Pakistan Engineering Council

(Constituted under Pakistan Engineering Council Act, 1976 enacted by the Parliament)

Engineering Accreditation Department

Ataturk Avenue (East),
G-5/2, Islamabad

PEC/EAD/P&C/UEP/2023

September 27, 2023

To:

All Vice Chancellors/ Rectors/ Heads of
HEIs in Pakistan.

Subject: **Adoption of HEC Undergraduate Policy (UEP) for Undergraduate Engineering Degree Programs**

Ref: HEC Notification No.15-54/Coord/2019/HEC/(CURR/UEP/578 dated July 13, 2023.

Dear Sir/ Madam,

PEC in its 110th meeting of Engineering Accreditation Board (EAB) held on August 2, 2023 considered the subject policy and constituted a Sub-Committee for finalizing the recommendations for engineering programs after thorough deliberations. The approved PEC Engineering Education Guidelines duly approved and incorporating HEC UEP are as under for Undergraduate Engineering Programs w.e.f. Fall-2023 and onwards:

a. PEC Engineering Education Guidelines - **Annex-A**.
b. Existing and Proposed Courses of PEC Framework - **Annex-B**.

2. The Guidelines have also been forwarded to PEC Engineering Curriculum Review & Development Committees (ECRDCs) to incorporate these guidelines in ongoing and future review of Engineering Curricula.

3. Forwarded for information, compliance and implementation, please.

Regards,

Engr. Niaz Ahmed
HoD/ Additional Registrar
Ph: 051-9219050

Encl: as above

Copy to:-

- Chairman/ Executive Director/ Advisor (Acad), HEC
- Convener EAB, PEC
- All ECRDCs
- PS to Chairman / Registrar, PEC
- All PEC Regional/ Branch Offices

Annex-A

PEC ENGINEERING EDUCATION GUIDELINES IN LINE WITH HEC UG EDUCATION POLICY 2023

S#	Description/ Attributes	HEC Policy	Revised PEC Guidelines for Fall-2023 & onwards
1.	Nomenclature	• Bachelor of Science or Bachelor of Studies (BS) • Professional Councils will follow their own approved nomenclature to remain synchronize with their service rules.	• B.E, B.S Engineering and B.Sc Engineering.
2.	Program Credits	• Total=120-144 Credit Hours • General Education: Min 30 (Arts & humanities, Social Sci, Natural Sci, Quantitative Reasoning, Expository Writing, **Computer Courses**, Entrepreneurship, Pak Studies, Islamic Studies/ Ethics) • Major Courses: Min 72 • Minor Courses: Min 12 • Inter-Disc/ Distribution: Min 12	• Total=**130-136** Credit Hours • General Education for Engineering Disciplines = Min **38** (after readjusting non-engineering courses) • Engineering = Min **72** **(Including Computer Courses, foundation, breadth depth/ Major)** • FYDP/ Capstone Project= **06** • Multi-Disciplinary Engineering Courses= Min **06** • **08-14** Credit Hours (Flexible Engineering/ Non Engineering Courses) may be adjusted as per the requirements
3.	Admission	In the Department (In the 1st Semester)	In the program/ department (In the First Semester) As per PEC Regulations for Engineering Education in Pakistan
4.	General Education Courses	HEI may offer during first 4 Semesters.	Spread over 8 semesters/ program
5.	Academic Advisory	Proposed by HEC	Already included in PEC Policies
6.	Guidance on General Education	To be provided by the Curriculum Division, HEC for degrees	To be provided by PEC Curriculum Section
7.	Field Experience (Mandatory)	At-least 06-08 weeks, (preferably undertaken during semester or summer break of 03 Credit Hours (Graded)	Mandatory and qualifying Industrial Internship of **06-08 Weeks** as per PEC Accreditation Manual-2019

8.	Capstone Project (Mandatory)	Till completion of the BS program (03 Credit Hours)	FYDP/ Capstone **(06 Credit Hours)/** *Spread over Final Year (7th & 8th Semester)* The FYDP shall include complex engineering problems and design of systems, components or processes integrating core areas and meeting specified needs with appropriate consideration for public health and safety along with cultural, societal, and environmental considerations encompassing the UN-SDGs. A project of this nature should invariably lead to an integration of the knowledge and practical skills as mandated in the GAs.
9.	Admission in 5th Semester	Allowed (Councils will decide to allow or not)	Not Allowed (as concept of Associate Degree in Engineering Discipline is not approved by PEC)
10.	Exit after 4th Semester	Allowed with Associate Degree (Councils will decide to allow or not)	Not Allowed (as concept of Associate Degree in Engineering Discipline is not approved by PEC)

Annex-B

REVISED COURSES OF PEC FRAMEWORK - 2023
(Inline with HEC UG Education Policy-2023)

Knowledge Profile* (WK-1 to WK-8)*	Knowledge Area	Sub-Area	Courses	Credit Hours	Sub-Area	Courses	Credit Hours
		Existing			Revised		
Non-Engineering Domain							
WK-2	**Natural Science**	Math	As per program requirements	12 – 15	Math	***Quantitative Reasoning-I (or equivalent courses for all Engineering Disciplines)	3
						**Quantitative Reasoning- II (or equivalent courses for all Engineering Disciplines)	3
						***Advanced/ Applied Math Courses (as per requirement of the Engineering Disciplines)	6-9

WK-1		Physics	Applied Physics	6 – 9	Natural Science (Physics, Chemistry, Math)	***Applied Physics	3-9
		Chemistry	Applied Chemistry			***Applied Chemistry	
		Natural Science/ Math Elective	As per program requirements			***Math Elective	
WK-7	**Humanities**	English	Written, communication and presentation skills	4 – 7	English	**Functional English	3
						**Expository Writing	3
		Culture	Islamic Studies and Ethics	2	Culture	**Islamic Studies OR Religious Education/ Ethics in lieu of Islamic studies for non-Muslim students	2
			Pakistan Studies and Global Perspective	2		**Ideology and Constitution of Pakistan	2
						*Arts & Humanities (Languages	2

						or study of religion)	
		Social Science	Social and soft skills	2 – 6	Social Science	***Social Science	2
						**Applications of ICT	5
						**Civics and Community Engagement	
	Management Sciences	Professional Practice	Professional and Project Management	2 – 6	Professional Practice	***Project Management	2
						**Entrepreneurship	2
Total (Non-Engineering Domain)				**Min 30**	**Total (Non-Engineering)**		**Min 38**
Knowledge Profile* (WK-1 to WK-8)	**Knowledge Area**	**Sub-Area**	**Courses**	**Credit Hours**	**Sub-Area**	**Courses**	**Credit Hours**
Engineering Domain							
WK-2/ WK-4/ WK-5/ WK-6/	Computer and Information Sciences	ICT/AI/ Data Science/ Cyber Security		6 – 9	AI/ Data Science/ Cyber Security		6-9
WK-3/ WK-2/	Foundation Engg Courses		Specific to program	22 – 24		Specific to program	22 – 24

			objectives and outcomes			objectives and outcomes	
WK-4/ WK-2/ WK-1/	Core Breadth of Engg discipline		Specific to program objectives and outcomes	23 – 24		Specific to program objectives and outcomes	22 – 24
WK-5/ WK-6/	Core Depth of Engg Discipline		Specific to program objectives and outcome	22 – 24		Specific to program objectives and outcome	22 – 24
				Min 73			**Min 72**
WK-3/ WK-4/ WK-2/ WK-1/	Multidisciplinary Engg Courses		Specific to program objectives and outcome	6 – 12	Specific to program objectives and outcome		6
			Occupational Health and Safety (mandatory- 01 Cr Hr)		Occupational Health and Safety (mandatory- 01 Cr Hr)		
WK-6/ WK-8/ WK-7	Final Year Design Project (FYDP)/ Capstone	Integration of innovative, creative, technical, management and presentation skills of a graduate towards final year.		6	Final Year Design Project (FYDP)/ Capstone		6
WK-6/ WK-7/	Industrial Training	at least 6 - 8 weeks internship		Qualifying	Internship (06-08 Weeks)		Mandatory & Qualifying

WK-4/ WK-5/ WK-6/ WK-7/ WK-8/ WK-2/	**Innovative and Critical Thinking (under relevant courses):** - Complex Problem Solving - Complex Engineering Activities - Semester Project - Case Studies - Open ended labs - Problem Based Learning (PBL)		**Innovative and Critical Thinking (under relevant courses):** - Complex Problem Solving - Complex Engineering Activities - Semester Project - Case Studies - Open ended labs - Problem Based Learning (PBL)	
Total (Engineering domain)		**Min 85**	**Total (Engineering domain)**	**Min 84**
			Flexible Engineering/ Non Engineering Courses) may be adjusted as per the requirements	**8-14**
Total (Credit Hours)		**130 – 136**	**Total (Credit Hours)**	**130 – 136**

Note: * University may offer any course within the specific broader subject domain/ cluster to meet the given credits.
** HEC designed model courses may be used by the university.
*** PEC ECRDC designed courses.