



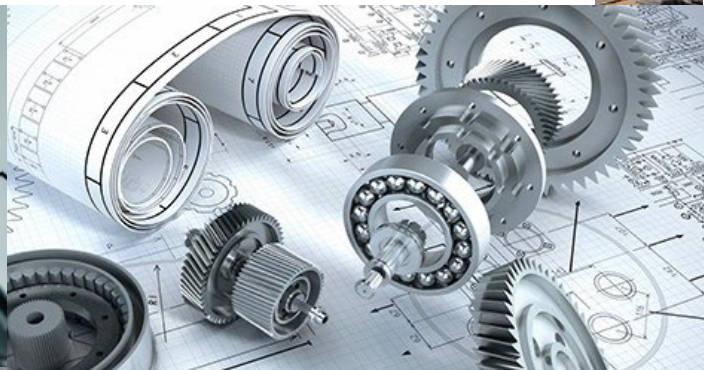
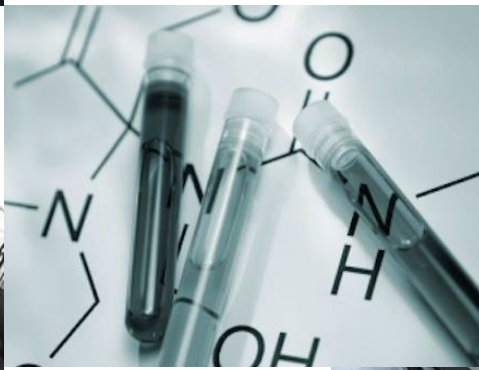
"To meet the international standards
as a source of excellence in
engineering learning and center of
research in the university"

VISION رؤية
2030
المملكة العربية السعودية
KINGDOM OF SAUDI ARABIA



Industrial Engineering Department Handbook

King Khalid University, Abha, Kingdom of Saudi Arabia



The Bachelor of Science in Industrial Engineering Program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET)

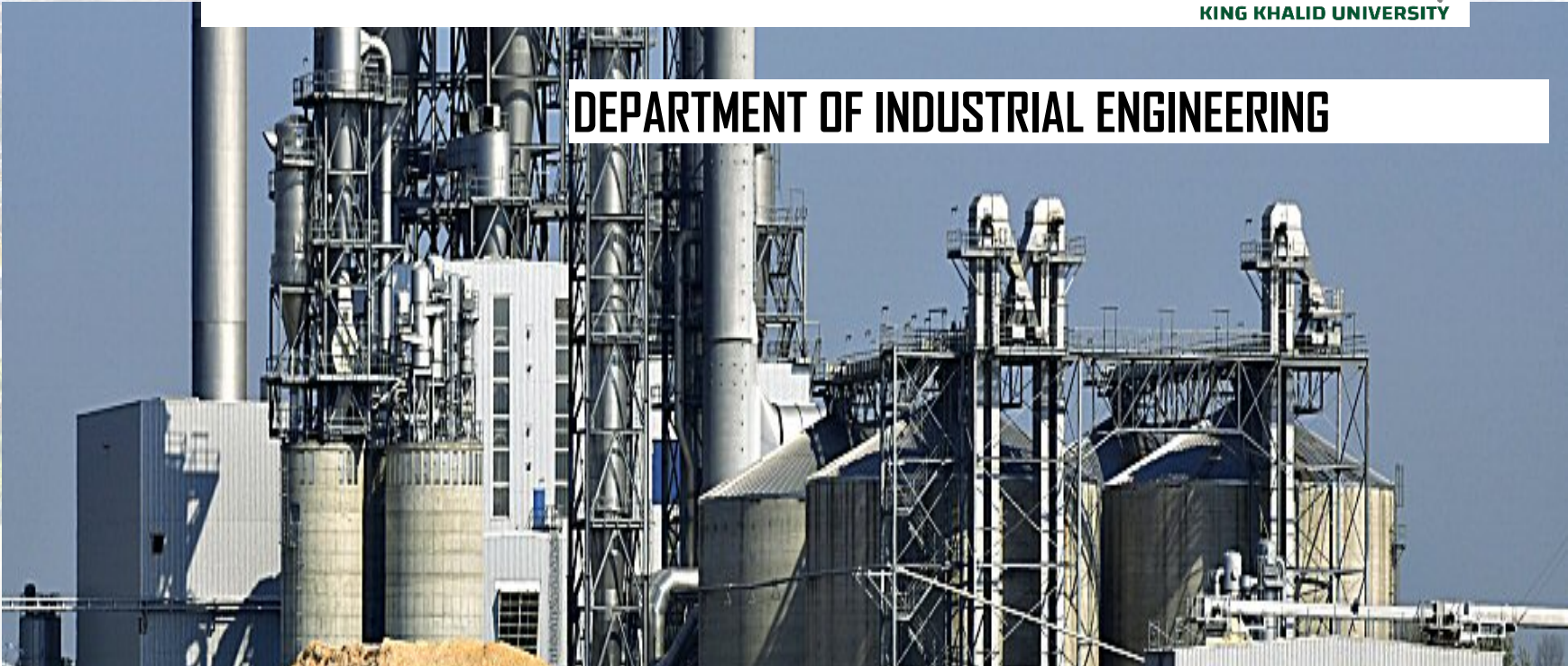
<https://www.abet.org>



Engineering
Accreditation
Commission



DEPARTMENT OF INDUSTRIAL ENGINEERING



Industrial Engineering Program Description

Kingdom of Saudi Arabia has been blessed with vast natural resources, and these resources have been utilized for the progress of the country and welfare of its people. The proper utilization of these natural resources led to the opening of Industrial Engineering Department under College of Engineering (COE) at King Khalid University (KKU). The authorized body, i.e. MoHE (private institutions and Council of Higher Education for public institutions) has approved the program. The Industrial Engineering Department was established at the Gregar main campus. In 2001 of King Khalid University with the objective of graduating students having expertise in all the aspects of Industrial Engineering (<https://engineering.kku.edu.sa/en/node/447>).

The Department of Industrial Engineering offers two BSc programs for both male and female students, namely bachelor's in industrial engineering and bachelor's in occupational safety engineering and two degrees in graduate level, namely Master of science in Safety and Fire Protection Engineering and Master of science in Engineering Management.

The IE department has a process for hiring excellent faculty, for continuous professional development and for facilitating the research work of faculty. The IE department comprises of faculty with high academic achievements and rich experience of teaching in various countries of the globe. In addition to academic experience, many faculties have experience in industry, consultancy and professional organizations. The IE faculty have also administrative experience at the college and the university levels. The department chair discharges his duties through the various academic committees formed of specialized faculties for different aspects of management of the program. The department chair



reports to the Dean of the college. The Dean is the administrative position responsible for all aspects of the academic process in the college.

The Department of Industrial Engineering equips graduates with the engineering, scientific and professional skills necessary to compete in many career fields in the public and private sectors. These career fields include academic fields in higher education institutions (public and private), industrial fields (data analysis, manufacturing operations, waste management, occupational safety, consulting and computer automation, quality assurance, health and services).

The Department of Industrial Engineering has several teaching and research laboratories, which are well equipped with cutting-edge technological equipment. All these resources are used to train undergraduate and postgraduate students and conduct research projects by researchers and faculty to serve the society and contribute to the overall development process of the country.

Industrial Engineering Program Vision

Achieving leadership in the field of Industrial Engineering in the field of education, scientific research, and rendering community services in the Kingdom of Saudi Arabia.

Industrial Engineering Program Mission

Prepare students to design, optimize, and lead efficient, safe, and sustainable systems that integrate people, processes, and technology. Through innovative teaching, applied research, and experiential learning, the program equips graduates to solve complex problems, make data-driven decisions, uphold ethical standards, and contribute to economic and societal development.

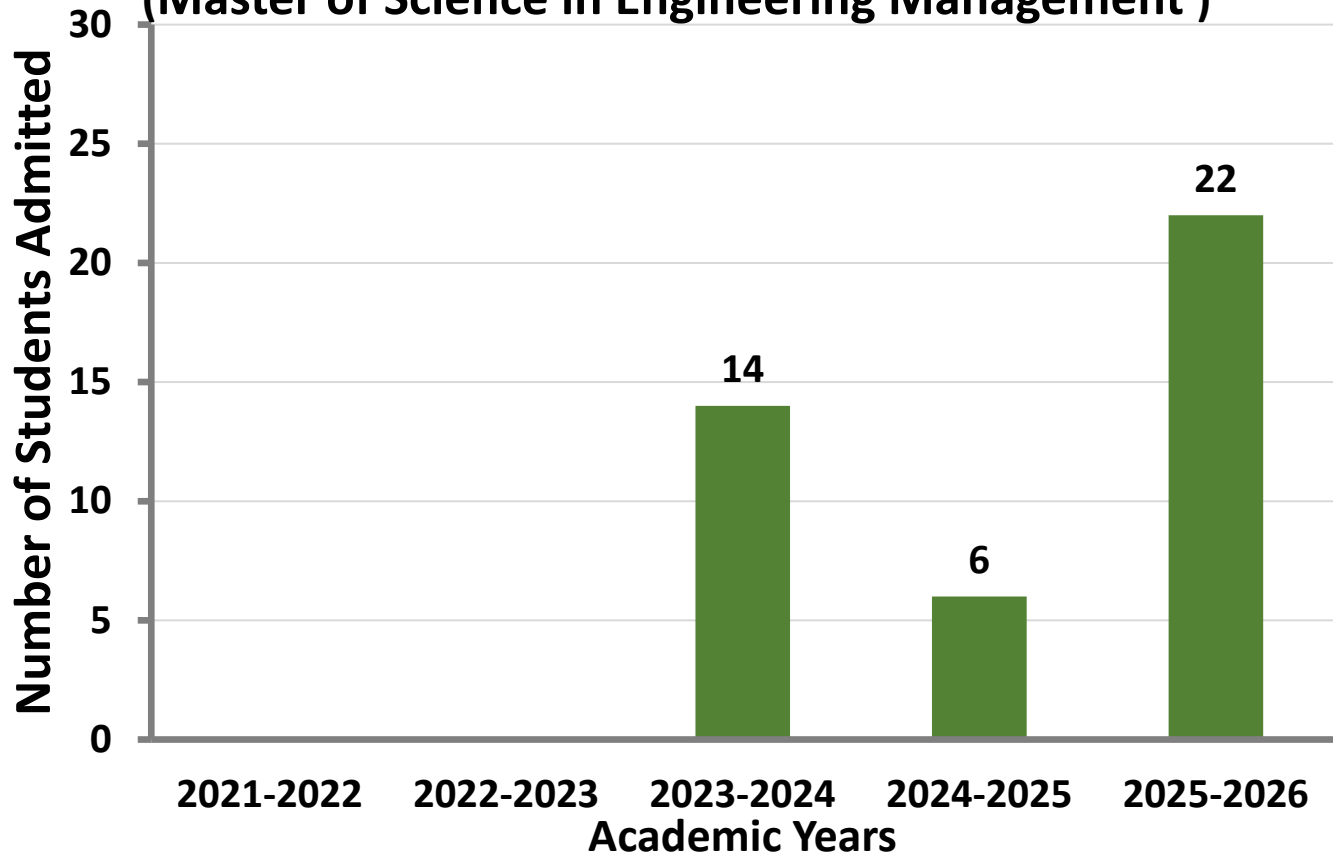
Program Educational Objectives (PEOs)

• PEO1:	Analyze problems and create innovative industrial engineering designs considering functionality, cost-effectiveness, sustainability, safety, aesthetics, and satisfaction.
• PEO2:	Use modern technology and design tools, work individually and in a team effectively, and communicate ideas in written, oral, and graphical form clearly.
• PEO3:	Increase their personal knowledge and skills professionally and academically.
• PEO4:	Serve ethically as a team member or as a team leader to improve their communities.

Program Goals

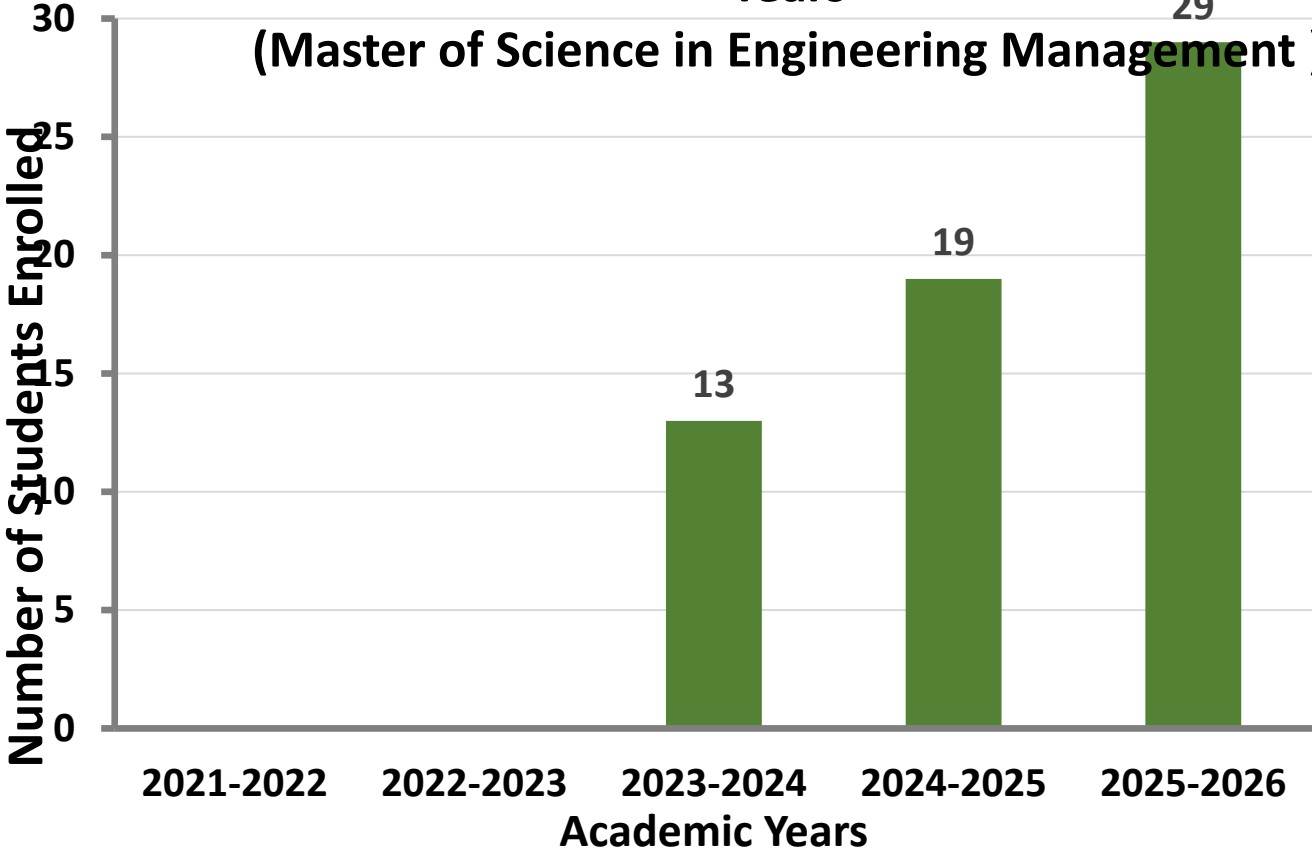
1. Apply principles of transformational leadership to negotiate, mentor, motivate, and lead others toward a shared and ethical organizational vision or goal.
2. Apply knowledge of leadership, change, business models, organizational issues, and regulations to ensure organizational effectiveness, resulting in the improvement of emergency services.
3. Utilize the methods and resources of research, science, and technology to effectively manage emergency services.
4. Utilize appropriate communication strategies and methods to accomplish organizational goals and objectives.
5. Utilize appropriate assessment and planning skills to improve organization and community risk management for emergency services.

Students Admitted Since Last Five Years (Master of Science in Engineering Management)

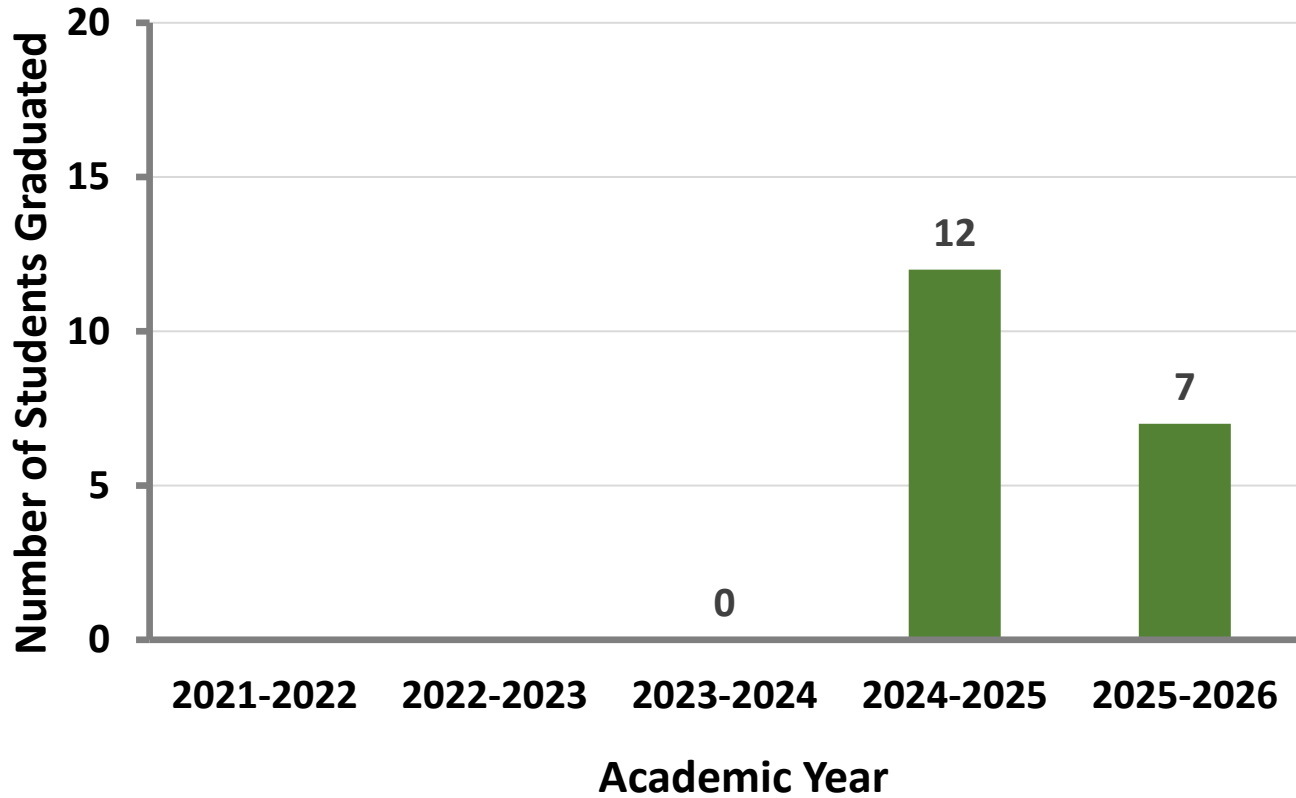


Average Student Enrollment Since Last Five Years

(Master of Science in Engineering Management)



Students Graduated Since Last Five Years (Master of Science in Engineering Management)



An aerial photograph of a modern university campus. The central feature is a large, circular plaza with a green lawn and a paved walkway. In the background, a tall, white, cylindrical tower with a glass facade stands prominently. The campus is surrounded by greenery, including trees and manicured lawns. In the distance, a cityscape and mountains are visible under a clear sky. The overall scene is bright and sunny, suggesting a clear day.

Industrial Engineering Laboratory

- Human Factors Laboratory
- Work Study Laboratory
- Metrology Laboratory
- Statistics Laboratory
- Simulation Laboratory
- Operations Research Laboratory
- CIM Laboratory

Faculty

The IE Department follows a well-structured process for recruiting highly qualified faculty members, supporting their continuous professional development, and encouraging their research activities. The department is composed of faculty with outstanding academic credentials and extensive teaching experience gained from institutions across different countries around the world.

In addition to their academic expertise, many faculty members possess valuable experience in industry, consultancy, and professional organizations. Several faculty members have also held administrative positions at both college and university levels.

The Department Chair oversees departmental activities through various academic committees consisting of specialized faculty members responsible for different aspects of program management. The Department Chair reports directly to the Dean of the College, who is responsible for overseeing all aspects of the academic processes within the college.

Faculty Workload

The assigned workload of the faculty is as per the university current regulations, and it is according to the academic rank of the faculty. Based on the rank and regulation, the teaching load assigned to the faculty without any extra remunerations are as given below.

Professor: 10 credit hours

Associate Professor: 12 credit hours

Assistant Professor: 14 credit hours

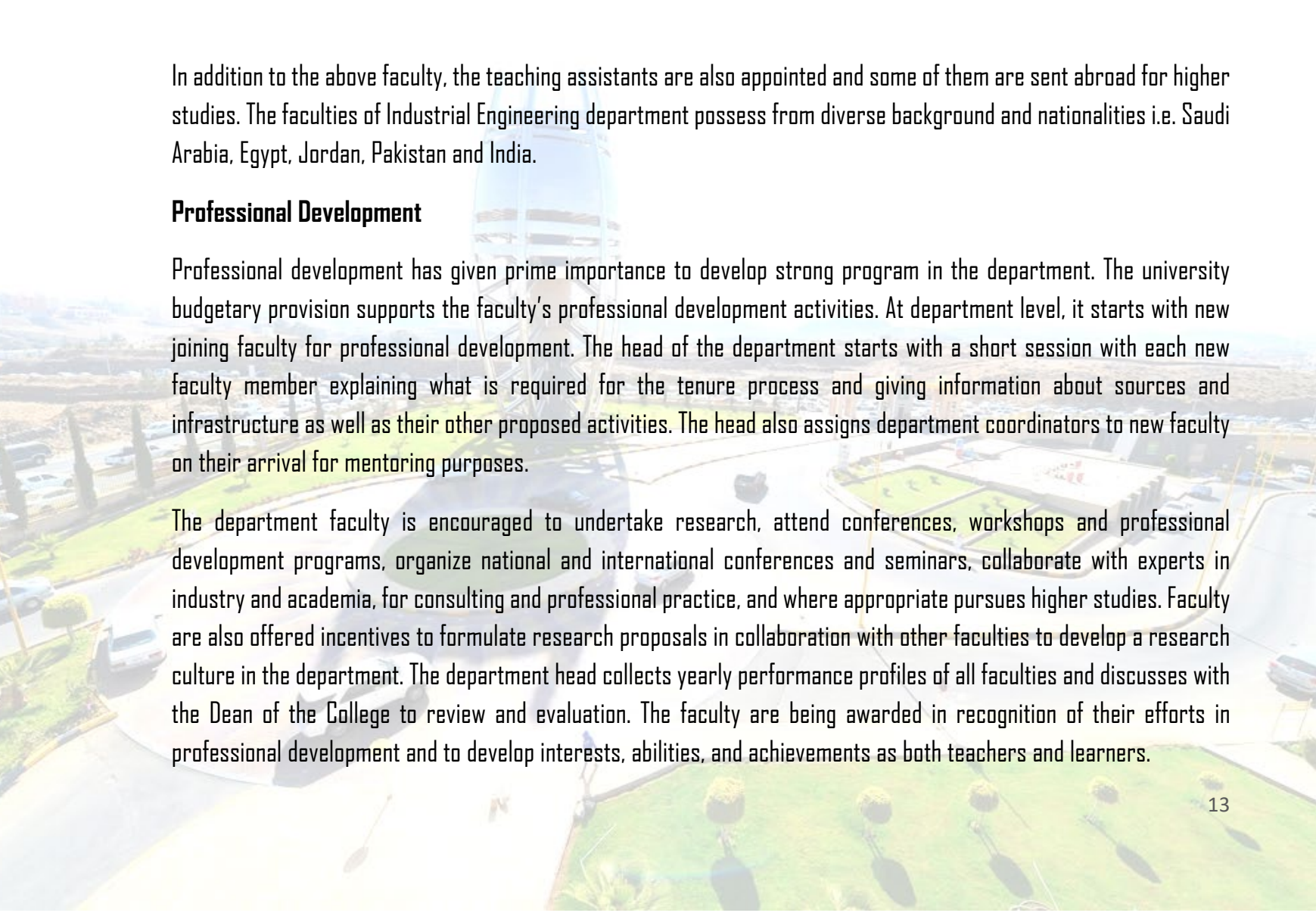
Lecturer: 16 credit hours

The faculty having the administrative responsibilities, in addition to academic, assigned less teaching load. The teaching load assigned is in line to support the faculty's professional development, educational quality improvement activities and for facilitating their research work. The working hours assigned for Saudi faculty are 35 hours per week and for faculty on yearly contract, the working hours are 40 hours per week. The working hours are meant for teaching, research, academic advising, laboratory supervision and any other tasks assigned to them.

Faculty Size

The size of the faculty in the IE department is adequate, and faculty are highly involved in interactions with students, student advising and counseling, university service activities, professional development, and interactions with industrial and professional practitioners including employers of students.

Currently, the department of IE has 03 Professors, 08 Associate Professor ,18 Asst. Professors, and 6 with B.Sc. degree Teaching Assistants.



In addition to the above faculty, the teaching assistants are also appointed and some of them are sent abroad for higher studies. The faculties of Industrial Engineering department possess from diverse background and nationalities i.e. Saudi Arabia, Egypt, Jordan, Pakistan and India.

Professional Development

Professional development has given prime importance to develop strong program in the department. The university budgetary provision supports the faculty's professional development activities. At department level, it starts with new joining faculty for professional development. The head of the department starts with a short session with each new faculty member explaining what is required for the tenure process and giving information about sources and infrastructure as well as their other proposed activities. The head also assigns department coordinators to new faculty on their arrival for mentoring purposes.

The department faculty is encouraged to undertake research, attend conferences, workshops and professional development programs, organize national and international conferences and seminars, collaborate with experts in industry and academia, for consulting and professional practice, and where appropriate pursues higher studies. Faculty are also offered incentives to formulate research proposals in collaboration with other faculties to develop a research culture in the department. The department head collects yearly performance profiles of all faculties and discusses with the Dean of the College to review and evaluation. The faculty are being awarded in recognition of their efforts in professional development and to develop interests, abilities, and achievements as both teachers and learners.

Table: Faculty Details

Faculty Name	Designation	Academic Position	Email	Research profile Link
Dr. Ali Miuflih	Associate Professor	Department Chairman	asalmuflih@kku.edu.sa	https://www.researchgate.net/profile/Ali-Miuflih
Dr. Saleh Y Al Ghamdi	Associate Professor		syalghamdi@kku.edu.sa	https://www.researchgate.net/profile/Saleh-Y-Al-Ghamdi
Prof. Mohamed Sayed Elsayed Elashhab	Professor	Academic Advising and Student Affairs	malashhab@kku.edu.sa	https://scholar.google.com/citations?user=7Lv-
Dr. Naif Mana Abdullah Almakayeel	Associate Professor	Summer Training Committee	halmakaeel@kku.edu.sa	https://scholar.google.com/citations?hl=en&user=1-12kG8AAAAJ

Faculty Name	Designation	Academic Position	Email	Research profile Link
Dr. Mohamed A.A. Mansour	Assistant Professor		momansor@kku.edu.sa	https://www.researchgate.net/profile/Mo
Prof. Mohamed Rafik Noor Mohamed	Professor	Schedules and examinations	mrnoor@kku.edu.sa	https://www.researchgate.net/profile/M
Dr. Raafat Elshaer	Associate Professor	Academic Development and Quality Committee	relshaer@kku.edu.sa	https://www.researchgate.net/profile/RaafatElshaer
Dr. Mohammed Alqahtani	Associate Professor		m.alqahtani@kku.edu.sa	https://www.researchgate.net/profile/Mohammed-Alqahtani
Dr. Mohammed Al Awadh	Associate Professor		mohalawadh@kku.edu.sa	https://www.researchgate.net/profile/Mo
Dr. Mohamad Mukhtar Alam	Assistant Professor	Projects Committee	mhoda@kku.edu.sa	https://www.researchgate.net/profile/mu

Faculty Name	Designation	Academic Position	Email	Research profile Link
Dr. Abdullah Al Fatais	Assistant Professor	Curriculums and Plans Coordinator	alftas@kku.edu.sa	https://www.researchgate.net/profile/fatais
Dr. Abdulsalam Ahmed Alqarni	Assistant Professor	Scientific Research, Innovation, and Graduate Studies Committee	aalqarni@kku.edu.sa	https://scholar.google.com/citations?hl=en&user=bho-nEkAAAAJ
Dr. Osamah Yahya Moshebah	Assistant Professor	Volunteer and Community Service Unit	omoshebah@kku.edu.sa	https://scholar.google.com/citations?view
Dr. Bader Alfardan	Assistant Professor	Educational Services Committee, Faculty Affairs Committee	balfardan@kku.edu.sa	https://www.researchgate.net/profile/Bader-Al-Fardan
Dr. Ali Abdo Muhammad Arishi	Assistant Professor	Evaluation and Assessment Unit	awaje@kku.edu.sa	https://www.researchgate.net/profile/ari-shy
Dr. Sandos Al-Qarni	Assistant Professor		soqarni@kku.edu.sa	

Faculty Name	Designation	Academic Position	Email	Research profile Link
Dr. Sahar Ahmed Idris	Assistant Professor		smohammedali@kku.edu.sa	http://repository.susth.edu/handle/123456789/
Dr. Azeem Hafiz P A	Assistant Professor		aajmal@kku.edu.sa	https://www.researchgate.net/profile/Azeem-Parayil-
Dr. Bilal Akbar Chuddher	Assistant Professor		bmchuddher@kku.edu.sa	https://scholar.google.com/citations?hl=en&user=nkhAiwAAAA
Dr. Ahmed Mohammed Ahmed Alqarfi	Assistant professor		Alqarfi@kku.edu.sa	https://scholar.google.com/citations?user=pFL-YhUAAAAJ&hl=en
Dr. Mohammed Alsaadi	Assistant Professor		mhmalsadi@kku.edu.sa ,	https://www.researchgate.net/profile/Mohammed_Alsaadil

Faculty Name	Designation	Academic Position	Email	Research profile Link
Dr. Raed Qasim Mohammad Al Athamneh	Assistant Professor		Ralathamneh@kku.edu.sa	https://www.researchgate.net/profile/Raed-Al-Athamneh
Dr. Imen Rashid BOUAZZI	Assistant Professor			https://scholar.google.com/citations?user=Ra_4tMsAAAAJ&hl=f
Dr. Abir Khamis Mouldi	Assistant Professor		amouldi@kku.edu.sa	https://scholar.google.com/citations?user=MbDrnBIAAAAAJ&hl=f
Prof. Nermine Harraz	Professor		nharraz@kku.edu.sa	https://scholar.google.com.eg/citations?user=4WMVCAUAAAAJ
Dr. Marwa A. Abd El-baky	Associate Professor		msallam@kku.edu.sa	https://scholar.google.com/citations?user=IMDQTy4AAAAJ&hl=e

Faculty Name	Designation	Academic Position	Email	Research profile Link
Dr. Heba Elkhoully	Assistant Professor		hmohamedelkhoully@kku.edu.sa	https://scholar.google.com/citations?user=x8cYLlAAAAJ&hl=ar
Dr. Boshra Taha Abdallah	Assistant Professor		btaha@kku.edu.sa	https://scholar.google.com/citations?hl=en&user=I9HEKuAAAA
Dr. Dania Tayseer Irweizik Bani Hani	Associate Professor		Dbanihani@kku.edu.sa	https://www.researchgate.net/profile/Dania-Bani-Hani
Dr. Farheen Bano	Assistant Professor		fbhasan@kku.edu.sa	https://scholar.google.com/citations?hl=en&user=bNkmalUAAA

MSc in Engineering Management

The Master of Science in Engineering Management program at Industrial Engineering department is a graduate program that combines technical engineering depth with managerial, analytical, and leadership skills. It prepares students to move from purely technical roles into positions where they manage people, systems, and large-scale operations. The program focuses on developing the ability to optimize processes, make data-driven decisions, and lead engineering-driven organizations effectively through courses such as operations management, project management, and engineering economics. Within the Industrial Engineering department, the program gains its foundation from IE's core mission: improving efficiency, integrating technology for and sustainable systems performance. The focus of program allows students to understand both the technical and organizational sides of engineering systems, making them capable of managing complex operations and technological change.

Graduates of this program are equipped to take on roles such as project manager, operations manager, quality manager, and supply chain manager across industries like manufacturing, logistics, energy, and construction. In regions undergoing rapid industrial growth this program is valuable because it develops professionals who can lead modernization, improve operational performance, and manage large-scale engineering initiatives.



Program Mission	To cultivate ethically grounded professionals who master the synergy of engineering and management. We prepare our graduates to solve complex industrial challenges, lead diverse teams, and pioneer sustainable solutions for the evolving global economy.
Program objectives	<p>PO1: Excellence in Teaching and Learning Provide quality teaching in engineering management that builds up graduates' technical, analytical, and professional competencies based on modern developments and made possible through local and global collaborations.</p> <p>PO2: Contribution to Research and Innovation Perform innovations and applications of research in engineering management that align with national strategies, industry requirements, and sustainable economic development.</p> <p>PO3: Ethical Responsibility, Professional Competency and University Life Equip graduates with excellent communication, teamwork, and leadership skills necessary for</p>

commitment to societal impact of technology through ethical professional conduct.

PO4: Excellence, Sustainability, and Lifelong Development

Ensure efficient and resourcefulness of program to encourage lifelong learning and support emerging sustainable economy.

Program Learning Outcomes (PLOs):

Knowledge and Understanding:

K1

Analyze, integrate, and evaluate the principles, processes, and tools of engineering management to support decision-making and application within organizational contextual frameworks, through applying relevant theories and concepts.

K2

Critically appraise emerging developments and advanced research methods in engineering management to formulate an evidence-based project addressing complex, real-world engineering challenges.

Skills:

S1

analyze and integrate sophisticated and intelligent tools of engineering management to design, implement, and interpret a real-world solution within complex economic and organizational contexts

S2

Successfully execute a research-based teaching that applies advanced critical thinking and R&D methodologies to analyze complex engineering management problems, delivering innovative, validated solutions through state-of-the-art research.

S3

Disseminate complex /advanced technical concepts and academic contributions effectively to diverse audiences through high-quality reporting, peer review publications, presentations, and visual representations.

Values, Autonomy, and Responsibility:

VI

Evaluate and mitigate the ethical, societal, and environmental implications of management engineering research and technologies, upholding principles of academic and professional integrity.

V2

Demonstrate autonomous and collaborative scholarship by proactively acquiring new knowledge, contributing to team goals, and engaging in constructive peer review and feedback.

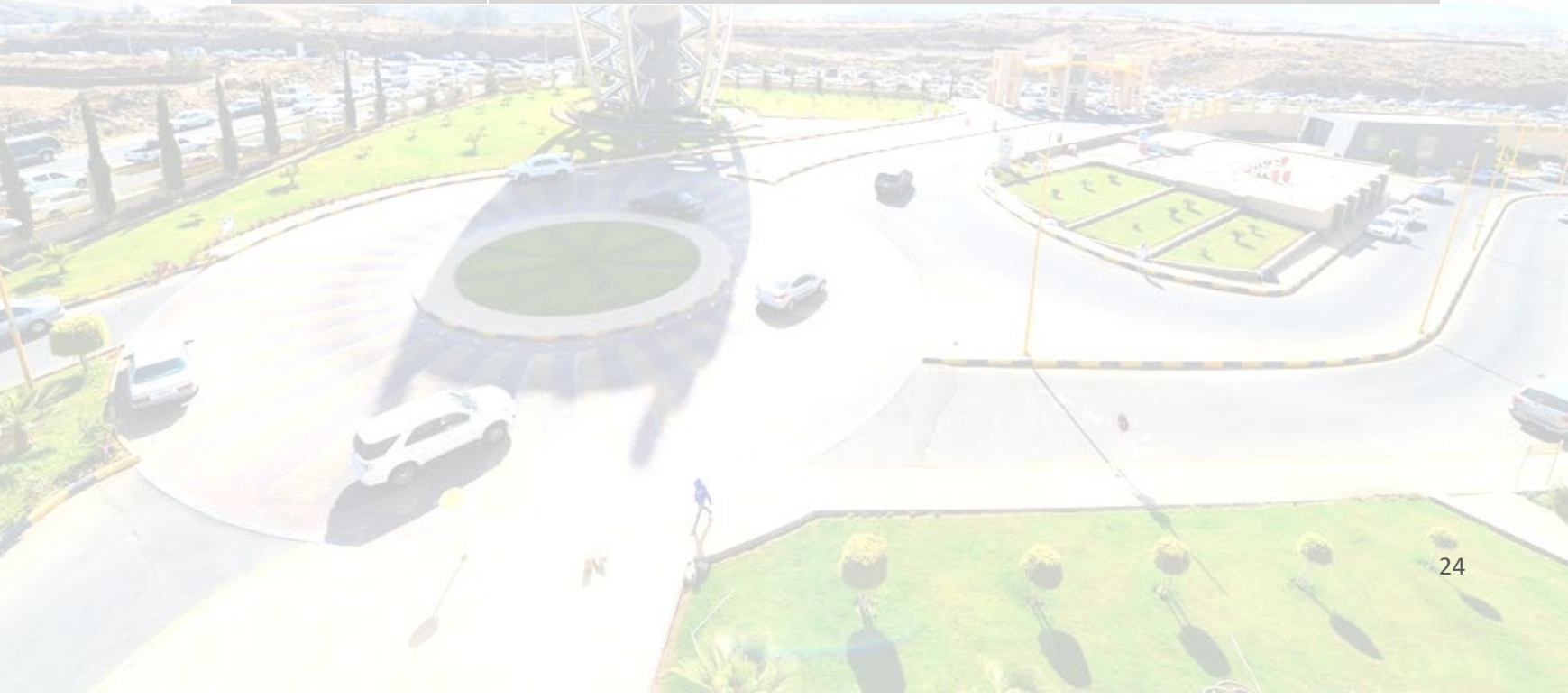


Table University Graduate Attribute

Code	Main characteristics	Sub characteristics
GA-I-1	Values and identity (with values)	Moderation, quality, integrity, commitment, excellence, transparency, achievement, complementarity, independence, flexibility, positivity, cooperation, lifelong learning, tolerance, consultation, acceptance, justice.
GA-I-2	Linguistic and quantitative competencies (with sufficient linguistic and quantitative competence)	Language competencies, mathematical and statistical competencies.
GA-I-3	Scientific and professional knowledge (cognitively distinctive)	Extensive, deep, diverse, and practical knowledge in the field of specialization.
GA-I-4	Specialized and life skills (skillful)	Scientific research skills, specialized knowledge application skills, problem-solving skills, critical, innovative, logical, and visual thinking skills.



GA-I-5	Technical and digital competence (technical)	Cognitive, skillful, and emotional competence in the field of digital technologies.
GA-I-6	Entrepreneurship and competition (entrepreneur, competition)	Initiative, proactive, perseverance, investment of knowledge and personal capabilities.
GA-I-7	Leadership and responsibility (leader, responsible)	Strategic vision, decision-making, effective communication, self-management motivation, resource management.
GA-I-8	Local and global citizenship (conscious, active)	Awareness of local and global cultures, systems, rights, duties, trends, and issues. Contribute to national strategies, serve community issues, and participate in voluntary work.

Program Graduate Attributes

Code	Attribute	Interpretation
GA-P-1	Knowledge driven by values	Understand the advanced engineering and management principles underlying the advanced engineering management knowledge, while adhering to high moral and ethical Values.
GA-P-2	Communications and Analytical skills	Graduates can comprehensively communicate the outcome of the quantitative methods, statistical analysis, and financial reasoning to support managerial decision-making
GA-P-3	Cognitive Analytical Knowledge	Graduates can apply interdisciplinary scientific principles and systems thinking to analyze and solve the complex organizational and social challenges.
GA-P-4	Technical Skillfulness	Graduates demonstrate critical thinking, adaptability, time management, problem-solving, and collaborative skills required for professional growth and lifelong learning



GA-P-5	Modern digital tools	Graduates can effectively use modern digital tools to analyze problems, optimize processes and enhance organizational performance.
GA-P-6	Entrepreneurship and competition	Graduates show the entrepreneurial mindset to create, design and develop fresh and innovative approaches to create value, manage risk, and sustain competitiveness in technology-driven environments
GA-P-7	Leadership and Team work	Graduates use their knowledge and technical skills to lead multidisciplinary teams with accountability, demonstrate sound judgment, manage resources responsibly, and contribute to strategic and operational leadership role and teamwork.
GA-P-8	Think Globally, Act Locally	Graduates exhibit integrity, ethical awareness, environmental sustainability, local civic engagement and global good citizenship through their academic and professional practice.

Table 2.4 Mapping of University GAs with Program GAs

	Code	University Graduate Attributes							
		GA-I-1	GA-I-2	GA-I-3	GA-I-4	GA-I-5	GA-I-6	GA-I-7	GA-I-8
Program Graduate Attributes	GA-P-1	✓		✓					
	GA-P-2		✓		✓				
	GA-P-3			✓		✓			✓
	GA-P-4				✓	✓	✓		
	GA-P-5					✓	✓		
	GA-P-6						✓		
	GA-P-7							✓	
	GA-P-8						✓		✓

Table 2.5 Mapping Program GAs with Program Outcomes (Objectives)

Program Outcomes /Objectives	Code	Program Graduate Attributes							
		GA-P-1	GA-P-2	GA-P-3	GA-P-4	GA-P-5	GA-P-6	GA-P-7	GA-P-8
PO-1		✓		✓					
PO-2			✓		✓	✓			✓
PO-3			✓				✓	✓	✓
PO-4				✓			✓		✓

Table 2.6. Alignment of the graduate attributes with program mission

<i>Program Mission</i>	KKU Graduate Attributes								Program Graduate Attributes							
	GA -I-1	GA -I-2	GA -I-3	GA -I-4	GA -I-5	GA -I-6	GA -I-7	GA -I-8	GA -P-1	GA -P-2	GA -P-3	GA -P-4	GA -P-5	GA -P-6	GA -P-7	GA -P-8
PM-KW1	✓		✓	✓					✓		✓	✓				✓
PM-KW2		✓				✓	✓			✓				✓	✓	
PM-KW3					✓	✓		✓					✓	✓		✓

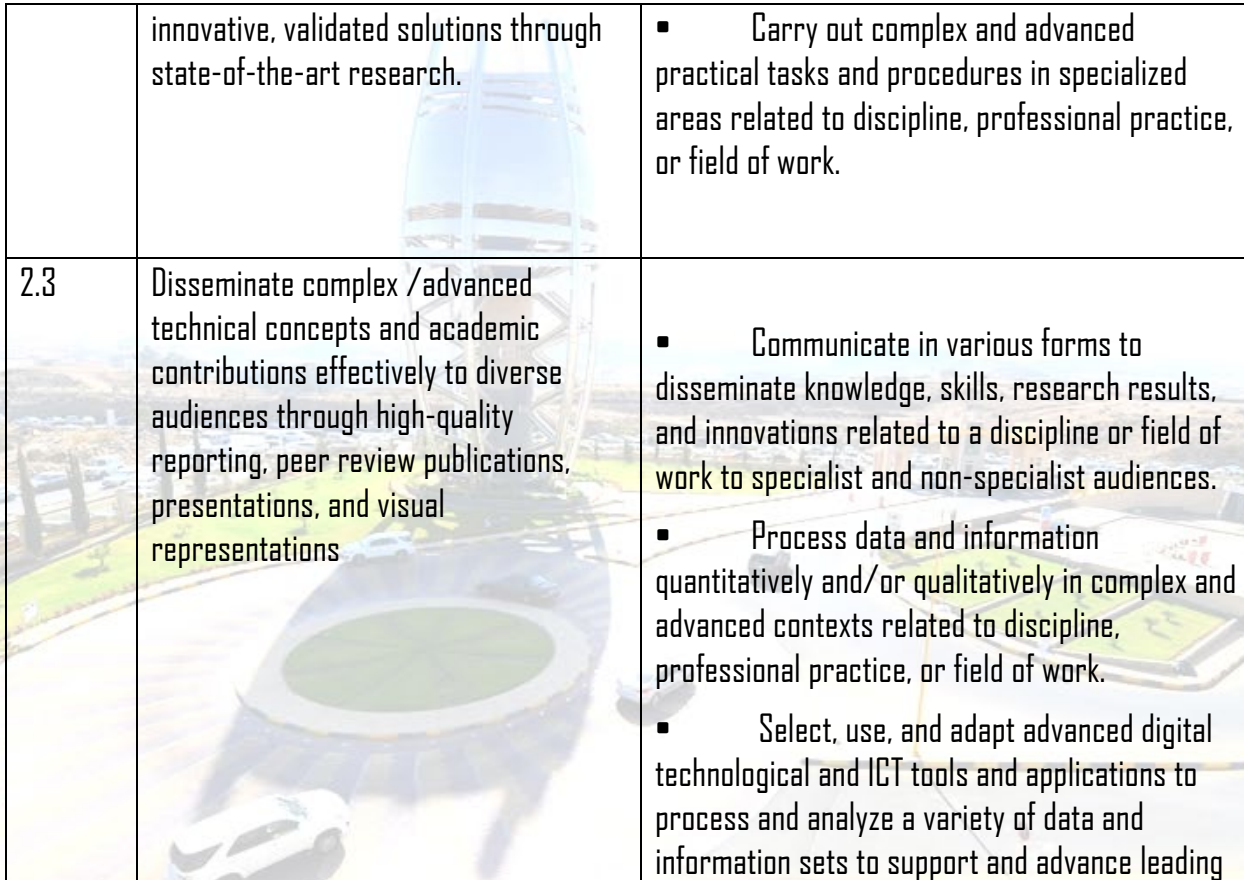
Alignment of the graduate attributes with program learning outcomes

<i>PLDs</i>	<i>KKU Graduate Attributes</i>								<i>Program Graduate Attributes</i>							
	G A - U -1	GA- U-2	GA- U-3	GA- U-4	GA- U-5	GA- U-6	GA- U-7	GA- U-8	GA- 1	GA- 2	GA- 3	GA- 4	GA- 5	GA- 6	G A- 7	GA-8
<i>PL001</i>	✓		✓	✓					✓		✓	✓				
<i>PL002</i>				✓	✓						✓	✓	✓			
<i>PL003</i>		✓			✓	✓				✓			✓	✓		
<i>PL004</i>			✓	✓							✓	✓	✓			
<i>PL005</i>		✓	✓		✓				✓	✓	✓	✓	✓			
<i>PL006</i>	✓							✓	✓							✓
<i>PL007</i>	✓					✓	✓	✓	✓				✓	✓	✓	✓

Program Learning Outcomes Assessment

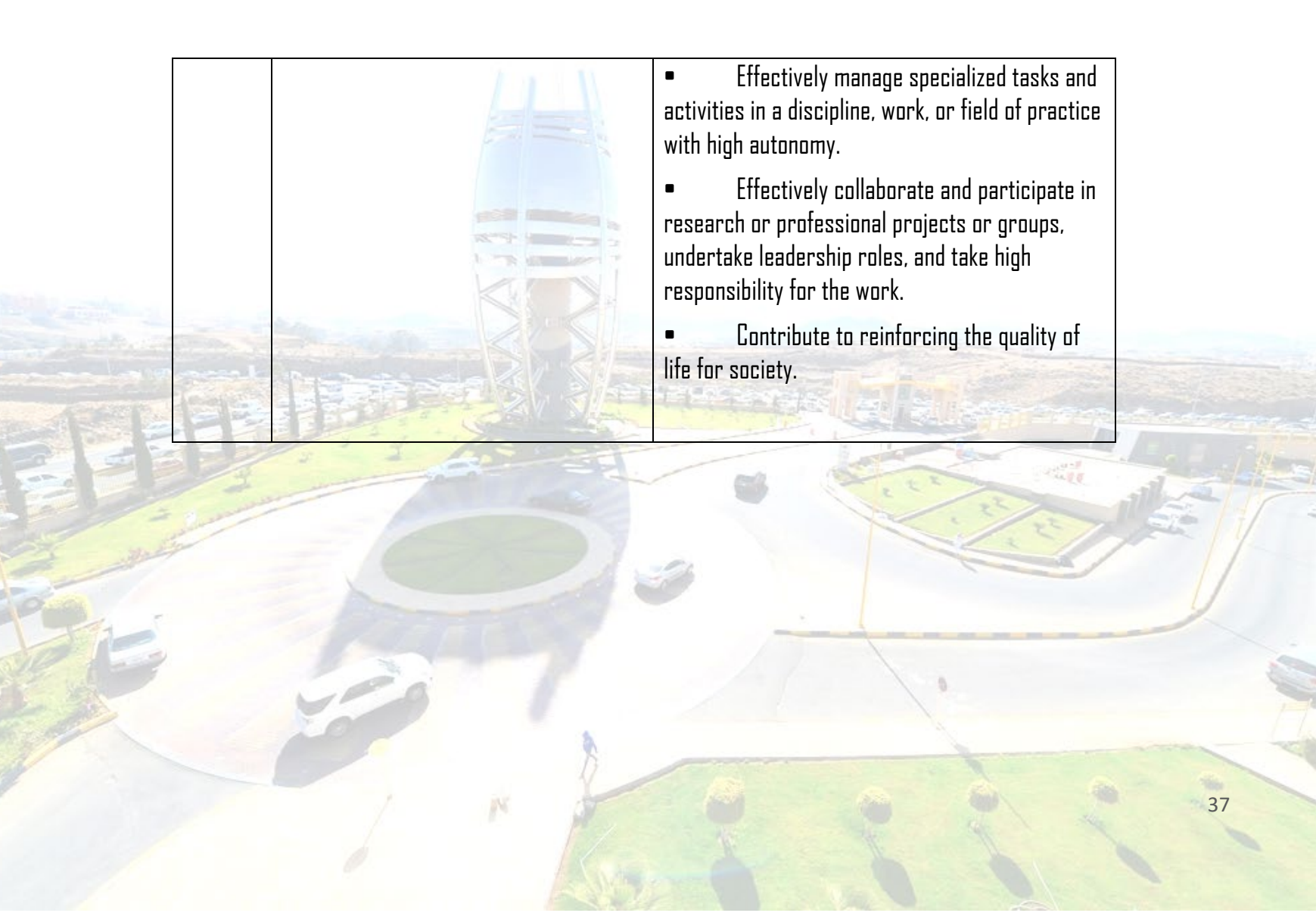
Code	Program Learning Outcomes (PLOs)	NQF Level Descriptors of Learning Outcomes – Level 7
1	Knowledge and understanding	
1.1	<p>PLO1-K1: Analyze, integrate, and evaluate the principles, processes, and tools of engineering management to support decision-making and application within organizational contextual frameworks, through applying relevant theories and concepts.</p>	<ul style="list-style-type: none"> ▪ Deep and specialized body of knowledge and understanding covering theories, principles, and concepts in main areas of a discipline, profession, or field of work ▪ Knowledge and accurate understanding of processes, materials, techniques, practices, conventions, and/or terminology relevant to a certain discipline, profession, or field of work.
1.2	<p>PLO2-K2: Critically appraise emerging developments and advanced research methods in engineering management to formulate an evidence-based project addressing complex, real-world engineering challenges.</p>	<ul style="list-style-type: none"> ▪ Advanced knowledge and understanding of recent developments in one or more disciplines, areas of practice, or professions.

		<ul style="list-style-type: none"> Knowledge and understanding of a range of established and specialized research and/or inquiry techniques of in a discipline, profession, or field of work.
	Skill	
2.1	<p>PLD2-SI: Analyse and integrate sophisticated and intelligent tools of engineering management to design, implement, and interpret a real-world solution within complex economic and organizational contexts</p>	<ul style="list-style-type: none"> Apply specialized theories, principles, and concepts in advanced contexts in a discipline, profession, or field of work. Solve problems in complex and advanced contexts in a discipline, profession, or field of work.
2.2	<p>Successfully execute a research-based teaching that applies advanced critical thinking and R&D methodologies to analyze complex engineering management problems, delivering</p>	<ul style="list-style-type: none"> Use advanced and specialized processes, techniques, tools, instruments, and/or materials to deal with complex and advanced practical activities.



	innovative, validated solutions through state-of-the-art research.	<ul style="list-style-type: none">▪ Carry out complex and advanced practical tasks and procedures in specialized areas related to discipline, professional practice, or field of work.
2.3	Disseminate complex /advanced technical concepts and academic contributions effectively to diverse audiences through high-quality reporting, peer review publications, presentations, and visual representations	<ul style="list-style-type: none">▪ Communicate in various forms to disseminate knowledge, skills, research results, and innovations related to a discipline or field of work to specialist and non-specialist audiences.▪ Process data and information quantitatively and/or qualitatively in complex and advanced contexts related to discipline, professional practice, or field of work.▪ Select, use, and adapt advanced digital technological and ICT tools and applications to process and analyze a variety of data and information sets to support and advance leading

		research and/or projects related to a discipline, professional practice, or field of work.
3	Values, Autonomy and Responsibility	
3.1	Evaluate and mitigate the ethical, societal, and environmental implications of management engineering research and technologies, upholding principles of academic and professional integrity.	<ul style="list-style-type: none"> ▪ Demonstrate integrity and professional and academic values when dealing with various issues.
3.2	Demonstrate autonomous and collaborative scholarship by proactively acquiring new knowledge, contributing to team goals, and engaging in constructive peer review and feedback.	<ul style="list-style-type: none"> ▪ Initiate professional planning for learning and/or work, professional development, monitor learning and performance, and participate in academic and/or professional strategic decisions with high autonomy.



- Effectively manage specialized tasks and activities in a discipline, work, or field of practice with high autonomy.
- Effectively collaborate and participate in research or professional projects or groups, undertake leadership roles, and take high responsibility for the work.
- Contribute to reinforcing the quality of life for society.

The graduate attributes are consistent with the requirements of the National Qualifications Framework (NQF)

Graduate Attributes	National Qualifications Framework (NQF)															
	KUs				VE	ARs				CSs		Practical and Physical Skills (PPS)		Communication and ICT Skills		
	KU01	KU02	KU03	KU04	VE01	AR01	AR02	AR03	AR04	CS01	CS02	PPS01	PPS02	CICT01	CICT02	CICT03
GA-1			✓	✓				✓			✓		✓			✓
GA-2		✓				✓			✓			✓	✓	✓		
GA-3					✓		✓			✓						✓
GA-4	✓			✓				✓				✓				✓
GA-5				✓		✓			✓				✓	✓		
GA-6	✓				✓											
GA-7		✓							✓	✓					✓	
GA-8	✓		✓			✓	✓	✓				✓				✓

The Program Learning Outcomes are consistent with the requirements of the National Qualifications Framework (NQF)

Program	National Qualifications Framework (NQF)															
	KUs				VE	ARs				CSs		Practical and Physical Skills (PPS)		Communication and ICT Skills		
	KUO 1	KUO 2	KUO 3	KUO 4	VE01	AR01	AR02	AR03	AR04	CS01	CS02	PPS01	PPS02	CICT S01	CICT S02	CICT S03
<i>PL001</i>				✓			✓				✓				✓	
<i>PL002</i>		✓				✓			✓	✓			✓	✓		
<i>PL003</i>			✓				✓				✓					✓
<i>PL004</i>	✓			✓			✓		✓			✓			✓	
<i>PL005</i>		✓				✓		✓					✓			
<i>PL006</i>			✓		✓						✓	✓				✓
<i>PL007</i>	✓	✓					✓		✓	✓				✓	✓	

Program learning Outcomes Mapping Matrix:

a. Thesis Track

Align the program learning outcomes with the program's courses according to the desired performance levels.

(I = Introduced, P = Practiced, M = Mastered)

Course code & No.	Program Learning Outcomes						
	Knowledge and understanding		Skills			Values, Autonomy, and Responsibility	
	K1	K2	S1	S2	S3	V1	V2
7311 INE Engineering Statistics	M	M		P	P	M	M
7342 INE Operations Research	M	P	M	P	P		P
7343 INE Design and Statistical Analysis of Experiments	M	P	P		M	P	P
7344 INE Industrial Quality Management	M	M	M	P		P	M

7325 INE Advanced Project Management	M	P	P	P	M		P
7331 INE Supply chain management	P	P	M	M	M	P	M
7335 INE advanced Human Resource Management	M	M	P	P	M	P	P
7330 INE Engineering Economics	M	M		M	P	P	M
7332 INE Advanced Operation Management	M	M	P	P	M	P	M
7333 INE Risk Management	M	M	P		P	P	P
7334 INE Cost Management for Engineering Projects	M	M	P	M	M		P
7336 INE Product Management and Re-engineering	M	M	M	P	P	M	P
7337 INE Data Analysis Techniques	M		P	M	M		M
7338 INE Lean Manufacturing & Six Sigma	M	M	P	P	P	M	P

7339 INE Product Innovation & Development	M	M	M	P	P	P	P
Thesis	P	P	M	M	P	P	M

b. Non-Thesis Track

Align the program learning outcomes with the program's courses according to the desired performance levels.

(I = Introduced, P = Practiced, M = Mastered).

Course code & No.	Program Learning Outcomes						
	Knowledge and understanding		Skills			Values, Autonomy, and Responsibility	
	K1	K2	S1	S2	S3	V1	V2
7311 INE Engineering Statistics	M	M		P	P	M	M
7342 INE Operations Research	M	P	M	P	P		P
7343 INE Design and Statistical Analysis of Experiments	M	P	P		M	P	P

7344 INE Industrial Quality Management	M	M	M	P		P	M
7325 INE Advanced Project Management	M	P	P	P	M		P
7331 INE Supply chain management	P	P	M	M	M	P	M
7335 INE advanced Human Resource Management	M	M	P	P	M	P	P
7330 INE Engineering Economics	M	M		M	P	P	M
7332 INE Advanced Operation Management	M	M	P	P	M	P	M
7333 I INE Risk Management	M	M	P		P	P	P
7334 INE Cost Management for Engineering Projects	M	M	P	M	M		P
7336 INE Product Management and Re-engineering	M	M	M	P	P	M	P
7337 INE Data Analysis Techniques	M		P	M	M		M

7338 INE Lean Manufacturing & Six Sigma

M	M	P	P	P	M	P
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7339 INE Product Innovation & Development

M	M	M	P	P	P	P
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Project

M	P	M	M	P	M	M
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Assessment Methods for program learning outcomes:

	NQF Learning Domains and Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	Knowledge		
K1	Analyze, integrate, and evaluate the principles, processes, and tools of engineering management to support decision-making and application within organizational contextual frameworks, through applying relevant theories and concepts.	<ul style="list-style-type: none"> • Lectures • Laboratories • Projects 	<ul style="list-style-type: none"> • Quizzes • Mid-term and final exams. • Homework assignments
K2	Critically appraise emerging developments and advanced research methods in engineering management to formulate an evidence-based project addressing complex, real-world engineering challenges.		
2.0	Skills		
S1	Analyze and integrate sophisticated and intelligent tools of engineering management to design, implement, and interpret a real-world solution within complex economic and organizational contexts.	<ul style="list-style-type: none"> • Lectures • Laboratories 	<ul style="list-style-type: none"> • Quizzes

S2	Successfully execute a Master project that applies advanced critical thinking and R&D methodologies to analyze complex engineering management problems, delivering innovative, validated solutions through state-of-the-art research.	<ul style="list-style-type: none"> • Projects 	<ul style="list-style-type: none"> • Mid-term and final exams. • Tasks and mini projects • Presentations
S3	Disseminate complex /advanced technical concepts and academic contributions effectively to diverse audiences through high-quality reporting, peer review publications, presentations, and visual representations.		
3.0 Values			
V1	Evaluate and mitigate the ethical, societal, and environmental implications of management engineering research and technologies, upholding principles of academic and professional integrity.	<ul style="list-style-type: none"> a. Projects b. Discussions 	<ul style="list-style-type: none"> c. Reports d. Group Assignments e. Group discussions f. Presentations
V2	Demonstrate autonomous and collaborative scholarship by proactively acquiring new knowledge, contributing to team goals, and engaging in constructive peer review and feedback.		

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Curriculum:

I. Curriculum Structure:

1. Study Plan Structure - Thesis track

Program Structure	Mandatory/ Elective	No. of courses	Credit Hours	Percentage
Course	Mandatory	5	27	82%
	Elective	4 out of 10		
Graduation Project (if any)	-	-	-	-
Thesis (if any)	1	-	6	18%
Field Experience (if any)	-	-	-	-
Total			33	100%

2. Study Plan Structure - non thesis track

Program Structure	Mandatory/ Elective	No. of courses	Credit Hours	Percentage
Course	Mandatory	5	30	91%
	Elective	5		
Graduation Project (if any)	1	-	3	9%
Thesis (if any)	-	-	-	-
Field Experience (if any)	-	-	-	-
Non-Thesis (if any) capstone	-	-	-	-
Total			33	100%

2. Program Courses:

1. Thesis track

Level	Course Code	Course Title	Required or Compulsory	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
Level I	7311 INE	Engineering Statistics	C	None	3	Program
	73** INE	Elective (I)	E	None	3	Program
	7342 INE	Operations Research	C	None	3	Program

Level 2	73** INE	Elective (2)	E	None	3	Program
	7343 INE	Design and Statistical Analysis of Experiments	C	None	3	Program
	73** INE	Elective (3)	E	None	3	Program
Level 3	7311 INE	Industrial Quality Management	C	None	3	Program
	7698 INE	Thesis	C	None	6	Program
Level 4	7325 INE	Advanced Project Management	C	None	3	Program
	73** INE	Elective (3)	E	None	3	Program

2. Non-Thesis track

Level	Course Code	Course Title	Required or Compulsory	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
Level I	7311 INE	Engineering Statistics	C	None	3	
	73** INE	Elective (1)	E	None	3	
	7342 INE	Operations Research	C	None	3	
Level	73** INE	Elective (2)	E	None	3	

2	7343 INE	Design and Statistical Analysis of Experiments	C	None	3	
	73 ** INE	Elective (3)	E	None	3	
Level 3	7344 INE	Industrial Quality Management	C	None	3	
	7399 INE	Project		None	3	
Level 4	7325 INE	Advanced Project Management	C	None	3	
	73 ** INE	Elective (3)	E	None	3	
	73**INE	Elective (2)	E	None	3	



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