



**University of Tabuk**  
**Faculty of Engineering**

**Mechanical Engineering Department**  
**Bachelor of Science in Mechanical Engineering**

**(Operation Plan)**  
**(2024-2025)**

**Developed By: Academic Accreditation & Development**  
**and Quality committee**

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## **1. Introduction**

Since its foundation in 2008 (1429 H), the Department of Mechanical Engineering at the University of Tabuk offers an undergraduate degree in Mechanical Engineering, namely, the Bachelor of Science in Mechanical Engineering Program (BSc MEP). Students are awarded a degree certificate of Bachelor of Science in Mechanical Engineering upon the successful completion of a five (5) years duration program and meeting all the criteria set by the program and the university. During the academic year (2012-2013), the program graduated its first cohort of eleven students in the Spring of 2013, followed by three students in the Summer of 2013. Most of the program graduates are already employed in various public and private sector entities. The Mechanical Engineering Program is accredited by the Engineering Accreditation Commission (ABET). Furthermore, the program is conditionally accredited by the NCAAA. The program serves the goals of Saudi Vision 2030 by preparing graduates to fit in different job sectors that serve Saudi Society and the world at large. Furthermore, the BSc MEP program has a mission and goals that are well aligned with the mission and goals of the College of Engineering and the University of Tabuk.

The following document presents the BSc in Mechanical Engineering Program's annual operational plan for the program to achieve its goals through a well-defined set of initiatives, which are measured by the key performance indicators. This plan outlines specific strategies and actions to be taken to achieve the program goals, including industry-relevant education, research and innovation, social responsibility and community engagement, attractive learning environment, effective governance and management, and innovative financing and resource management. By implementing this plan, the program aims to provide a distinguished education, contribute to the knowledge economy, promote social responsibility, and ensure a stimulating learning environment for its students.

## **2. Development of the Operational Plan**

This operational plan was developed by the Academic Accreditation & Development and Quality Committee of the Mechanical Engineering program and has been approved by the department council. The MEP operation plan provides a blueprint for the program to effectively allocate its resources, establish timelines, set the program's goals, identify risks, and determine the necessary steps to be taken to achieve the program's goals through various initiatives. These initiatives are implemented and measured through various Key Performance

Indicators (KPIs). The KPIs include those identified by the program in addition to institutional KPIs from accreditation bodies. The persistent implementation and monitoring of these KPIs by the program is in line with adherence to the mission of the program, and towards the realization of the long-term vision of MEP. The operational plan focuses on improving the quality of education, research, and community engagement by developing an attractive educational environment, and an effective administrative and organizational environment for a period of one year. Based on the measurement of the KPIs, improvements are made to our existing processes, new goals are determined, and a new strategic plan is made through a revised operational plan for a new academic year. This process is undertaken by the Academic Accreditation & Development and Quality Committee of the MEP and is repeated every academic year.

### **3. Vision, Mission, and Goals of the University of Tabuk**

#### **3.1 University of Tabuk Vision**

A university that is educationally and academically distinguished, which cooperates in community service.

#### **3.2 University of Tabuk Mission**

To offer a distinguished university education that meets the needs of society and the job market through an attractive educational, administrative, and technical environment that supports research and innovation.

#### **3.3 University of Tabuk Goals**

**UG1:** To provide a distinguished university education that meets the needs of the labor market.

**UG2:** To support innovative research to contribute to building a knowledge economy.

**UG3:** To promote social responsibility and community partnership.

**UG4:** Sustainability of infrastructure and technology for an attractive educational environment.

**UG5:** Effective governance and management.

**UG6:** Diversify innovative financing sources and achieve expenditure efficiency.

#### **4. Vision, Mission, and Goals of the Faculty of Engineering**

##### **4.1 Faculty of Engineering Vision**

A distinguished and pioneering college, locally and internationally, in the field of engineering education, innovative research, and building a knowledge society.

##### **4.2 Faculty of Engineering Mission**

To graduate qualified engineers in accordance with the International Academic Standards and prepare them to meet the changing needs of society. These graduates will be able to compete locally and internationally. The Faculty of Engineering is committed to providing excellent education and pursuing relevant scientific research and partnerships with industry and governmental societies.

##### **4.3 Faculty of Engineering Goals**

**CG1:** To deliver distinguished academic education that meets the needs of the labor market.

**CG2:** Providing creative research to contribute to building the knowledge economy of society.

**CG3:** Effective contribution to sustainable development and community service.

**CG4:** Offer a stimulating and attractive learning environment.

**CG5:** Develop an effective administrative and organizational environment in the college.

**CG6:** Providing innovative financing sources.

#### **5. Vision, Mission, and goals of the (Program) of Mechanical Engineering (BSc MEP)**

##### **5.1 (Program) of Mechanical Engineering (BSc MEP) Vision**

A distinguished and pioneering ME program locally and internationally in the field of Mechanical engineering education, innovative research, and building a knowledge society.

##### **5.2 (Program) of Mechanical Engineering (BSc MEP) Mission**

To graduate qualified Mechanical engineers in accordance with the International Academic Standards and prepare them to meet the changing needs of society. These graduates will be able to compete locally and internationally. The Mechanical Engineering Program is committed to providing excellent education and pursuing relevant scientific research and partnerships with industry and governmental societies.

### 5.3 (Program) of Mechanical Engineering (BSc MEP) Goals

**PG1: To deliver distinguished academic education that meets the needs of the labor market.**

- This goal is the core of the educational mission of the ME program, which is to provide students with a set of knowledge, skills, and expertise required to become competent mechanical engineers. The ultimate mission of this goal is to prepare graduates with a solid foundation in mechanical engineering principles, problem-solving abilities, and technical proficiency.

**PG2: Providing creative research to contribute to building the knowledge economy.**

- This goal focuses on the importance of contributing to the knowledge economy through creative research. The BSc MEP curriculum incorporates research-focused courses, particularly in the latter years, encouraging students to explore and engage in innovative projects.

**PG3: Effective contribution to sustainable development and community service.**

- This goal emphasizes the importance of effective contribution to sustainable development and community service by integrating courses that have a societal and environmental impact in mechanical engineering. In addition, the practical training components of the curriculum provide opportunities for students to engage with the community, applying their skills to real-world projects that contribute to sustainable development.

**PG4: Offer a stimulating and attractive educational environment.**

- This goal focuses on engaging the students through a variety of teaching methods, including theoretical courses, practical labs, and hands-on projects. Additionally, allowing students to pursue areas of personal interest and passion by offering elective courses during the final year of the program.

**PG5: Provide efficient operational management and a supportive academic environment.**

- This goal focuses on creating and maintaining professional and efficient management practices in the ME program that foster a conducive academic environment for faculty and students. The smooth management of the program will ensure that faculty and students are focused only on their primary responsibilities without having to worry about inefficient administrative problems.

## 6. Alignment of the Visions, Missions, and Goals of the University of Tabuk, Faculty of Engineering, and BSc MEP

### 6.1 Alignment of the Visions

The following table gives the alignment of the visions by mapping the keywords of the University of Tabuk with the Faculty of Engineering and the Mechanical Engineering Program (BSc MEP).

Keywords	University of Tabuk	Faculty of Engineering	BSc MEP
<b>Institution</b>	A <b>university</b> that is <b>educationally</b> and academically <b>distinguished</b> which cooperates in <b>community</b> service	A <b>distinguished</b> and pioneering <b>college</b> , locally and internationally, in the field of <b>engineering education</b> , innovative <b>research</b> , and building a knowledge <b>society</b>	A <b>distinguished</b> and pioneering ME program locally and internationally in the field of Mechanical engineering <b>education</b> , innovative <b>research</b> , and building a knowledge <b>society</b>
<b>Distinguished</b>			
<b>Education</b>			
<b>Community</b>			
<b>Research</b>			

### 6.2 Alignment of the Missions

The following table gives the alignment of the missions by mapping the keywords of the University of Tabuk with the Faculty of Engineering and BSc MEP.

Keywords	University of Tabuk	Faculty of Engineering	Program of Mechanical Engineering
<b>Excellent education (1)</b>	To offer a distinguished university education that meets the <b>needs of society</b> and the job market through an <b>attractive educational</b> , administrative, and technical environment that supports <b>research</b> and innovation.	To graduate qualified engineers in accordance with the International Academic Standards and prepare them to meet the changing <b>needs of society</b> . These graduates will be able to compete locally and internationally. The Faculty of Engineering is committed to providing <b>excellent education</b> and pursuing relevant scientific <b>research</b> and partnerships with industry and governmental societies.	To graduate qualified Mechanical engineers in accordance with the International Academic Standards and prepare them to meet the changing <b>needs of society</b> . These graduates will be able to compete locally and internationally. The Mechanical Engineering Department Program is committed to providing <b>excellent education</b> and pursuing relevant scientific <b>research</b> and partnerships with industry and governmental societies.
<b>Research (2)</b>			
<b>Needs of society (3)</b>			

## 6.1 Alignment Matrix of Goals

The following tables give the matrix table alignment between the goals of the University of Tabuk and the Faculty of Engineering and BSc MEP.

BSc MEP Goals	Faculty of Engineering Goals						University of Tabuk Goals					
	CG1	CG2	CG3	CG4	CG5	CG6	UG1	UG2	UG3	UG4	UG5	UG6
PG1	✓						✓					
PG2		✓				✓		✓				✓
PG3			✓	✓					✓			
PG4				✓						✓		
PG5					✓						✓	

## 6.1 Alignment of the goals and mission of BSc MEP

Program Goals	Program mission Keywords	Alignment with program mission
PG1: To deliver distinguished academic education that meets the needs of the labor market.	<ul style="list-style-type: none"> <li>• <b>Excellent education</b></li> </ul>	Directly supports the mission's focus on graduating qualified mechanical engineers well-prepared for the job market for the job market through distinguished academic education.
PG2: Providing creative research to contribute to building the knowledge economy.	<ul style="list-style-type: none"> <li>• <b>Research</b></li> </ul>	Emphasis on the mission's commitment to scientific research, innovation, and knowledge economy development.
PG3: Effective contribution to sustainable development and community service.	<ul style="list-style-type: none"> <li>• <b>Excellent education</b></li> <li>• <b>Needs of society</b></li> </ul>	Aligns with the mission by preparing engineers to address societal needs through sustainability and community engagement.
PG4: Offer a stimulating and attractive educational environment.	<ul style="list-style-type: none"> <li>• <b>Excellent education</b></li> </ul>	Indirectly aligns with the mission by fostering an engaging learning environment that enhances student development.
PG5: Provide efficient operational management and a supportive academic environment	<ul style="list-style-type: none"> <li>• <b>Excellent education</b></li> <li>• <b>Research</b></li> <li>• <b>Needs of society</b></li> </ul>	Supports the mission by enhancing the program's efficiency for the operations related to the program.

## **7. The Operational Plan of the Program**

This section outlines a comprehensive set of initiatives aimed at achieving the goals of the B.Sc. in Mechanical Engineering (BSc MEP) program. These initiatives are strategically aligned with the program's mission to provide a distinguished academic education, contribute to research and sustainable development, and foster an engaging educational environment. The strategic plan translates each goal into actionable activities, supported by clearly defined Operational Plan Performance Indicators (OPPIs) to ensure measurable progress. These KPIs provide essential benchmarks for evaluating the effectiveness of the program's initiatives and adapting to emerging needs and challenges.

The detailed activities, responsibilities, and measurement tools for each goal are summarized in the following table, offering a structured and actionable roadmap to guide the program's implementation and evaluation.

**ME Program’s goals, sub-goals, and operational plan OPPIs, including responsible committees, and measuring period.**

<b>ME Program’s Goals</b>	<b>Initiatives</b>	<b>Operational Goal</b>	<b>OPPI</b>	<b>Target</b>	<b>Responsibility</b>	<b>Implementation Period</b>
<b>PG1: Deliver distinguished academic education</b>	Enhance the Curriculum Plan and the Learning Outcomes to meet the job market's needs.	Involvement of the stakeholders (Alumni and Employers) in the development of curriculum and learning outcomes	PG1.1 Scale of Evaluation of the Program Curriculum and Learning outcomes by the stakeholders Survey.	3.75/5	Curricula and Courses Development Committee	Annual
	Encouraging students to prepare for and participate in professional and/or national examinations	Students' performance in the professional and/or national examinations.	PG1.2 Percentage of Students' performance in the professional and/or national examination	75%	Academic Affairs, Advising, and Extracurricular Activities	Annual
	Improving the employability of graduates	Graduates’ employability and enrolment in postgraduate programs	PG1.3 Percentage of Graduates’ employability and enrolment in postgraduate programs	50%	Alumni Affairs and Labor Market Needs Committee	Annual
		Professional Training to improve the communication skills and proficiency of students	PG1.4 Employers' evaluation of the program graduate proficiency	3.75/5	Alumni Affairs and Labor Market Needs Committee	Annual

<b>PG2: Providing creative research to contribute to building the knowledge economy.</b>	Encouraging faculty for joint research collaborations and publications	Encouraging faculty for research collaborations and publications	PG2.1 Percentage of publications of faculty members	80%	Graduate Studies, Scientific Research & Society Services Committee	Annual
	Encouraging faculty for joint research collaborations and publications	Encouraging faculty for research collaborations and publications	PG2.2 Rate of published research per faculty member	1	Graduate Studies, Scientific Research & Society Services Committee	Annual
	Encouraging faculty to publicize their published research on open-source research platforms	Encouraging faculty to publicize their published research platforms, such as Google Scholar and ResearchGate	PG2.3 Citations rate in refereed journals per faculty member	5	Graduate Studies, Scientific Research & Society Services Committee	Annual
	Encouraging faculty to submit patent applications	Encouraging faculty to submit patent applications	PG2.4 Number of patent proposals and applications submitted by the program in a calendar year.	1	Graduate Studies, Scientific Research & Society Services Committee	Annual
	Encouraging faculty to apply for research projects and grants	Encouraging faculty to apply for research projects and grants	PG2.5 No. of research projects and grants applied by the program in a calendar year.	2	Graduate Studies, Scientific Research & Society Services Committee	Annual

<b>PG3: Effective contribution to sustainable development and community service.</b>	Sustainable development initiatives by saving paper, energy, and other resources	Encourage paperless communication in administrative work and teaching	PG3.1 Number of Awareness sessions arranged for sustainable practices in an academic year.	2	Field Training and Graduate Project Committee	Annual
	Organize Community service sessions organized by the program	Organize community service activities	PG3.2 Number of community service sessions organized by the program.	5	Graduate Studies, Scientific Research & Society Services Committee	Annual
<b>PG4: Offer a stimulating and attractive educational environment.</b>	Provide an attractive and adequate learning environment, facilities, and resources to the students.	Students' Evaluation of quality of learning experience in the program	PG4.1 Students' Evaluation of quality of learning experience in the program	3.75/5	Academic Accreditation & Development and Quality Committee	Annual
		Students' evaluation of the quality of the courses	PG4.2 Students' evaluation of the quality of the courses	3.75/5	Course Instructors	Annual
	Provide an attractive and adequate learning environment, facilities, and resources to the students.	Average number of students in class	PG4.3 Average number of students in class	40	Academic Affairs, Advising, and Extracurricular Activities	Annual
		Student satisfaction with the service provided	PG4.4 Student satisfaction rate with service provided	3.5/5	Learning Facilities & Laboratories Committee	Annual

<b>PG5: Provide efficient operational management and a supportive academic environment</b>	Efficient operational management and academic Support	Students Completion Rate (PG1.5)	PG5.1 Completion rate	60%	Academic Affairs, Advising, and Extracurricular Activities	Annual
		First-year students' retention rate	PG5.2 First-year students' retention rate	100%	Academic Affairs, Advising, and Extracurricular Activities	Annual
		The ratio of students to teaching staff	PG5.3 Ratio of students to teaching staff.	20:1	Academic Accreditation & Development and Quality Committee	Annual
		The percentage of faculty distribution	PG5.4 The percentage of faculty distribution	80%	Academic Affairs, Advising, and Extracurricular Activities	Annual
		The percentage of faculty drop out from the program	PG5.5 The percentage of faculty dropouts from the program	0%	Academic Affairs, Advising, and Extracurricular Activities	Annual
		Percentage of beneficiaries from learning resources	PG5.6 Percentage of beneficiaries from learning resources	3.5/5	Academic Affairs, Advising, and Extracurricular Activities	Annual
		The percentage of achieved indicators of the objectives of the program operational plan	PG5.7 The percentage of achieved indicators of the objectives of the program operational plan	65%	Academic Accreditation & Development and Quality Committee	Annual

## 8. Summary of the Operational Plan Indicators

The following table summarizes the MEP's operational plan (OP) Performance Indicators. The NCAAA program KPIs. The MEP implemented and measured 22 KPIs to monitor and adjust its processes and ensure the achievement of its goals and the accomplishment of its mission. Among the 22 KPIs of the operational plan, 11 KPIs are aligned with the National Center for Academic Accreditation and Evaluation (NCAAA) / Education and Training Evaluation Commission (ETEC) mandatory KPIs for accreditation of academic programs.

Program Goal	Operational Plan (OP) KPI #	OPPI#	NCAA KPIs
PG1: To deliver distinguished academic education that meets the needs of the labor market.	<b>PG1.1</b> Evaluation of the Program Curriculum and Learning Outcomes by the stakeholders Survey	<b>(KPI-MEP-1)</b>	-
	<b>PG1.2</b> Students' performance in the professional and/or national examination	<b>(KPI-MEP-2)</b>	KPI-P-5
	<b>PG1.3</b> Graduates' employability and enrolment in postgraduate programs	<b>(KPI-MEP-3)</b>	KPI-P-6
	<b>PG1.4</b> Employers' evaluation of the program graduate proficiency	<b>(KPI-MEP-4)</b>	KPI-P-7
PG2: Providing creative research to contribute to building the knowledge economy.	<b>PG2.1</b> Percentage of publications of faculty members	<b>(KPI-MEP-5)</b>	KPI-P-9
	<b>PG2.2</b> Rate of published research per faculty member	<b>(KPI-MEP-6)</b>	KPI-P-10
	<b>PG2.3</b> Citations rate in refereed journals per faculty member	<b>(KPI-MEP-7)</b>	KPI-P-11
	<b>PG2.4</b> Number of patent proposals and applications submitted by the program in a calendar year	<b>(KPI-MEP-8)</b>	-
	<b>PG2.5</b> No. of research projects and grants applied by the program in a calendar year	<b>(KPI-MEP-9)</b>	-
PG3: Effective contribution to sustainable development and community service.	<b>PG3.1</b> Number of Awareness sessions arranged for sustainable practices in an academic year	<b>(KPI-MEP-10)</b>	-
	<b>PG3.2</b> Number of community service sessions organized by the program	<b>(KPI-MEP-11)</b>	-
PG4: Offer a stimulating and attractive educational environment.	<b>PG4.1</b> Students' Evaluation of quality of learning experience in the program	<b>(KPI-MEP-12)</b>	KPI-P-1
	<b>PG4.2</b> Students' evaluation of the quality of the courses	<b>(KPI-MEP-13)</b>	KPI-P-2
	<b>PG4.3</b> Average number of students in class	<b>(KPI-MEP-14)</b>	-
	<b>PG4.4</b> Student satisfaction rate with service provided	<b>(KPI-MEP-15)</b>	-
PG5: Provide efficient operational management and a supportive academic environment	<b>PG5.1</b> Completion rate	<b>(KPI-MEP-16)</b>	KPI-P-3
	<b>PG5.2</b> First-year students' retention rate	<b>(KPI-MEP-17)</b>	KPI-P-4
	<b>PG5.3</b> Ratio of students to teaching staff	<b>(KPI-MEP-18)</b>	KPI-P-8
	<b>PG5.4</b> The percentage of faculty distribution	<b>(KPI-MEP-19)</b>	-
	<b>PG5.5</b> The percentage of faculty dropouts from the program	<b>(KPI-MEP-20)</b>	-
	<b>PG5.6</b> Percentage of beneficiaries from learning resources	<b>(KPI-MEP-21)</b>	-
	<b>PG5.7</b> The percentage of achieved indicators of the objectives of the program operational plan	<b>(KPI-MEP-22)</b>	-

## 9. Analysis of the Operational Plan Indicators

The MEP implemented and measured 22 operation plan performance indicators (OPPI) to monitor and adjust its processes, ensure the achievement of its goals, and the accomplishment of its mission. Among the 22 performance indicators of the operational plan, 11 OPPIs are aligned with the National Center for Academic Accreditation and Evaluation (NCAAA) / Education and Training Evaluation Commission (ETEC) mandatory KPIs for accreditation of academic programs. In a separate report titled "Operation Plan Performance Indicator Analysis Report", the results of the 22 performance indicators

## 10. Approval of the Operational Plan

	Prepared by	Approved by
	Academic Accreditation & Development and Quality Committee	Mechanical Engineering Department Council
Date:	1/09/ 2024	11/09/2024
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