



University of Tabuk
Faculty of Engineering

Mechanical Engineering Department

Action Plan for KPIs Improvement

2022-2023 (1444H)

Bachelor of Science in Mechanical Engineering
(2022-23)

Developed By: Quality Committee

September, 2023

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Key Performance Indicators (KPIs)

The Bachelor of Science in Mechanical Engineering Program (BSc MEP) measures the Key Performance Indicators mandated by the National Center for Academic Accreditation and Evaluation (NCAAA) to measure the progress towards its goals and the extent of achievement of its mission. The NCAAA has defined six academic standards and seventeen KPIs for a baccalaureate program. The program KPIs defined by the NCAAA are given in the following table.

Key Performance Indicators (KPIs) and Academic Standard

The KPIs mandated by NCAAA are given in the following table.

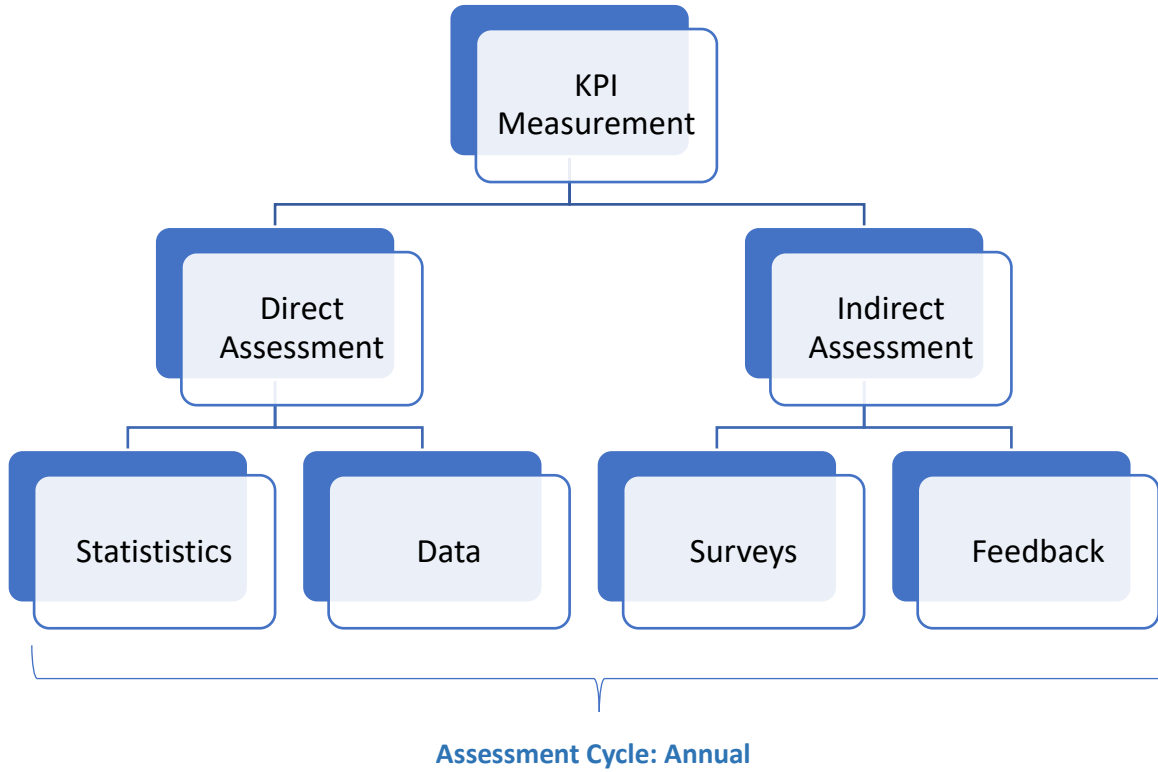
NCAAA Standard	Code	Key Performance Indicators (KPI)	Description
Standard 1 Mission and Goals	KPI-P-01	Percentage of achieved indicators of the program operational plan objectives	Percentage of performance indicators of the operational plan objectives of the program that achieved the targeted annual level to the total number of indicators targeted for these objectives in the same year
	KPI-P-02	Students' Evaluation of quality of learning experience in the program	Average of overall rating of final year students for the quality of learning experience in the program on a five- point scale in an annual survey
Standard 3 Teaching and Learning	KPI-P-03	Students' evaluation of the quality of the courses	Average students overall rating for the quality of courses on a five-point scale in an annual survey
	KPI-P-04	Completion rate	Proportion of undergraduate students who completed the program in minimum time in each cohort
	KPI-P-05	First-year students retention rate	Percentage of first-year undergraduate students who continue at the program the next year to the total number of first-year students in the same year
	KPI-P-06	Students' performance in the professional and/or national examinations	Percentage of students or graduates who were successful in the professional and / or national examinations, or their score average and median (if any)

	KPI-P-07	Graduates' employability and enrolment in postgraduate programs	Percentage of graduates from the program who within a year of graduation were: a) employed, b) enrolled in postgraduate programs during the first year of their graduation to the total number of graduates in the same year
	KPI-P-08	Average number of students in the class	Average number of students per class (in each teaching session/activity: lecture, small group, tutorial, laboratory, or clinical session)
	KPI-P-09	Employers' evaluation of the program graduate's proficiency	Average of overall rating of employers for the proficiency of the program graduates on a five-point scale in an annual survey
Standard 4 Students	KPI-P-10	Students' satisfaction with the offered services	Average of students' satisfaction rate with the various services offered by the program (restaurants, transportation, sports facilities, academic advising, ...) on a five-point scale in an annual survey
Standard 5 Teaching Staff	KPI-P-11	Ratio of students to teaching staff	Ratio of the total number of students to the total number of full-time and full-time equivalent teaching staff in the program
	KPI-P-12	Percentage of teaching staff distribution	Percentage of teaching staff distribution based on: a) Gender, b) Branches, c) Academic Ranking
	KPI-P-13	Proportion of teaching staff leaving the program	Proportion of teaching staff leaving the program annually for reasons other than age retirement to the total number of teaching staff.
	KPI-P-14	Percentage of publications of faculty members	Percentage of full-time faculty members who published at least one research during the year to total faculty members in the program
	KPI-P-15	Rate of published research per faculty member	The average number of refereed and/or published research per each faculty member during the year (total number of refereed and/or published research to the total number of full-time or equivalent faculty members during the year)
	KPI-P-16	Citations rate in refereed journals per faculty member	The average number of citations in refereed journals from published research per faculty member in the program (total

			number of citations in refereed journals from published research for full-time or equivalent faculty members to the total research published)
Standard 6 Learning Resources, Facilities, and Equipment	KPI-P-17	Satisfaction of beneficiaries with the learning resources	Average of beneficiaries' satisfaction rate with the adequacy and diversity of learning resources (references, journals, databases... etc.) on a five- point scale in an annual survey.
Operational Plan KPIs to achieve the Program Goals	PG1.1	Evaluation of the Program Curriculum and Learning outcomes by the stakeholders Survey	Indirect Assessment through Employer and Alumni Surveys
	PG2.4	No. of patent proposal and applications submitted by the program in a calendar year	--
	PG2.5	No. of research projects and grants applied by the program in a calendar year	--
	PG3.1	No. of Awareness programs arranged for sustainable practices in a academic year	--
	PG3.2	No. of community service programs organized by the program	--

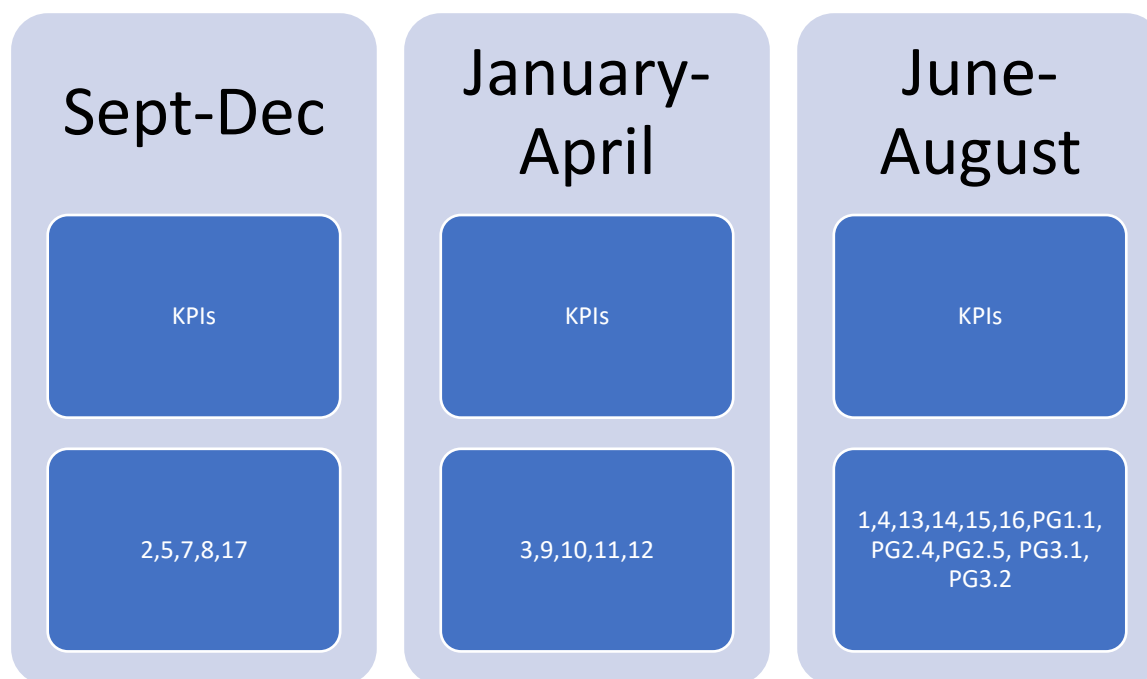
Measurement of KPIs

The BSc MEP measures its program KPIs once in an academic year. The program KPIs are measured by both direct and indirect assessments. The following figure gives the outline of the measurement process.



KPIs Assessment Plan

The assessment of KPIs are done across the academic year as under:



Benchmarks for KPIs Analysis

Actual Benchmark

The average achievement of the indicator after the analysis of the survey is referred to as the actual benchmark. The actual benchmark is calculated from the average of the result in numbers, as a percentage from the direct assessment results, or on a scale of 5 from the indirect methods (surveys).

Internal Benchmark

The average achievement of the indicator by a program of similar nature within the University of Tabuk is referred to as the internal benchmark. The program collects its internal benchmarks from several programs and decides on a particular benchmark to compare with. Preferably, the program selects the highest benchmark available to them for the KPI if more than one internal benchmark is available to them.

External Benchmark

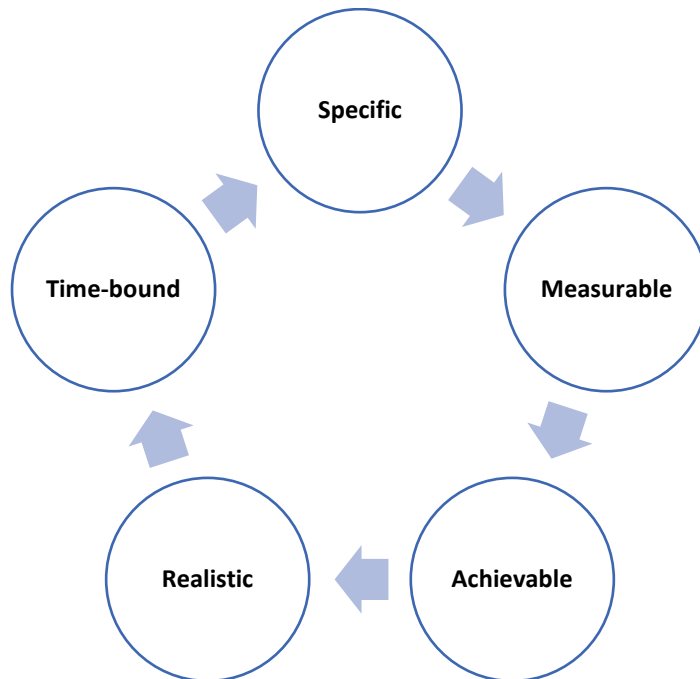
The average achievement of the indicator by a program of similar nature in other universities is referred to as an external benchmark. The external benchmark is obtained for the mandatory program KPIs specified by NCAAA by the following mechanism.

1. The program (or university) desirably, should have an agreement for the exchange of the benchmarks from an accredited program. Presently, the University of Tabuk has an agreement with King Khalid University, Abha, Saudi Arabia for the exchange of the benchmarks.

2. If the program fails to get a favorable response from the external program, it may contact a similar program directly within the Kingdom of Saudi Arabia or in other countries to get the external benchmarks.
3. In case the benchmarks are not obtained for any KPI, the program may analyze the results in comparison with the average, the actual benchmark, and the target benchmark.

Target

The target of the survey is fixed based on the SMART philosophy.



SMART philosophy used to fix the target benchmark.

- Considering the SMART philosophy, the initial target of the average result of the survey responses is taken between 70% to 80%.
- If the target is achieved, the program may maintain the same target in the subsequent year.
- An increment of 5% may be made in the target of the achieved indicator as found appropriate by the quality committee.
- If the quality committee finds the target to be maintained the same as the previous survey, the same target can be maintained in the subsequent year.

Action Plan for Improvement

The following table gives the actions to be taken for improvement of the KPIs which are short of the target.

KPI #	Action for Improvement	Responsibility	Start Date	Completion Date	Remarks
1	The new target of the KPI should be increased.	Academic Accreditation & D and Q committee	01.09.22	31.05.23	None
2	The new target of the KPI should be increased.	Academic Accreditation & D and Q committee	01.09.22	31.05.23	None
3	The new target of the KPI should be increased.	Academic Accreditation & D and Q committee	01.09.22	31.05.23	None
4	The program should emphasize the teaching of math and mechanical design-based courses so that these courses are taught in easy-to-understand ways and include more problem solving during the course delivery. The contact hours for such courses may also be increased.	Department Council	01.09.22	31.12.22	None
5	None	--	--	--	None
6	The program should develop a process to encourage students for preparation of the FE exam and help them academically and by motivation to pass the FE exam. The target for this KPI should be revised and based on the percentage of students appearing and well as qualifying the FE exam.	Department Council	01.09.22	31.12.22	None
7	The graduates' employability needs improvement	Alumni Affairs and Labor Market Needs Committee	01.09.22	31.05.23	None
8	The program needs to expand its infrastructure capacity and faculty strength.	Academic Accreditation & D and Q committee	01.09.22	31.05.23	None

9	The recommendation given in KPI 7 will help to improve the result of this KPI as well. The new target benchmark of this KPI should be increased.	Academic Accreditation & D and Q committee	01.09.22	31.05.23	None
10	The new target for the KPI should be increased to achieve continuous improvement.	Program Chair / Curricula and Courses Development Committee	01.09.22	31.12.22	None
11	The program should take the necessary steps to improve the teaching student to staff ratio by recruiting more faculty.	Department Council	01.09.22	31.12.22	None
12	None	--	--	--	None
13	None	--	--	--	None
14	The publication per faculty needs improvement,	Program Chair	01.09.22	31.12.22	None
15					
16	The program needs significant improvement in the research contribution of the faculty members.	Graduate Studies and Research Committee	01.09.22	31.12.22	None
17	The learning resources need review and improvement.	Program Chair / Curricula and Courses Development Committee	01.09.22	31.05.23	None
PG1.1	None	--	--	--	None
PG2.4	To increase the no. of patents proposed by the program, the faculty should be encouraged to identify innovative ideas and prepare and file patent applications.	Graduate Studies and Research Committee	01.09.22	31.05.23	None
PG2.5	None	--	--	--	None
PG3.1	None				
PG3.2	None				

Follow-up Plan

The following table gives the actions to be taken for improvement of the KPIs which are short of the target.

KPI #	Action for Improvement	Responsibility to Follow-up	Timeframe	Remarks
4	The program should emphasize the teaching of math and mechanical design-based courses so that these courses are taught in easy-to-understand ways and include more problem solving during the course delivery. The contact hours for such courses may also be increased.	Department Council	01.09.22 - 31.05.23	None
6	The program should develop a process to encourage students for preparation of the FE exam and help them academically and by motivation to pass the FE exam. The target for this KPI should be revised and based on the percentage of students appearing and well as qualifying the FE exam.	Department Council	01.09.22 - 31.05.23	None
7	The graduates' employability needs improvement.	Department Council	01.09.22 - 31.05.23	None
8	The program needs to expand its infrastructure capacity and faculty strength. The target of the KPI should be reduced for the next evaluation cycle.	Department Council	01.09.22 - 31.05.23	None
9	The recommendation given in KPI 7 will help to improve the result of this KPI as well. The new target benchmark of this KPI should be increased.	Department Council	01.09.22 - 31.05.23	None
10	The new target for the KPI should be increased to achieve continuous improvement.	Department Council	01.09.22 - 31.05.23	None
11	The program should take the necessary steps to improve the teaching student to staff ratio by recruiting more faculty.	Department Council	01.09.22 - 31.05.23	None
14	The publication per faculty needs improvement,	Department Council	01.09.22 - 31.05.23	None
15				
16	The program needs significant improvement in the research contribution of the faculty members.	Department Council	01.09.22 - 31.05.23	None
17	The learning resources need review and improvement.	Department Council	01.09.22 - 31.05.23	None
PG2.4	To increase the No. of patent proposed by the program, the faculty should be encouraged to identify innovative ideas and prepare and file patent applications.	Department Council	01.09.22 - 31.05.23	None

Prepared By: Academic Accreditation & Development and Quality committee

Date: 30.09.2023