysis Lab	L					1					1			

2. Course Specifications

Insert hyperlink for all course specifications using IIUI template

3. Teaching and learning strategies to achieve program learning outcomes

Describe policies, teaching and learning strategies, learning experience, and learning activities, including curricular and extra-curricular activities, to achieve the program learning outcomes.

The course learning outcomes that in turn define the program learning outcomes are achieved through adopting following methodologies:

1. Lectures / Discussions
2. Demonstrations
3. Videos / Animations
4. Exercises
5. Seminars /Workshops
6. Internships
7. Surveys

4. Assessment Methods for program learning outcomes.

Describe assessment methods (Direct and Indirect) that can be used to measure achievement of program learning outcomes in every domain of learning.

Indirect: Exit Survey and Internship Survey

Direct:

Domain	Assessment Method
Knowledge and Understanding	– Final Exam – Mid Exam – Quizzes – Assignments – Projects – Complex Engineering Problems
Skill	– Final Practical Performance Exam – Mid Practical Performance Exam – Projects – Open Ended Lab
Value	– Viva – Presentation

	– Class discussion / participation – Group Tasks

D. Student Admission and Support:

1. Student Admission Requirements
Degree Duration: 4 years **Admission Requirements /Eligibility Criteria:** HSSC (Pre-Engineering) (Mathematics / Physics / Chemistry) or equivalent with minimum 60% marks and SSC (Science) or equivalent with minimum 60% marks.
2. Guidance and Orientation Programs for New Students
Academic advising and guidance are continuous process of educational partnership dedicated to the student's academic success. The Faculty members are committed to provide an advising system that guides the students to discover and achieve life goals, advances intellectuality and motivates toward active participation.
3. Student Counseling Services (academic, career, psychological and social)
– Each student has an academic advisor in order to follow up his academic progress and to help him and solve any problem irrespective of social or educational field. Each academic advisor provides high quality advising services that promote students success. Students enrolled in the department are divided into a number of group with 20 students in each group, and then the academic advisors are assigned to those groups. – Each faculty member has to schedule a definite time to meet his students in his office or class room, in order to solve the problems asked by the students. – The office hour schedule for all faculty members are clearly fixed in front of the respective offices.
4. Special Support (low achievers, disabled, gifted and talented)
NIL

E. Teaching and Administrative Staff

1. Present Teaching and Administrative Staff

Academic Rank	Specialty	Total Number of Members
Professors	Mechanical Engineering	3
Associate Professors	Mechanical Engineering	1
Assistant Professors	Mechanical Engineering	8
Lecturers	Mechanical Engineering	8

Academic Rank	Specialty	Total Number of Members
Lab Engineers	Mechanical Engineering	7
1. Technicians 2. Lab Attendants	1. DAE Mechanical 2. Matric	16
Administrative and Supportive Staff	-	5
Others (specify)	NONE	-

2. Professional Development

2.1 Orientation of New Teaching Staff

Describe briefly the process used for orientation of new, visiting and part-time teaching staff

We do some orientation for new teaching staff such as:

- Welcomed the new faculty members and introduced and giving an overview about the organizational structure of the program.
- Workshops/seminars conducted about Outcome based education system.
- Periodical meetings with heads of academic committees and course coordinators.

2.2 Professional Development for Teaching Staff

Describe briefly the plan and arrangements for academic and professional development of teaching staff (e.g., teaching & learning strategies, learning outcomes assessment, professional development, etc.)

- University provides opportunities to the faculty to improve their skills/ knowledge through workshops organized by the university or outside.
- Permanent/contract faculty especially lecturers are sent for various faculty development programs. Faculty members are also sent for higher education leading to PhD after completion of 3 years of service.

F. Learning Resources, Facilities, and Equipment

1. Learning Resources.

Mechanism for providing and quality assurance of learning resources (textbooks, references and other resource materials, including electronic and web-based resources, etc.)

The University has one Book Bank in Central as well as faculty Library which collection is 45760. To provide efficient services university purchased 44 copies of 70 titles for engineering students. University has also an e-book database available for the students with more than 729942 engineering books available on LAN.

Following services are provided to users in library.

- Electronic Online System
- Audio Visual Services
- Book and Poster Exhibits
- Current Awareness Service
- Photo Copy Facility
- Information Literacy Sessions
- Internet Workstations
- Reference and Research Service
- Speaker Programs

- Digital Library Access
- RFID system
- CCTV surveillance system

2. Facilities and Equipment
(Library, laboratories, medical facilities, classrooms, etc.).

Library: The University has a well-equipped Central Library. The Central Library has more than 2,00,000 volumes on various related topics. The faculty has one departmental library which contains 7600 technical books. A sufficient number of technical Magazines, Proceedings, Journals and Reports are also available for reference services in the library. For Departmental of Mechanical Engineering 2455 books are available in the departmental Library

Laboratories: DME is always encouraged improving its facilities to enhance its students learning capabilities. Total 19 labs are available which cover all lab courses of mechanical engineering curriculum.

Lecture Facilities: Department of Mechanical Engineering (DME) has the following facilities.

- Five dedicated Class Rooms.
- Seating Capacity of 4 class room is 40 whereas 5th class room has a capacity of 70.
- Computer and multimedia facilities are available in each class room
- Seminar Hall with seating capacity of 50 is shared with DEE.

Medical Centre: IIUI is providing medical services to the entire H-10 campus through a purpose built IIUI Medical Centre. IIUI Medical Centre is having qualified medical officers and trained paramedical staff, provide medical services round the clock. The Centre is supported with fully equipped ambulances to facilitate serious patients in case of emergency to hospitals.

Transport: The university owns a fleet of more than 78 vehicles. The university runs a fleet of Hino/Nissan buses separately for boys and girls. There are frequent rounds to all corners of the twin city for pick and drop of students from 6.00am to 10.00pm.

3. Arrangements to Maintain a Healthy and Safe Environment (According to the nature of the program)

Safety provisions are paramount for the department and the university. In this regard, EHS (Environment, health & safety) committee has been constituted at the departmental level which has formulated the EHS policy and guidelines. The incident report form is available for reporting of untoward incidents in labs, building and other university/department spaces. Moreover, regular safety drills and exercises are also practiced in the department. First aid kits are available in all labs and fire extinguishers are regularly inspected and replaced upon expiration.

G. Program Management and Regulations

1. Program Management

1.1 Program Structure
(including boards, councils, units, committees, etc.)

Attached as Annexure-I

1.2 Stakeholders Involvement
Describe the representation and involvement of stakeholders in the program planning and development. (students, professional bodies, scientific societies, alumni, employers, etc.)

Department of Mechanical Engineering has an Industrial Advisory Board comprising of members of industry, alumni, Chairman of the Department, as Convener Industrial Advisory Board and senior

faculty members. The IAB provides a formal platform for interaction with industry where industrial experts provide feedback about the program, its objectives (PEOs), curriculum and any other matters related to the program.

2. Program Regulations

Provide a list of related program regulations, including their link to online version: admission, study and exams, recruitment, appeals and complaint regulations, etc.)

All the rules are available in the admission of the university and soft copy is available on link webpage:

https://admission.iiu.edu.pk/docs/IIUI_Admission_Guide_2021.pdf

H. Program Quality Assurance

1. Program Quality Assurance System

Provide online link to quality assurance manual

NIL

2. Program Quality Monitoring Procedures

Department Quality Enhancement Cell works in Mechanical Engineering department under the supervision of convener of DQAC. The terms of reference and responsibilities for the DQAC are:

1. Preparation of End Semester Report (ESR) which includes formative as well as summative reports/summaries.
2. Housing all the course files, PEOs, PLOs and CLOs assessments, reports etc. in form of folders to keep proper record for PEC visit
3. Coordinate with chairman office and CRC for implementation of submissions in ESR.
4. To ensure the course coverage and achieve CLOs at appropriate level direct assessments (quizzes, assignments, mid and final term exams).
5. Initiate CQI process and preparation of CQI report based on ESR and its subsequent completion of task.
6. Completion of SAR chapter on CQI in coordination with OBE coordinator – documentation.

3. Arrangements to Monitor Quality of Courses Taught by other Departments.

DQAC ensures about the course coverage and achieve CLOs at appropriate level direct assessments (quizzes, assignments, mid and final term exams).

4. Arrangements Used to Ensure the Consistency between Main Campus and Branches (including male and female sections)

NIL

5. Arrangements to Apply the Institutional Regulations Governing the Educational and Research Partnerships (if any).

NIL

6. Assessment Plan for Program Learning Outcomes (PLOs), and Mechanisms of Using its Results in the Development Processes

Direct assessment of PLOs is carried out from the assessment of CLOs in courses and final year project. The PLO attainment data from direct sources is compiled by DQAC of DME.

Indirect assessment is carried out using Exit student survey form, which is collected at the time of the graduation of a student cohort. The survey is conducted by the DQAC.

KPIs for student and Program PLO assessment are given in Table

PLO's Assessment	Assessment Level	Assessment Method	Measurement Tool	KPIs	Frequency
Student's PLO Assessment	Individual	Direct	Assessment through midterm exam, final term exam, quizzes, assignments and projects during semester	Obtain an average score greater than or equal to 50% in all CLOs of a PLO	At the end of each semester
Program's PLO Assessment	Cohort		Through course assessment and final year project	50% of each cohort obtain at least 50% in each PLO	At the end of each semester
	Cohort	Indirect	Exit Survey form	Obtain an average score greater than or equal to 50%	At the time of graduation
	Individual	Indirect	Internship Feedback form	Obtain an average score greater than or equal to 50%	After every summer
CLO Assessment	Individual	Direct	Assessment through midterm exam, final term	Obtain 50% in all CLO of a particular course	At the end of each semester

	Course level		exam, quizzes, assignments and projects during semester	50% of the class attending the course obtain 50% score	At the end of each semester

7. Program Evaluation Matrix

Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time
Effectiveness of Teaching	Students	Teacher Evaluation Survey	End of Semester
Assessment	graduates	Exit Survey	End of degree
Assessment	Alumni	Alumni Survey	After 4-5 Years
Assessment	Employers of graduates	Employer Survey	After 4-5 Years
Assessment	Students	Internship Survey	End of Academic Year

Evaluation Areas/Aspects (e.g., leadership, effectiveness of teaching & assessment, learning resources, partnerships, etc.)
Evaluation Sources (students, graduates, alumni, faculty, program leaders, administrative staff, employers, independent reviewers, and others (specify)
Evaluation Methods (e.g., Surveys, interviews, visits, etc.)
Evaluation Time (e.g., beginning of semesters, end of academic year, etc.)

8. Program KPIs*

The period to achieve the target (4-5) year.

No	KPIs	Target	Measurement Methods	Measurement Time
1	To produce competent graduates with relevant knowledge and skills	50% of Alumni are satisfied by knowledge delivered during degree program More than 50% of employers are in agreement with PEO 1	Alumni Survey Employer Survey	After 4-5 Years
2	To produce graduates through professional development and entrepreneurship skills to	More than 50 % graduates are satisfied in response to relevant question More than 50 % employers are satisfied with the graduates in terms of dealing with challenging problems while keeping in view of societal concerns/demands.	Alumni Survey Employer survey	After 4-5 Years

No	KPIs	Target	Measurement Methods	Measurement Time
	serve industry and society.			
3	To produce graduates with leadership qualities having Islamic values, interpersonal and managerial skills.	More than 20% of students are at their mid-level managerial positions within 4 to 5 years after their graduation	Alumni Survey Employer Survey	After 4-5 Years
		More than 50% employers are in agreement with PEO 3 in terms of teamwork, ethical values, leadership & communication skills		

I. Specification Approval Data

Program Chairperson	NAME	DESIGNATION	SIGNATURE	DATE
Chairman of Program	Dr. Adnan Aslam Noon	Assistant Professor/Chairman DME		