

The Report of Key Performance indicators of the Program quality standards with comparison of their Internal, Target and External Benchmarks

Information System (IS) Program

Academic Year
(2019-2020 G / 1440-1441 H)



Najran University
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1. Introduction

Towards assessing the quality of IS program, Key Performance Indicators (KPIs) have been adopted by the Information System department. All these KPIs evaluation are based on NCAAA's 6 standards and its corresponding target benchmarks. These KPIs, which plan to be assessed every year and used on a comparative basis, apply to colleges, academic and administrative units are commonly accepted and quantifiable. Additionally, an open set will be also employed whereby units can define their own KPIs which are relevant to and representative of the unique nature of their own operations.

The DQU identified its sets of KPIs that is and benchmarks used for quality assessment of any program of the College of Computer Science and Information Systems. All the KPIs that are program-based and benchmarks are approved by college council and program council as a part of activity of DQU. There are 17 approved KPIs categorized under the six NCAAA standards out of which one KPI numbered KPI-P-06 under the standard-3 is not applicable to the IS program. The IS Program has also adopted one additional KPI numbered KPI-P-I-1 under the standard-2 and that makes a total of 17 KPIs that are applicable and are used to evaluate the program. These KPIs are planned to be assessed every year by which the level of performance of the program units can be determined.

As a part of the requirement of the program accreditation, the purpose of this report is to provide an overall analysis of the Key Performance Indicators used by the program in order to assess its performance with respect to the standards set by NCAAA.

2. Key Performance Indicators:

The following table 2.1 shows the list of Key Performance Indicators (KPIs) that are adopted by the IS Program for the academic year 2019-2020.

Table 2.1 List of Key Performance Indicators adopted by the IS program (2019-2020)

Standard	KPIs Code	Key Performance Indicators	Description
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
3– Teaching and Learning	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.
	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 next year to the total number of first-year students in the same year
	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
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
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)
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.
2 – Program Management and Quality Assurance (Additional KPI)	KPI-P-I-1	Proportion of full-time teaching and other staff actively engaged in community service activities	Ratio of the total number of faculty members to the total number of community service activities in the program

3. Data sources

The NCAAA standard committees of the DQU of CCSIS collected the data required to assess the KPI of their respective standards. The soft copy of the overall analysis of the KPIs is available in the link given below:

https://nejranuniversity-my.sharepoint.com/:f:/g/personal/sbrasool_nu_edu_sa/EtMsheqtDkBFvK7h3syjxzYB0nvwBRMOQa0BbMQpaEZBA?e=nMYcTh

In addition, the soft copy of the individual standards' KPI Analysis is available with the standards' committees as well.

4. Analysis:

The quality standard committee of the CSIS measures the key performance indicators with benchmarking using the appropriate tools, such as Surveys, Statistical data, etc. according to the nature and objective of each performance indicators. The quality standard committee prepares the survey, or the questionnaire based on the indicator to be measured. The survey or questionnaire will be approved by the college / program council through the DQU of CSIS.

The quality standard committee also collects statistical (either from the Head of the Department or from Central system of the university through the college registrar) that are needed to process their respective KPIs.

All related KPIs were assessed to verify present quality status of the program those would ultimately help to improve and assure quality structure of the program in future. The evaluations of KPIs ensure a very consistent and reliable improvement plan to improve the quality of the program.

Method:

During the academic year 2019-2020, the NCAAA standard committee/ unit collected the statistical data and conducted surveys that are needed to analyze the Program based Key Performance Indicators of their respective NCAAA standards. Each standard committee then sent their KPI analysis to the DQU in order to prepare the overall KPI analysis that in turn is used to monitor the program's performance.

Result:

The table 1.2 given below shows the assessment of the approved program KPI assessment

Table 4.1: Approved Program KPI assessment

KPI #	Program Key Performance Indicators	Actual Performance Level for the year 2019/2020	KPI Target Benchmark	KPI Internal Benchmark (2019/2020-CS program)	KPI External Benchmark (Jouf & King Faisal)	New Target Benchmark for the year 2020 / 2021
KPI-P-01	Percentage of achieved indicators of the program operational plan objectives	88.92%	85%	89.51%	In Progress	90%
KPI-P-02	Students' evaluation of quality of learning experience in the program	65% 3.25 (on five point scale)	85% 4.25 (on five point scale)	69.51% 3.48 (on five point scale)	3.03 (Jouf) 4.15 (King Faisal)	85% 4.25 (on five point scale)
KPI-P-03	Students evaluation on the quality of the courses	83.45% ≈ 4.17 (on five point scale)	80% ≈ 4.0 (on five point scale)	79.24% ≈ 3.96 (on five point scale)	4.18 (Jouf) 3.9 (King Faisal)	85% ≈ 4.25 (on five point scale)
KPI-P-04	Completion Rate	50%	50%	61.19%	44.5% (Jouf) 31.8% (King Faisal)	60%
KPI-P-05	First year students retention rate	87.46%	50%	90%	87.5% (Jouf) 98.8% (King Faisal)	90%
KPI-P-06	Students' performance in the professional and/or national examinations	N/A	N/A	N/A	N/A	N/A
KPI-P-07	Graduates' employability and enrolment in	a) 14.29% b) 0%	a) ≥ 50% b) ≥ 10%	a) 22.5% %	50% (Jouf)	a) ≥ 50% b) ≥ 10%

	postgraduate programs			b) 6.5%	69% (King Faisal)	
KPI-P-08	Average number of students in the class	11	10	12	12 (Jouf) 17 (King Faisal)	15
KPI-P-09	Employers' evaluation of the program graduates proficiency	87.98% (4.4 on a 5-point scale)	80% (4 on a 5-point scale)	88% (4.4 on a 5-point scale)	3.55 (Jouf) Not Calculated (King Faisal)	90% (4.5 on a 5-point scale)
KPI-P-10	Students' satisfaction with the offered services	81% (4 on a 5-point scale)	70% (3.5 on a 5-point scale)	81.5% (4.08 on a 5-point scale)	2.74 (Jouf) 3.5 (King Faisal)	85% (4.25 on a 5-point scale)
KPI-P-11	Ratio of students to teaching staff	1:4	1:20	1:10	1:16 (Jouf) 1:6 (King Faisal)	1:20
KPI-P-12	Percentage of teaching staff distribution	50%	70%	40%	100% (Jouf) 58% (King Faisal)	70%
KPI-P-13	Proportion of teaching staff leaving the program	10%	≤10%	7%	9% (Jouf) 6% (King Faisal)	≤10%
KPI-P-14	Percentage of publications of faculty members	70%	≥ 40%	40%	50% (Jouf) 48% (King Faisal)	≥ 50%
KPI-P-15	Rate of published research per faculty member	1:2	1:2	1:1	1.33 (Jouf) 0.95 (King Faisal)	1:3
KPI-P-16	Citations rate in referred	1:5.3	1:4	1:5.7	7.05	1:5

	journals per faculty member					(Jouf) 16.36 (King Faisal)	
KPI-P-17	Satisfaction of beneficiaries with the learning resources	54.04% = 2.7 (on 5-point scale)	70% = 3.5 (on 5-point scale)	55.89% = 2.79 (on 5point scale)		3.11 (Jouf) 4.0 (King Faisal)	70% = 3.5 (on 5-point scale)
KPI-P-I-1	Proportion of full-time teaching and other staff actively engaged in community service activities.	2:1	1:2	1:3		N/A	1:1

Analysis of Individual KPIs:

This section shows the analysis results of the individual KPIs in each standard.

KPI-P-01:

The following figure shows the analysis result of the KPI-P-01. It can be noted from the figure that the actual benchmark is 89.51% that exceeds the target and hence target benchmark is achieved. The external benchmark of this KPI is still in progress.

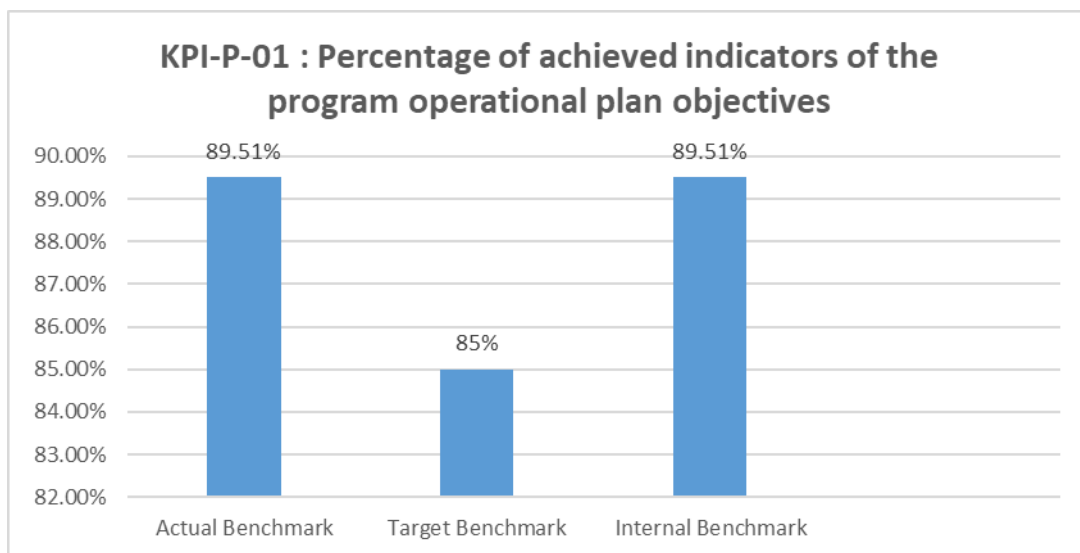


Figure 4.1: Analysis Result of KPI-P-01

KPI-P-02:

The following figure shows the analysis result of the KPI-P-02 on a five-point scale. It can be noted from the figure that the actual benchmark is 3.25 which is below the target and hence target benchmark is not achieved

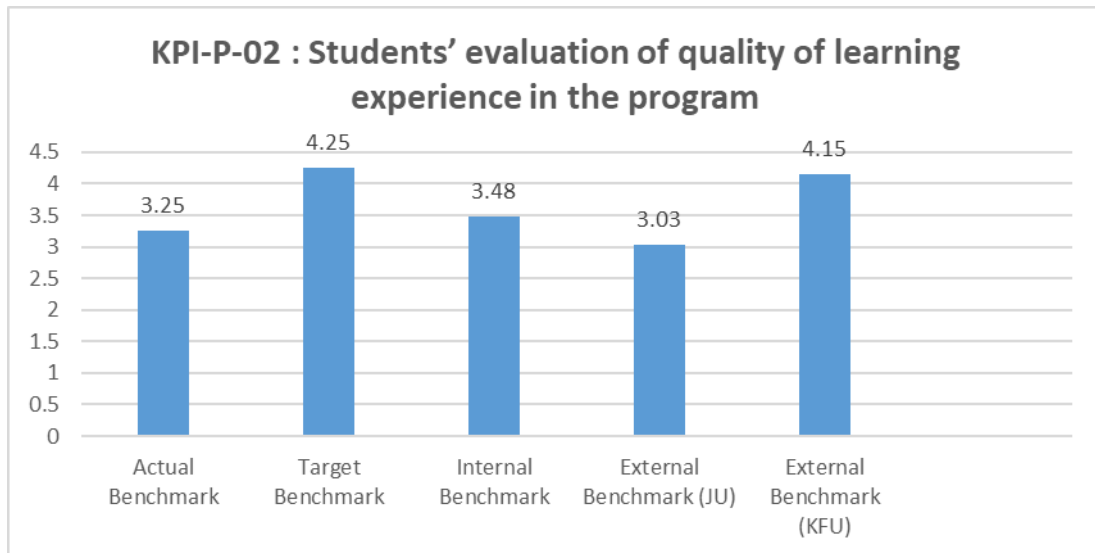


Figure 4.2: Analysis Result of KPI-P-02

KPI-P-03:

The following figure shows the analysis result of the KPI-P-03 on a five-point scale. It can be noted from the figure that the actual benchmark is 4.17 which is above the target and hence target benchmark is achieved.

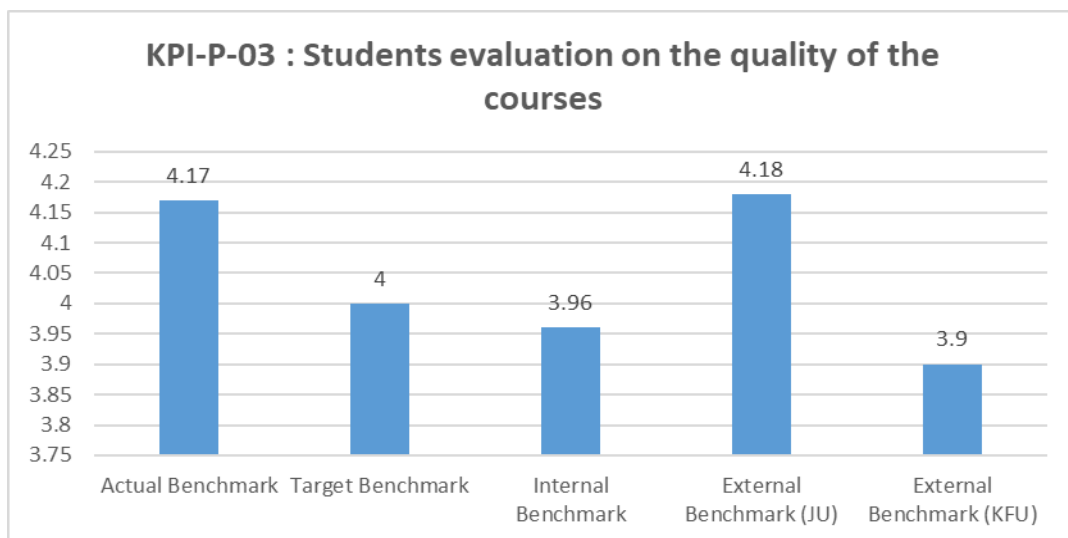


Figure 4.3: Analysis Result of KPI-P-03

KPI-P-04:

The following figure shows the analysis result of the KPI-P-04. It can be noted from the figure that the actual benchmark is equal to the target which is 50% and hence target benchmark is achieved.

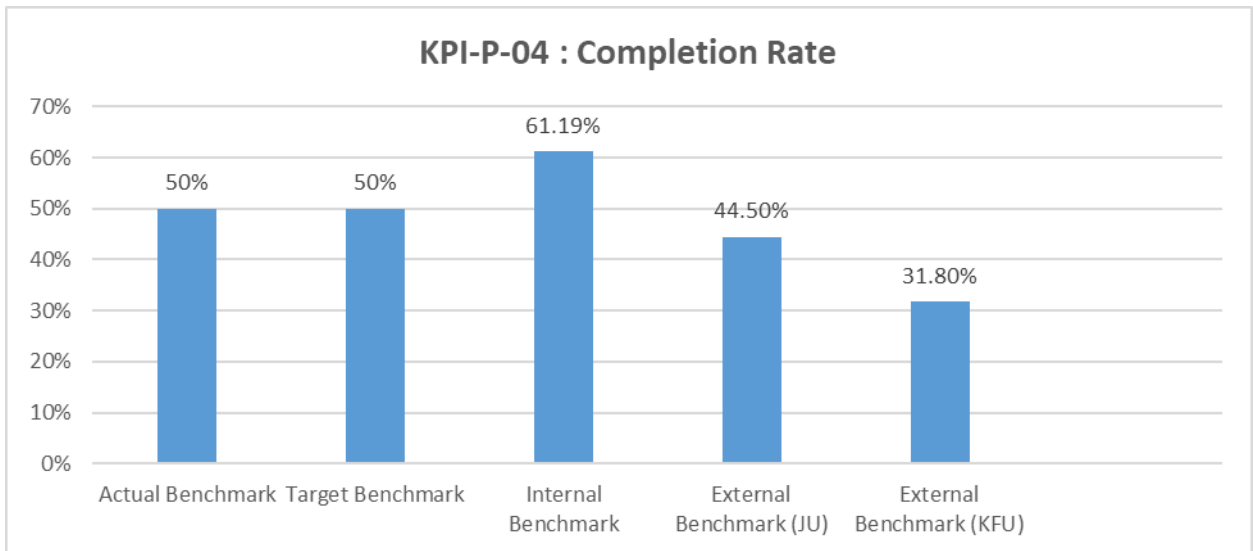


Figure 4.4: Analysis Result of KPI-P-04

KPI-P-05:

The following figure shows the analysis result of the KPI-P-05. It can be noted from the figure that the actual benchmark is 87.46% that is more than the target value and hence target benchmark is achieved.

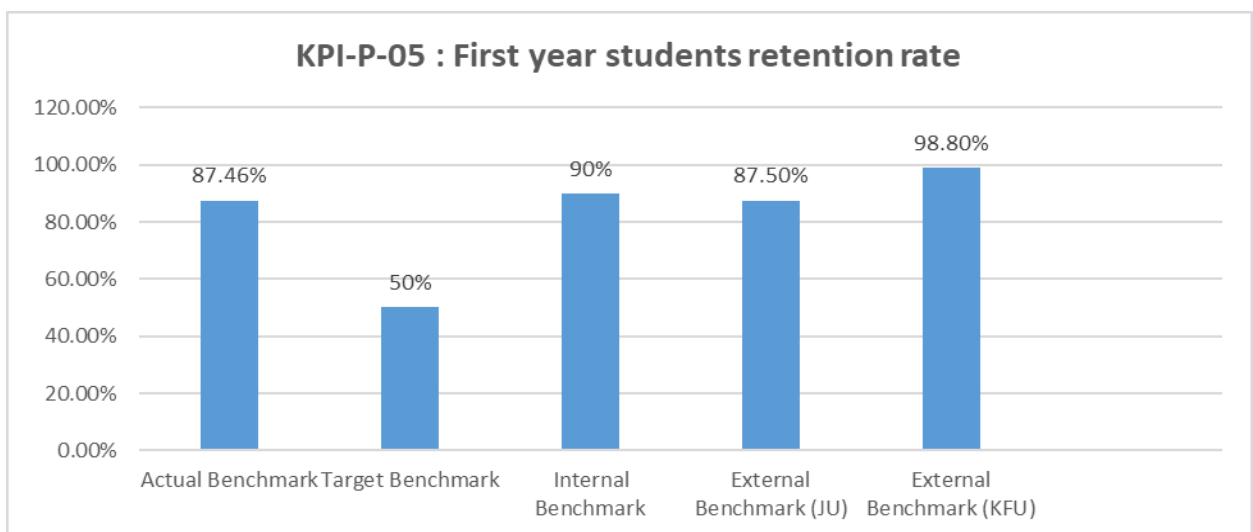


Figure 4.5: Analysis Result of KPI-P-05

KPI-P-06:

KPI-P-06 is not applicable as there are no such activity of students’ participation in national or professional examination in the IS Program.

KPI-P-07:

The following figure shows the analysis result of the KPI-P-07. It can be noted from the figure that the actual benchmark is less than the target value and hence target benchmark is not achieved.

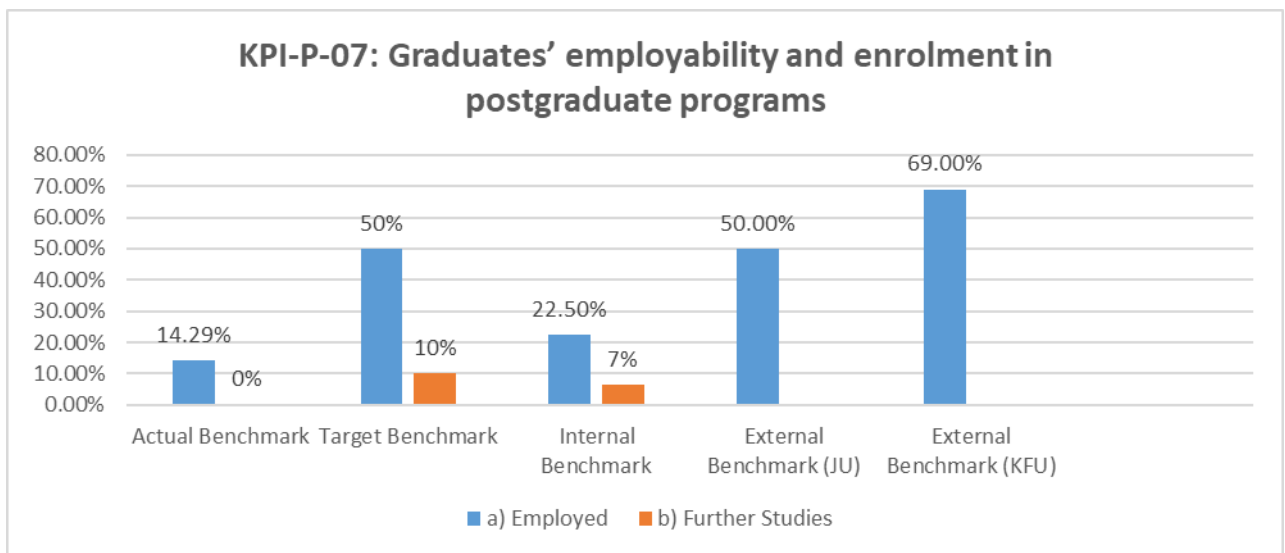


Figure 4.6: Analysis Result of KPI-P-07

KPI-P-08:

The following figure shows the analysis result of the KPI-P-08. It can be noted from the figure that the actual benchmark is more than the target value and hence target benchmark is achieved.

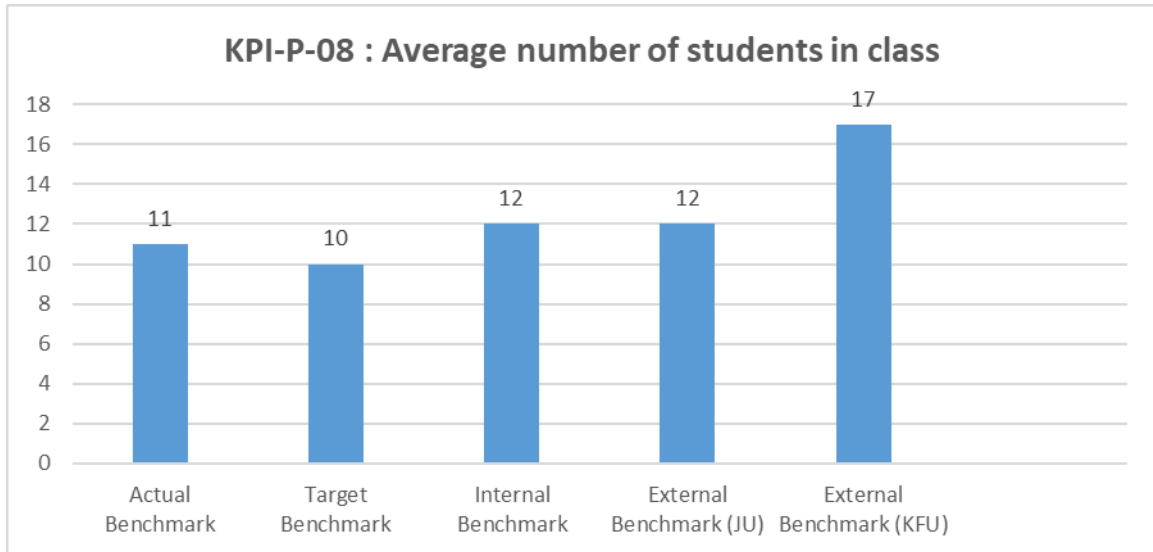


Figure 4.7: Analysis Result of KPI-P-08

KPI-P-09:

The following figure shows the analysis result of the KPI-P-09. It can be noted from the figure that the actual benchmark is more than the target value and hence target benchmark is achieved. The external benchmark from KFU is not available.

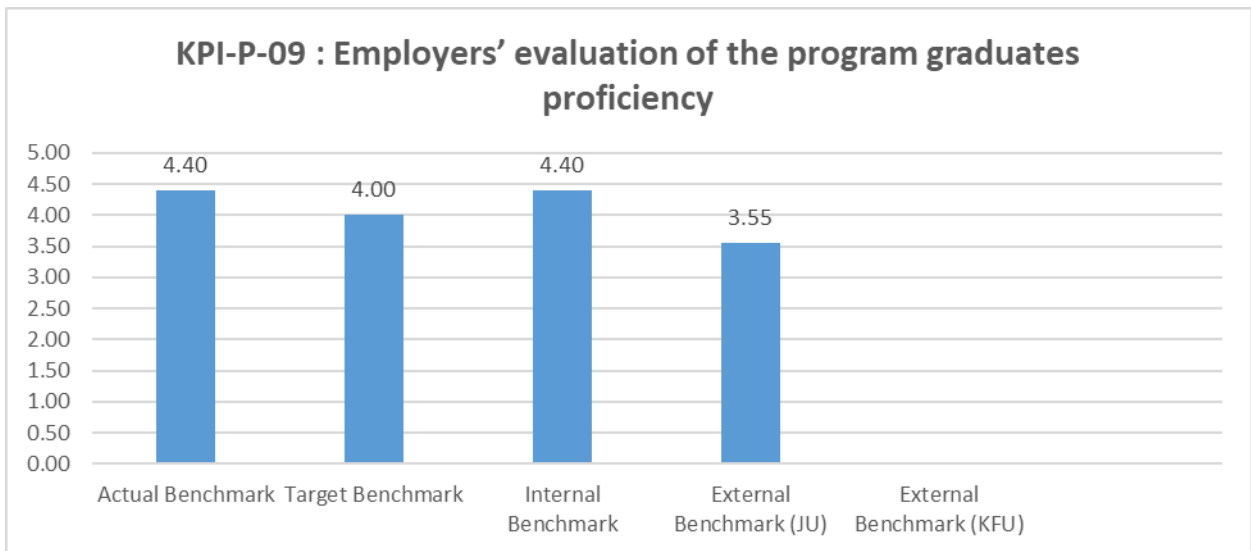


Figure 4.8: Analysis Result of KPI-P-09

KPI-P-10:

The following figure shows the analysis result of the KPI-P-10 on a five-point scale. It can be noted from the figure that the actual benchmark is more than the target value and hence target benchmark is achieved.

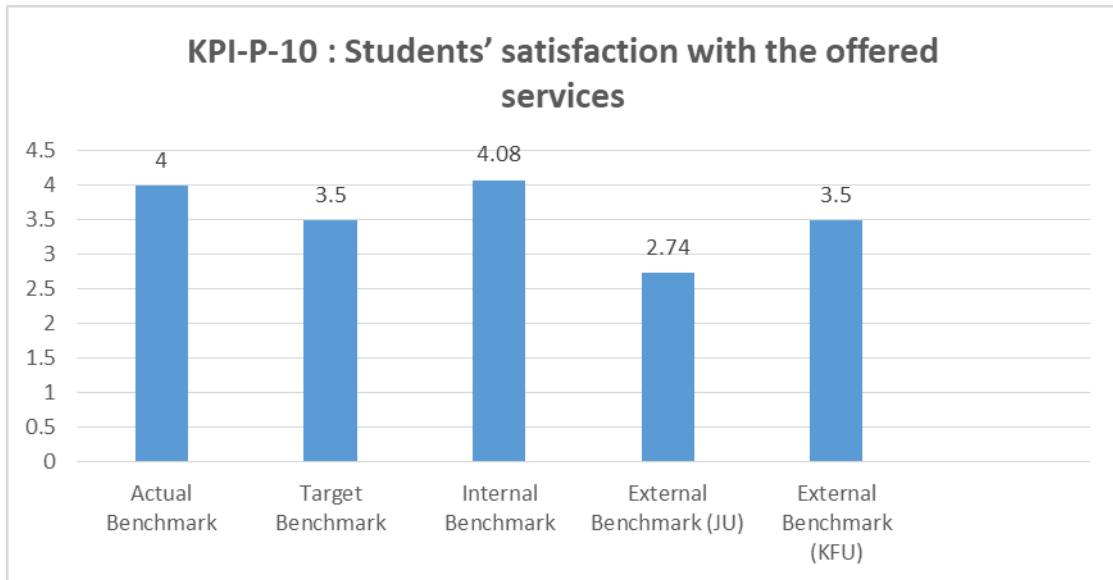


Figure 4.9: Analysis Result of KPI-P-10

KPI-P-11:

The following figure shows the analysis result of the KPI-P-11. It can be noted from the figure that the actual benchmark ratio 1 teacher for 4 students and hence target benchmark is achieved.

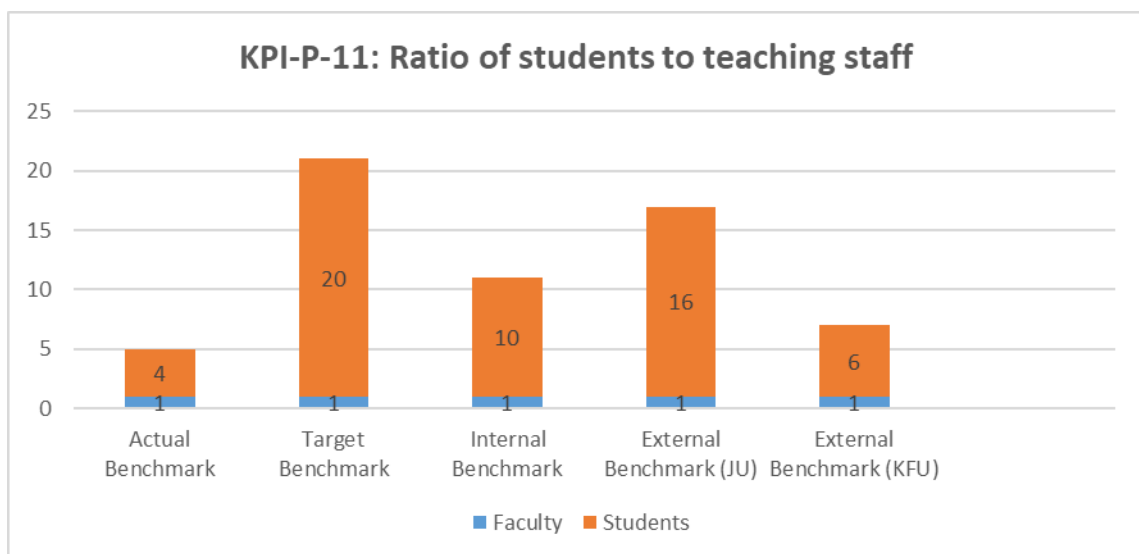


Figure 4.10: Analysis Result of KPI-P-11

KPI-P-12:

The following figure shows the analysis result of the KPI-P-12. It can be noted from the figure that the actual benchmark is less than the target value and hence target benchmark is not achieved.

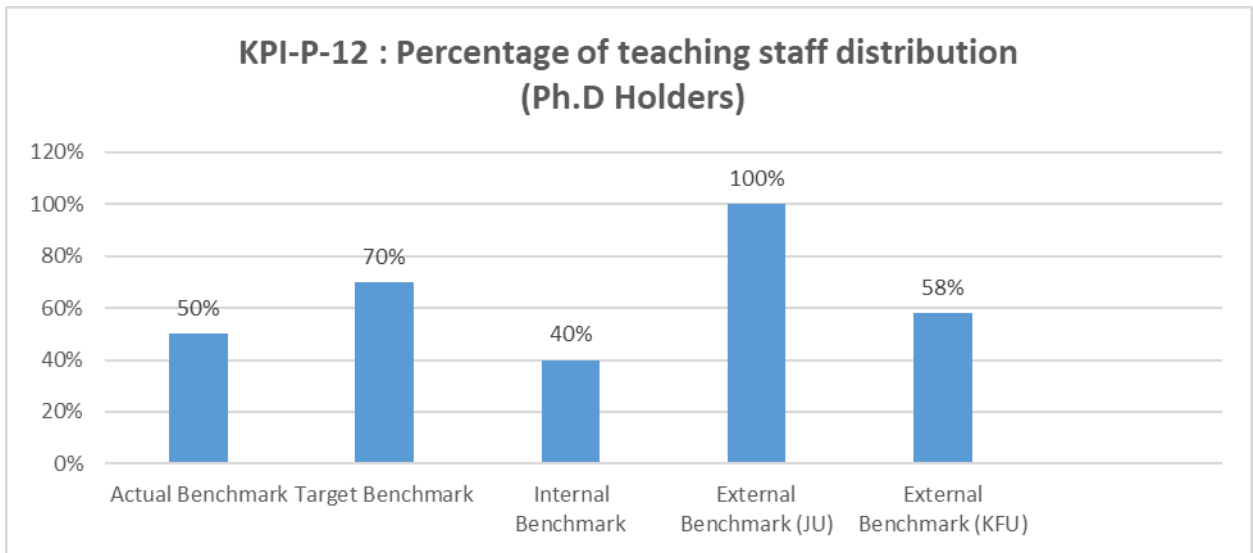


Figure 4.11: Analysis Result of KPI-P-12

KPI-P-13:

The following figure shows the analysis result of the KPI-P-13. It can be noted from the figure that the actual benchmark is equal to the target value and hence target benchmark is achieved.

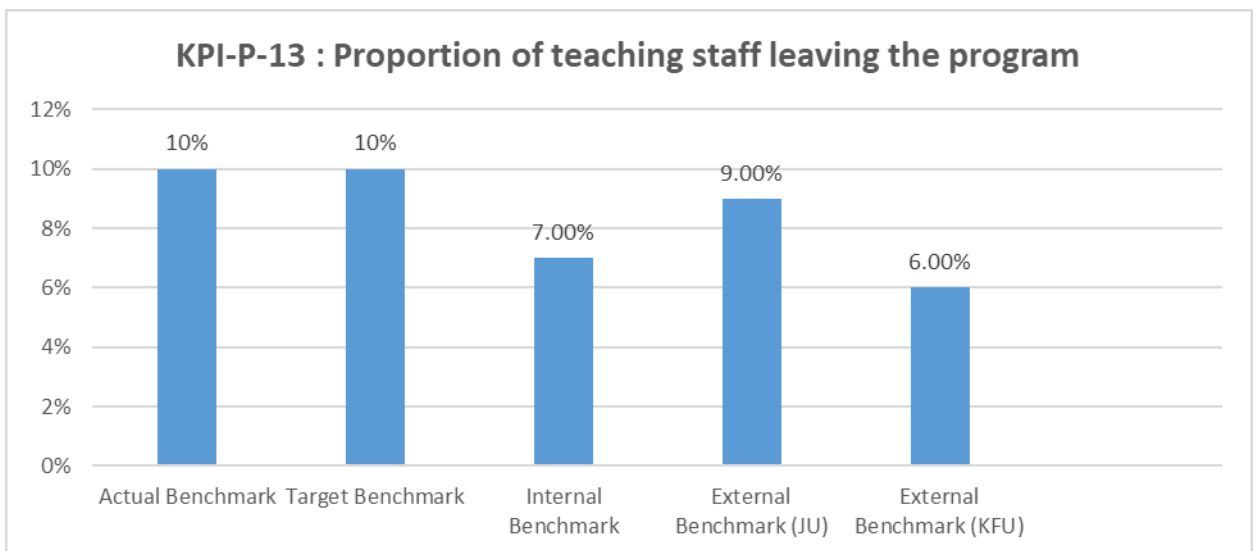


Figure 4.12: Analysis Result of KPI-P-13

KPI-P-14:

The following figure shows the analysis result of the KPI-P-14. It can be noted from the figure that the actual benchmark exceeds the target value and hence target benchmark is achieved.

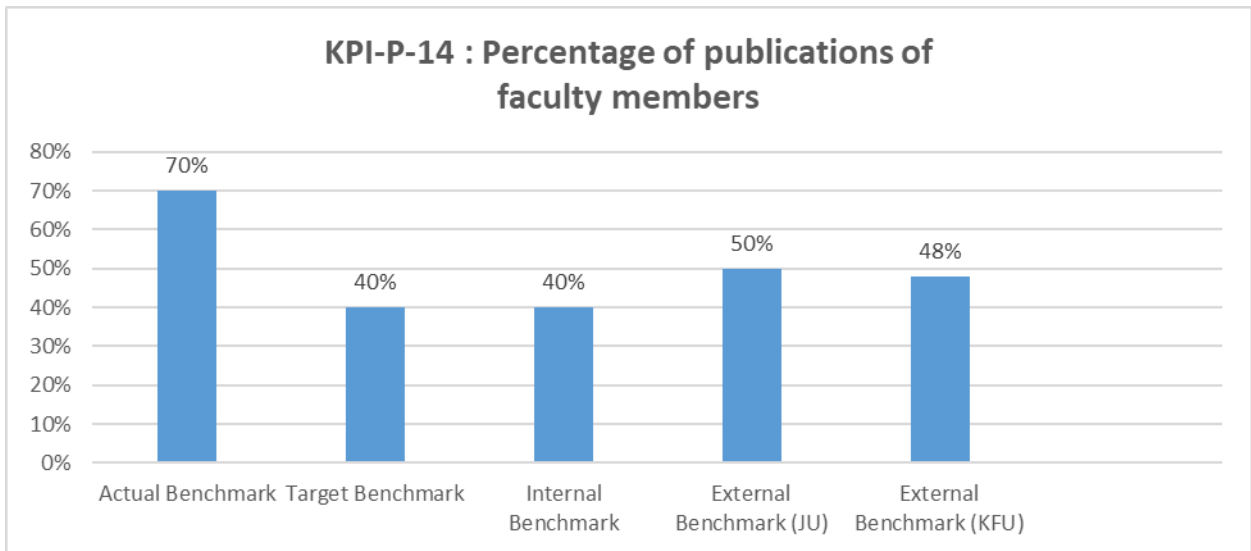


Figure 4.13: Analysis Result of KPI-P-14

KPI-P-15:

The following figure shows the analysis result of the KPI-P-15. It can be noted from the figure that the actual benchmark equals the target value and hence target benchmark is achieved.

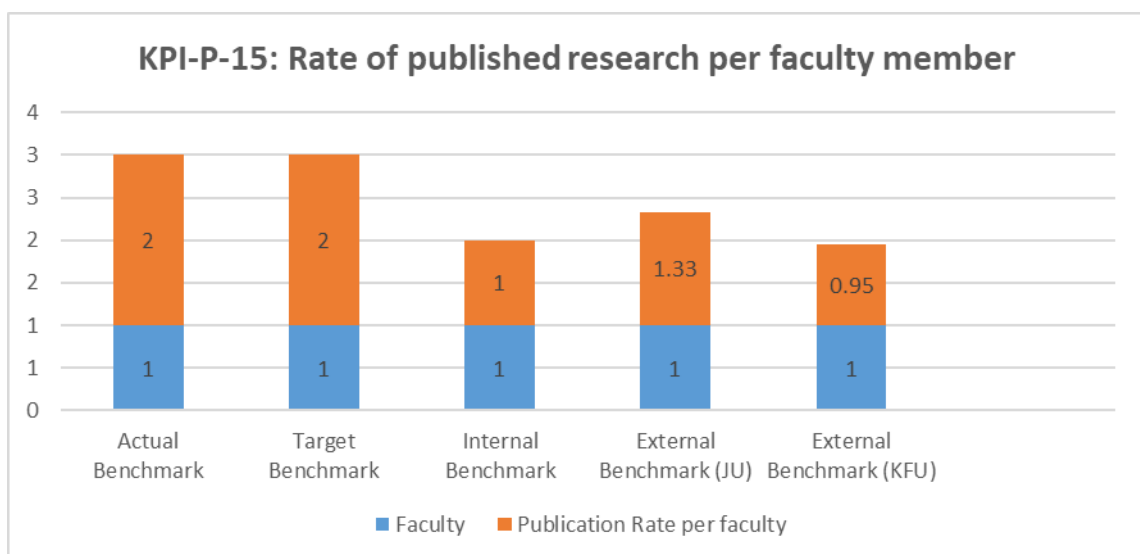


Figure 4.14: Analysis Result of KPI-P-15

KPI-P-16:

The following figure shows the analysis result of the KPI-P-16. It can be noted from the figure that the actual benchmark exceeds the target value and hence target benchmark is achieved.

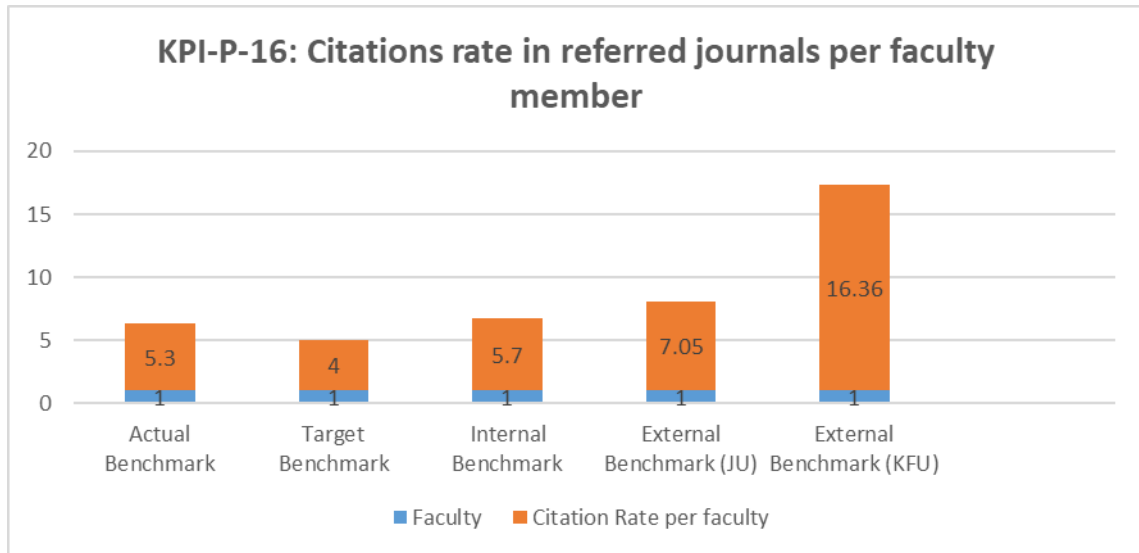


Figure 4.15: Analysis Result of KPI-P-16

KPI-P-17:

The following figure shows the analysis result of the KPI-P-17 on a five-point scale. It can be noted from the figure that the actual benchmark is less than the target value and hence target benchmark is not achieved.

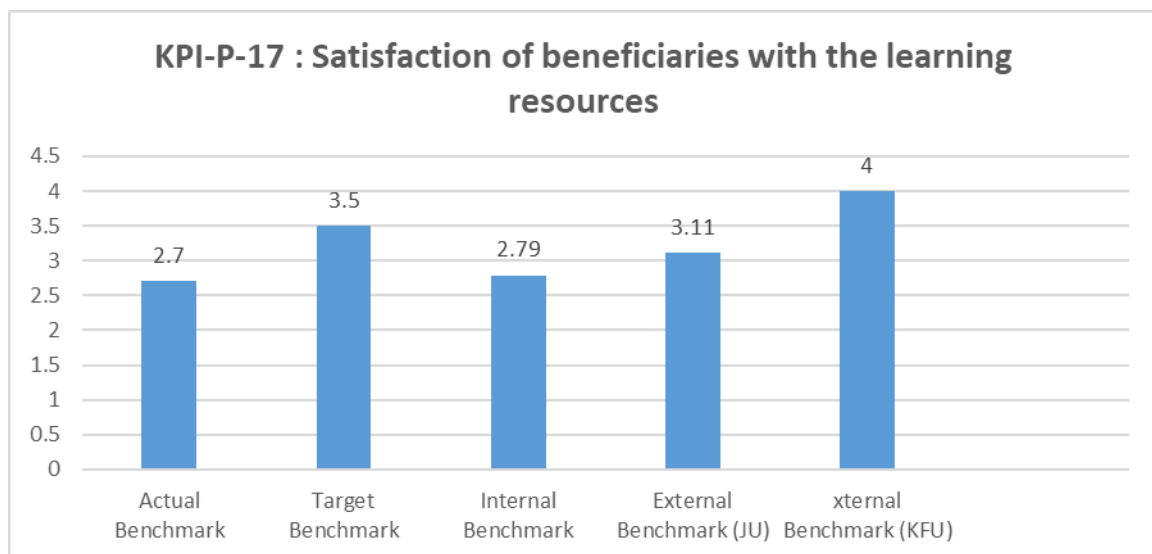


Figure 4.16: Analysis Result of KPI-P-17

KPI-P-I-1:

The following figure shows the analysis result of the KPI-P-I-1. This is the additional KPI that falls under the standard-2. It can be noted from the figure that the actual benchmark exceeds the target value and hence target benchmark is achieved. The external benchmark is not applicable as this is an additional KPI of the program.

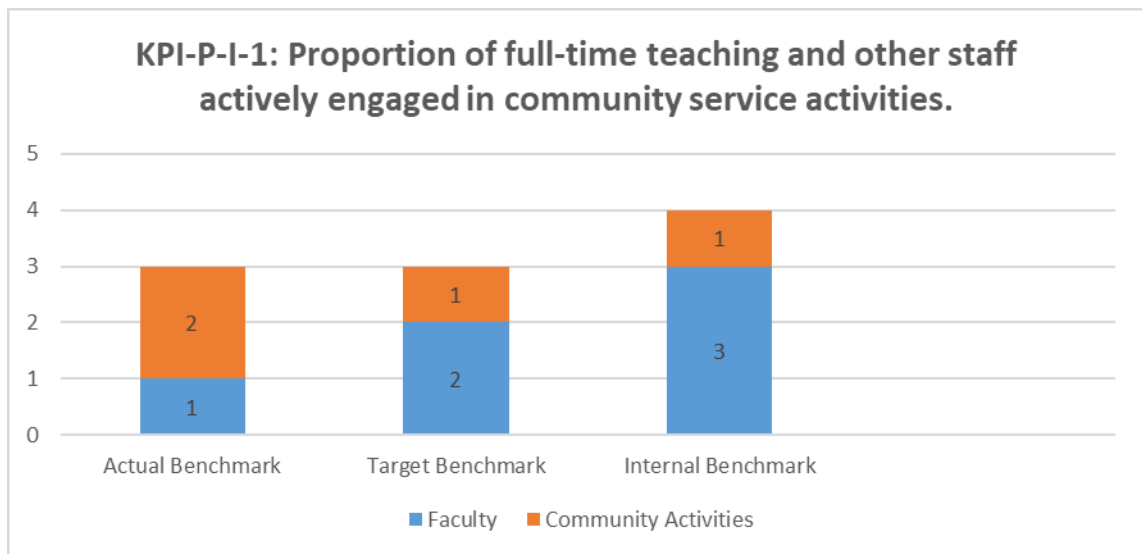


Figure 4.17: Analysis Result of KPI-P-I-1

Analysis of Overall KPIs:

The following table 4.2 shows the summary of KPI achievements.

Table 4.2: Summary of KPI achievements

Total number of approved Program KPIs	Number of approved KPIs that achieved the target benchmark	Number of approved KPIs that did not achieved the target benchmark	Overall KPI Achievement Rate
17	13	4	76.5%

Figure 1.1 shows that out of 17 KPIs that are assessed by the program, 13 KPIs have been achieved, which means that 76.5% of the assessed approved program KPIs are achieved.

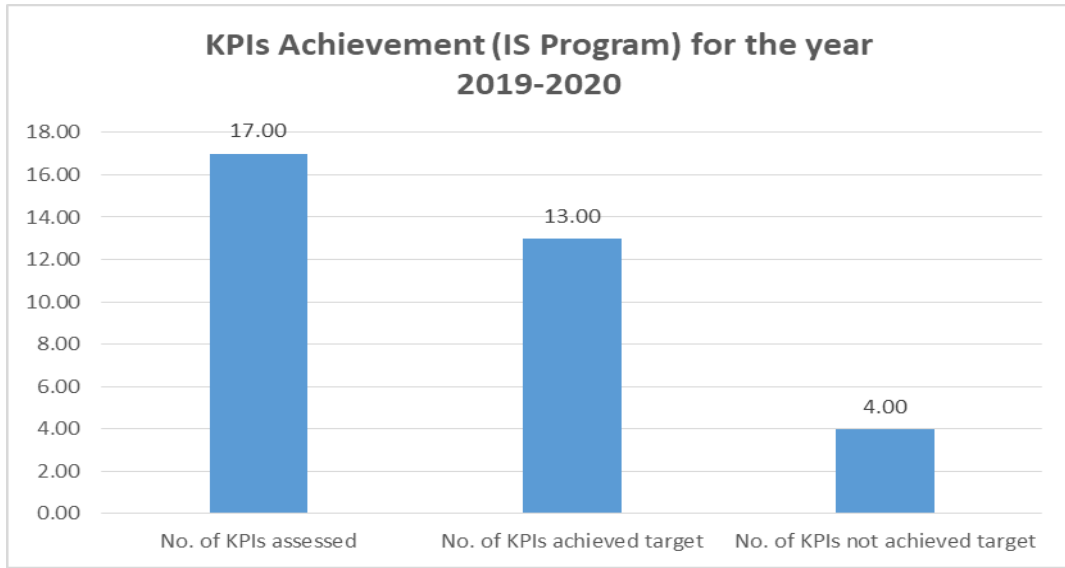


Figure: 4.18: Overall KPIs Achievement Rate

External Benchmarking:

The external benchmarking is applied for the IS program for the KPI analysis. The external benchmarking data is obtained from the Jouf University (JU) and King Faisal University (KFU).

The following table 4.3 shows the summary of KPI assessments in comparison with external benchmarking.

Table 4.3: Summary of KPI assessments in comparison with external benchmarking

Total number of approved NCAAA Program KPIs with external benchmarking		Number of approved KPIs of CS Program that outperformed the external benchmarking (Hail University)	Number of approved KPIs of CS Program that outperformed the external benchmarking (King Faisal University)
Jouf	King Faisal		
15 (result of KPI-1 not available)	14 (results of KPI-1 & KPI-9 not available)	7	5

In comparison with the external benchmarking data obtained from the Jouf University, only 15 KPIs are used for comparison as the data for the other 1 KPIs (KPI-1) is not available for external benchmarks. It can be noted that out of 15 KPIs, IS Program has outperformed in 6 KPIs.

In comparison with the external benchmarking data obtained from the King Faisal University, only 14 KPIs are used for comparison as the data for the other 2 KPIs (KPI-1 & KPI-9) are not available for external benchmarks. It can be noted that out of 14 KPIs, IS Program has outperformed in 4 KPIs.

Figure 4.19 shows that the actual benchmark of 6 KPIs are better than the external benchmarking of the Jouf University and 4 KPIs outperformed the external benchmarking of King Faisal.

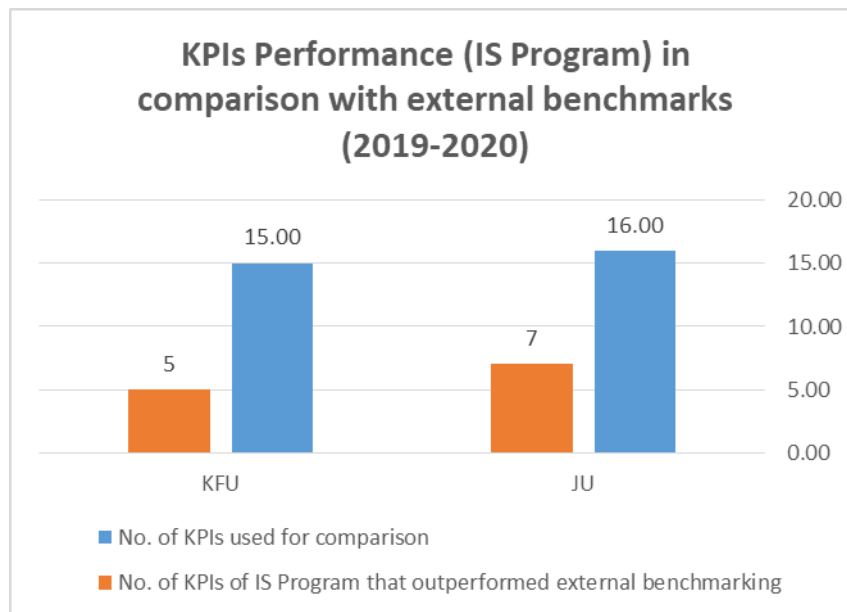


Figure: 4.19: KPIs Performance with external benchmarking

In comparison with the external benchmarking with Jouf University, IS program needs improvement in terms of the graduate's employability and enrolment rate in postgraduate programs, average number of students in the class, number of Ph.D. holders in the faculty, citations rate in referred journals, satisfaction of beneficiaries with the learning resources.

In comparison with the external benchmarking with King Faisal University, IS program needs improvement in terms of the students' evaluation of quality of learning, average number of

students in the class, number of Ph.D. holders in the faculty, citations rate in referred journals, satisfaction of beneficiaries with the learning resources.

Internal Benchmarks:

Out of 17 KPIs, all the 17 KPIs are also assessed with the internal benchmark. The actual benchmark of the academic year 2019-2020 of the Computer Science (CS) program is used as the internal benchmark for the academic year 2019-2020 for the IS program.

The following table 4.4 shows the summary of KPI performance in comparison with internal benchmarking (with the CS program).

Table 4.4: Summary of KPI achievements

Total number of approved NCAAA Program KPIs that are applicable to both CS & IS Programs	Number of approved KPIs of IS Program that has value as internal benchmarking (CS Program)	Number of approved KPIs of IS Program that outperformed the internal benchmarking (CS Program)	Number of approved KPIs of IS Program that did not outperform the internal benchmarking (CS Program)	Overall KPI Rate of IS Program that outperformed internal benchmarking (CS Program)
17	2	5	10	29%

Figure 4.20 shows that out of 17 KPIs that are assessed by the program, the actual benchmark of 5 KPIs are better than the internal benchmarking, which means that 29% of the assessed approved program KPIs outperformed internal benchmarking.

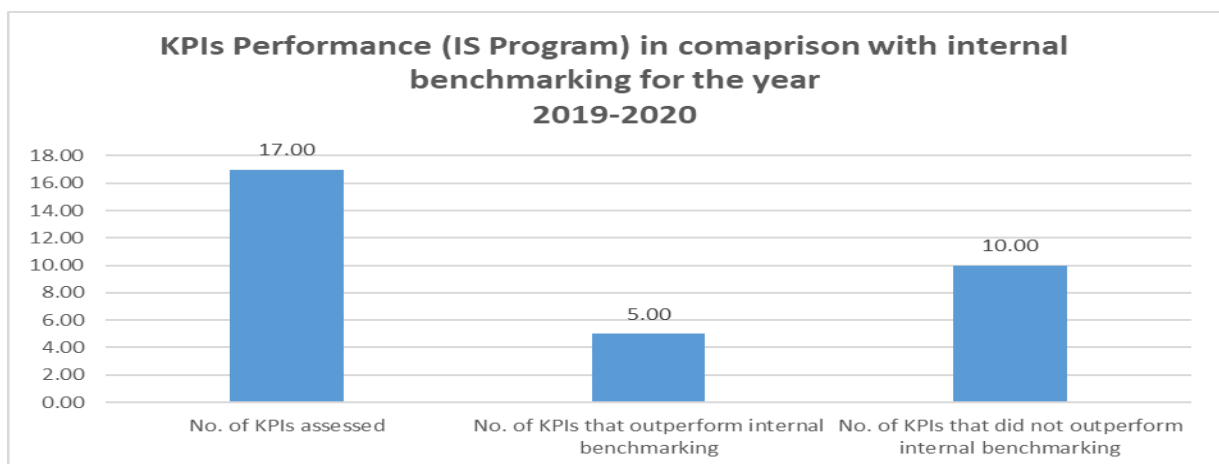


Figure: 4.20: KPIs Performance with internal benchmarking

In comparison with the internal benchmarking, IS program needs improvement in terms of the students' satisfaction level of the quality of learning experience in the program, completion rate of the students entering the program and complete in minimum time, in terms of students' employability rate and enrolment rate in the post-graduation program, in terms of students' satisfaction with the offered services in the program and the learning resources.

Comparison of the KPI assessment based on the gender (Male & Female):

The following table 4.5 shows the actual benchmark of the KPIs according to the gender (male and female sections)

Table 4.5 KPI Assessment Results (Male & Female Section)

Standard	KPI #	Program Key Performance Indicators	Actual Performance Level for the year 2019/ 2020			KPI Target Bench mark
			Male	Female	Overall	
Standard 1 Mission &Goals	KPI-P-01	Percentage of achieved indicators of the program operational plan objectives	89.51%	89.51%	89.51%	85%
Standard 3: Learning and Teaching	KPI-P-02	Students' evaluation of quality of learning experience in the program	65%≈ 3.25 (on five point scale)	N/A as there are no final year students	65%≈ 3.25 (on five point scale)	85%≈ 4.25 (on five point scale)
	KPI-P-03	Students evaluation on the quality of the courses	87.6% ≈ 4.38 (on five point scale)	79.3% ≈ 3.97 (on five point scale)	83.45% ≈ 4.17 (on five point scale)	80% ≈ 4.0 (on five point scale)
	KPI-P-04	Completion Rate	50%	N/A as IS program in female started this year.	50%	50%
	KPI-P-05	First year students retention rate	82.61%	92.31%	87.46%	50%
	KPI-P-06	Students' performance in the professional and/or national examinations	N/A	N/A	N/A	N/A
	KPI-P-07	Graduates' employability and enrolment in postgraduate programs	a)14.29 % b) 0%	N/A as IS program in female	a)14.29% b) 0%	a) ≥ 50% b) ≥ 10%

				started this year.		
	KPI-P-08	Average number of students in the class	4	17	11	10
	KPI-P-09	Employers' evaluation of the program graduates proficiency	87.98% (4.4)	N/A as no graduate so far.	87.98% (4.4)	80% \approx 4.0 (on five point scale)
Standard 4 : Students	KPI-P-10	Students' satisfaction with the offered services	81% (4 on a 5- point scale)	80% (4 on a 5- point scale)	81% (4 on a 5-point scale)	70% (3.5 on a 5-point scale)
Standard 5: Teaching Staff	KPI-P-11	Ratio of students to teaching staff	1:4	1:4	1:4	1:5
	KPI-P-12	Percentage of teaching staff distribution	64%	17%	50%	70%
	KPI-P-13	Proportion of teaching staff leaving the program	14%	0%	10%	\leq 10%
	KPI-P-14	Percentage of publications of faculty members	71.4%	66.67%	70%	\geq 40%
	KPI-P-15	Rate of published research per faculty member	1:3	1:1	1:2	1:2
	KPI-P-16	Citations rate in referred journals per faculty member	1:6.6	1:2.2	1:5.3	1:4
Standard 6: Learning Resources, Facilities and Equipment	KPI-P-17	Satisfaction of beneficiaries with the learning resources	63.64% = 3.2 (on 5- point scale)	44.44% = 2.2 (on 5-point scale)	54.04% = 2.7 (on 5-point scale)	70% = 3.5 (on 5-point scale)
Standard 2 : Program Management and Quality Assurance	KPI-P-I-1	Proportion of full-time teaching and other staff actively engaged in community service activities.	2:1	1:1	2:1	1:2

Comparison of the Analysis of KPI achievement based on the gender (Male & Female section):

The following table 4.6 shows the summary of KPI achievements in the male section and in the female section.

Table 4.6: Summary of KPI achievements (Male & Female Section)

Total number of approved Program KPIs that are applicable		Number of approved KPIs that achieved the target benchmark		Number of approved KPIs that did not achieved the target benchmark		Percentage of KPIs achievement (ratio of number of KPIs achieved and total KPIs used)	
Male	Female	Male	Female	Male	Female	Male	Female

17	13	10	7	7	4	59%	54%
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It should be noted that the IS Program was started in the 1st semester 2019-2020 in the female section and hence some of the KPIs such as KPI-P-3, KPI-P-4, KPI-P-7, KPI-P-9 that involves graduates are not accountable in the female section.

Figure 4.21 shows that in the male section 59% of the assessed approved program KPIs are achieved. In the female section 54% of the assessed approved program KPIs are achieved. This shows that the male section has outperformed the female section in the number of KPIs achieved rate.

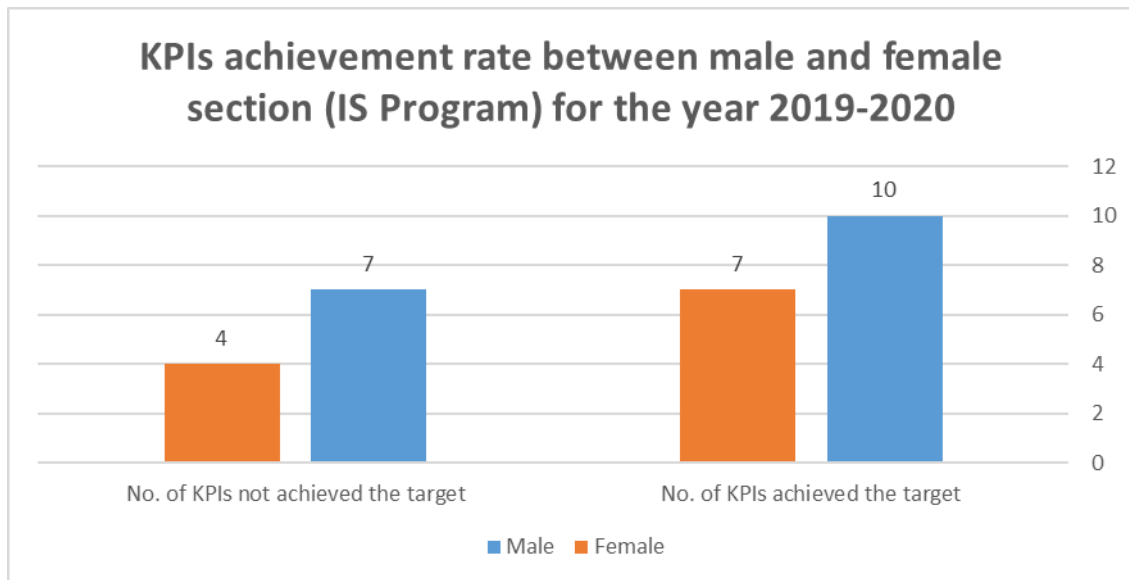


Figure: 4.21: Overall KPIs Achievement Rate (Male & Female Sections)

5. Conclusion:

The KPI Analysis of the NCAAA standards that are used to assess the performance of the program is performed. According to the KPI evaluation, the strengths, weakness and the priorities for improvement have been framed out.

Strengths:

- ✓ Most of the tasks in IS operational plan has 100% achievement
- ✓ Students are very much satisfied with the quality of the courses of the IS program according to the survey.

- ✓ Employers' overall evaluation considering all the criteria of the survey of the program graduates proficiency is very good.
- ✓ The students were satisfied with the various services offered by the program especially academic advising provided to them throughout their association with the program.
- ✓ The Program has adequate number of faculty members. There are more Ph.D holders than the Non-Ph.D holders in the department.
- ✓ In the IS department, there are more research and publications from the faculty members.

Weakness:

- ✓ The students' satisfaction level is less in terms of supportive learning resources.
- ✓ The graduates' employability rate and enrolment in the post graduate programs is less.
- ✓ The students' evaluation of quality of learning experience in the program is not satisfactory.

Priorities for improvement:

- ✓ Improve the supportive learning resources.
- ✓ Industrial Visits and Field Trips and Career Counseling should be organized for the students.
- ✓ Arranging career days and inviting national and multinational companies so that students get benefitted for their future career