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ANALYSIS OF STAKEHOLDERS FEEDBACK ON CURRICULUM DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING ACADEMIC YEAR 2020-21

Feedback from different stakeholders namely Students, Faculty, Alumni and Employers was collected to rate the curriculum. Analysis was performed to identify the opinion and suggestion of stakeholders.

STUDENTS FEEDBACK ON CURRICULUM

The students are the most important stakeholders of Higher Education. The support and interest of students at all levels play a key role. Google forms were used for the collection of student feedback on curriculum. The IV, III and II-year students studied two curricula namely R15 (JNTU), AK19 (Autonomous) respectively. Individual analysis is carried out for different curricula. Total number of responses received from IV, III and II-year students are 71 and 46 respectively. As listed in table 1, ten standard questions areframed on curriculum aspects.

Table 1: List of questions

Q No	Questions
Q1	How will you rate the Curriculum in terms of structure, comprehensive, relevance and arrangement?
Q2	How will you rate the Allocations of the hours and credits to the courses?
Q3	How will you rate the relevance of electives to the technological advancements?
Q4	How will you rate the availability of textbooks/reference books as recommended in the syllabus?
Q5	How will you rate the composition of the Courses in terms of Basic Sciences, Engineering Sciences, Humanities, and Core?
Q6	How will you rate the activities such as Guest Lecture and Industrial Visit for bridging the gap between academic and industrial needs?
Q7	How will you rate the relationship of experiments in the lab courses to the real-life applications?
Q8	How will you rate the skill development courses in your curriculum?
Q9	How will you rate the Quality of Internships provided by the Department/ College?
Q10	How will you rate the relevance of courses from the point of employability?

R15 curriculum

Feedback on R15 curriculum of JNTUA is taken from the final& third year students. The consolidated analysis of the responses is presented in Table 2 and Figure 1.

Table 2. Consolidated analysis of R15 curriculum

Q No	Excellent	Good	Moderate	Poor	Scale of opinion	% of opinion
Q1	43.7	43.7	9.9	2.8	Excellent & good	87.3
Q2	23.9	56.3	15.5	4.2	Excellent & good	80.3
Q3	46.5	33.8	15.5	4.2	Excellent & good	80.3
Q4	16.9	63.4	15.5	4.2	Excellent & good	80.3
Q5	45.1	35.2	14.1	5.6	Excellent & good	80.3
Q6	36.6	43.7	16.9	2.8	Excellent & good	80.3
Q7	45.1	39.4	9.9	5.6	Excellent & good	84.5
Q8	39.4	42.3	15.5	2.8	Excellent & good	81.7
Q9	43.7	38.0	14.1	4.2	Excellent & good	81.7
Q10	36.6	38.0	9.9	15.5	Excellent & good	74.6
Average (%)	**37.7**	**43.4**	**13.7**	**5.2**		**81.1**

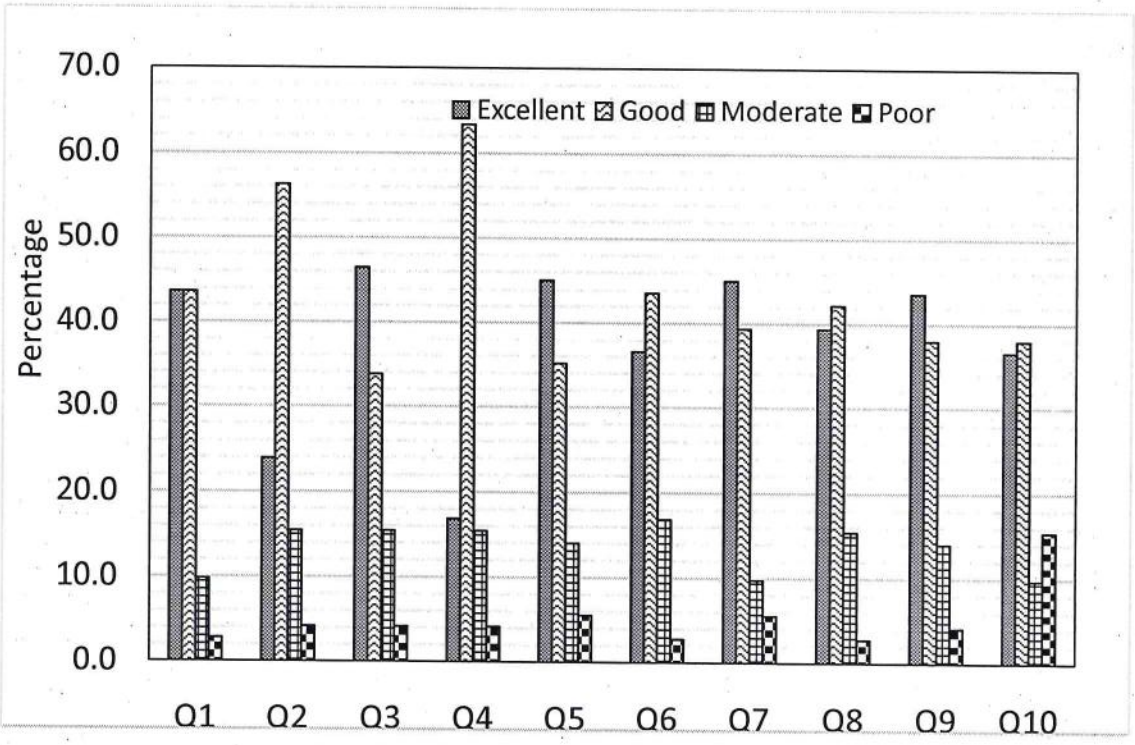

Figure 1 Consolidated analysis of R15 curriculum

From the table 2, it is observed that 43.7 % of the students rated "excellent&good" forcurriculum in terms of structure, comprehensive, relevance and arrangement. 56.3.0% of the students rated"good"for the allocations of the hours and credits to the courses. 46.5 % of the students rated"excellent" for the relevance of electives to the technological advancements. 63.4 % of the students rated "good" for the availability of textbooks/reference books as

recommended in the syllabus. 45.1 % of the students rated "excellent" for the composition of the Courses in terms of Basic Sciences, Engineering Sciences, Humanities, and Core. 43.7% of the students rated"good" for the activities such as Guest Lecture and Industrial Visit for bridging the gap between academic and industrial needs. 45.1% of the students rated "excellent" for the relationship of experiments in the lab courses to the real-life applications. 42.3% of the students rated "good" for skill development courses in your curriculum. 43.7% of the students rated "excellent" for Quality of Internships provided by the Department/ College. 38.0% of the students rated both "good" for the relevance of courses from the point of employability.

From the analysis, the scale of student's opinion for all the questions falls in the "excellent" and "good" categories. The average percentage of opinion is found to 88.8 %

The critical suggestions are as follows

- *Arrange guest lecturers on recent technologies used in battery cars*

AK19 curriculum

Feedback on AK19 curriculum of AITS (autonomous)is taken from the second-year students. The consolidated analysis of the responses is presented in Table 3 and Figure 2.

Table 3: Consolidated analysis of AK19 curriculum

Q No	Excellent	Good	Moderate	Poor	Scale of opinion	% of opinion
Q1	41.3	47.8	4.3	6.5	Excellent & good	89.1
Q2	32.6	54.3	13.0	0.0	Excellent & good	87.0
Q3	37.0	47.8	13.0	2.2	Excellent & good	84.8
Q4	47.8	34.8	6.5	10.9	Excellent & good	82.6
Q5	52.2	30.4	13.0	4.3	Excellent & good	82.6
Q6	34.8	50.0	13.0	2.2	Excellent & good	84.8
Q7	54.3	26.1	13.0	6.5	Excellent & good	80.4
Q8	47.8	26.1	19.6	6.5	Excellent & good	73.9
Q9	37.0	45.7	10.9	6.5	Excellent & good	82.6
Q10	52.2	19.6	19.6	8.7	Excellent & good	71.7
Average (%)	**43.7**	**38.3**	**12.6**	**5.4**		**82.0**

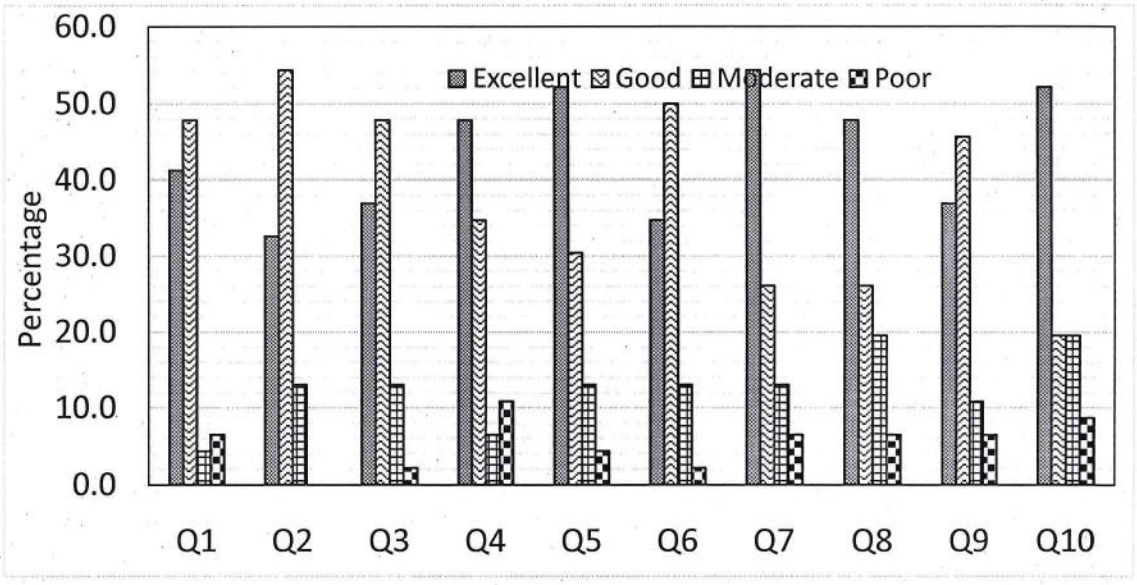

Figure 2: Consolidated analysis of AK19 curriculum

From the table 3, it is observed that 47.8 % of the students rated "good" for curriculum in terms of structure, comprehensive, relevance and arrangement. 54.3% of the students rated "good" for the allocations of the hours and credits to the courses. 47.8 % of the students rated "good" for the relevance of electives to the technological advancements. 47.8 % of the students rated "excellent" for the availability of textbooks/reference books as recommended in the syllabus. 52.2 % of the students rated "excellent" for the composition of the Courses in terms of Basic Sciences, Engineering Sciences, Humanities, and Core. 50.00 % of the students rated "good" for the activities such as Guest Lecture and Industrial Visit for bridging the gap between academic and industrial needs. 54.3% of the students rated "good" for the relationship of experiments in the lab courses to the real-life applications. 47.8% of the students rated "excellent" for skill development courses in your curriculum. 45.7% of the students rated "good" for Quality of Internships provided by the Department/ College. 52.2 % of the students rated "excellent" and "good" for the relevance of courses from the point of employability.

From the analysis, the scale of student's opinionfor all the questions falls in the "excellent" and "good" categories. The average percentage of opinion is found to 85.1 %

The critical suggestions are as follows

- *Conduct technical fest*

Overall Analysis on Students feedback on different curricula

Overall, the percentage of ratings in the academic year 2020-2021 by students for different curricula such as R15& AK19 are presented in table 5 and Figure 4.

Table 5: Comparison of different curricula

Curriculum	Excellent	Good	Moderate	Poor	% of opinion
R15	37.7	43.4	13.7	5.2	81.1
AK19	43.7	38.3	12.6	5.4	82.0

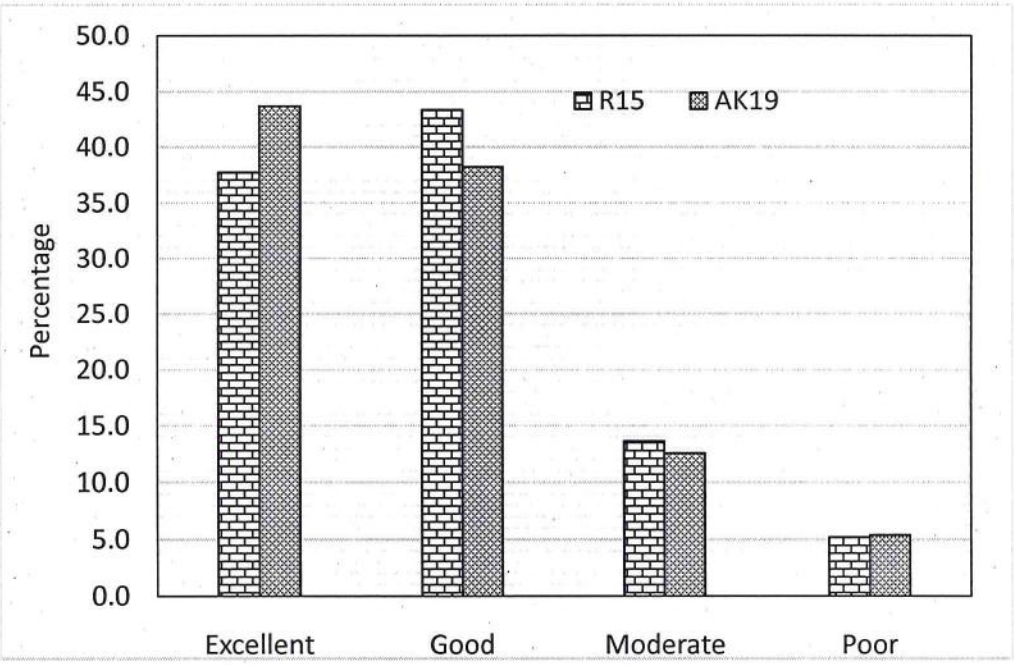

Figure 4: Overall analysis for different curricula in 2020-21

In R15 curriculum, the average rating for excellent, good, moderate and poor categoriesare 37.7%, 43.4%, 13.7% and 5.2% respectively. In AK19 curriculum, the average rating for excellent, good, moderate and poor is43.7%, 38.3%, 12.6% and 5.4% respectively.The "% of opinion" for R15 and AK19 curricula are 81.1%& 82.0% respectively. It is inferred that the rating for latest curriculum (AK19) by the students are better than R15 curricula in all the questionnaires. The introduction of the new curriculum (AK19) is satisfactory for the students.

TEACHERS FEEDBACK ON CURRICULUM

Teachers' feedback is an important parameter for quality improvement of the curriculum and the quality of the student in an institution. Google forms are used for the collection of teacher feedback on curriculum. The teachers are asked to rate the R15 (JNTU)& AK19 (Autonomous) curricula. Feedback is collected from 25 teachers. Individual analysis is carried out for different curricula. As listed in table 6, ten standard questions are asked for the responses from the teachers.

Table 6: List of questions

Q No	Questions
Q1	How will you rate the Curriculum in terms of structure, comprehensive, relevance and arrangement?
Q2	How will you rate the Allocations of the hours and credits to the courses?
Q3	How will you rate the relevance of electives to the technological advancements?
Q4	How will you rate the availability of textbooks/reference books as recommended in the syllabus?
Q5	How will you rate the composition of the Courses in terms of Basic Sciences, Engineering Sciences, Humanities, and Core?
Q6	How will you rate the activities such as Guest Lecture and Industrial Visit for bridging the gap between academic and industrial needs?
Q7	How will you rate the relationship of experiments in the lab courses to the real-life applications?
Q8	How will you rate the skill development courses in your curriculum?
Q9	How will you rate the Quality of Internships provided by the Department/ College?
Q10	How will you rate the relevance of courses from the point of employability?

R15 curriculum

Google form is used to collect the feedback from the teachers for the R15 curriculum of JNTUA. The consolidated analysis of the responses is presented in Table 7 and Figure 5.

Table 7. Consolidated analysis of R15 curriculum

Q No	Excellent	Good	Moderate	Poor	Scale of opinion	% of opinion
Q1	36.0	52.0	8.0	4.0	Excellent & good	88.0
Q2	32.0	48.0	12.0	8.0	Excellent & good	80.0
Q3	40.0	36.0	20.0	4.0	Excellent & good	76.0
Q4	44.0	40.0	8.0	8.0	Excellent & good	84.0
Q5	40.0	40.0	16.0	4.0	Excellent & good	80.0
Q6	44.0	32.0	24.0	0.0	Excellent & good	76.0
Q7	52.0	44.0	4.0	0.0	Excellent & good	96.0
Q8	44.0	28.0	24.0	4.0	Excellent & good	72.0
Q9	32.0	44.0	16.0	8.0	Excellent & good	76.0
Q10	48.0	36.0	16.0	0.0	Excellent & good	84.0
Average (%)	**41.2**	**40.0**	**14.8**	**4.0**		**81.2**

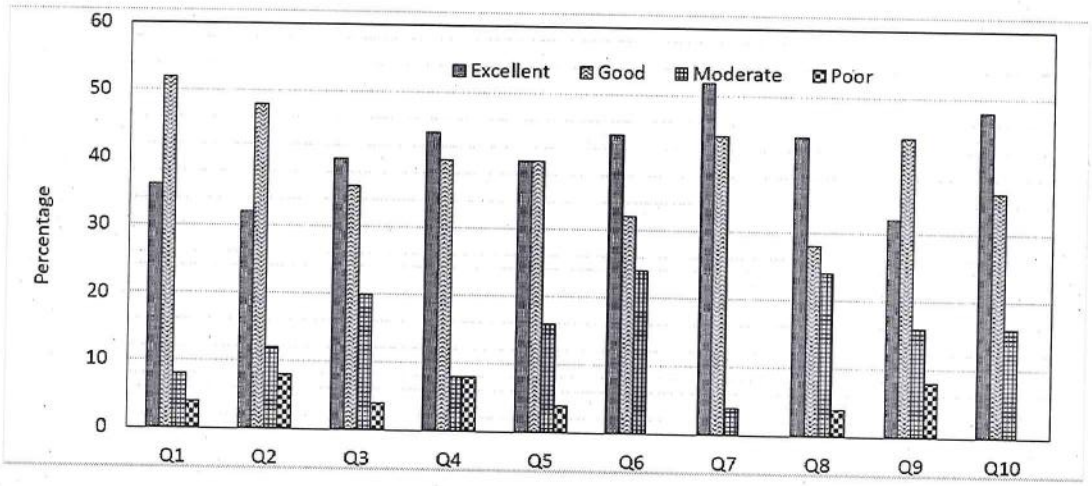

Figure 5 Consolidated analysis of R15 curriculum

From the table 7, it is observed that 52 % of the teachers rated "good" for curriculum in terms of structure, comprehensive, relevance and arrangement. 48% of the teachers rated "good" for the allocations of the hours and credits to the courses. 40 % of the teachers rated "excellent" for the relevance of electives to the technological advancements. 44 % of the teachers rated "excellent" for the availability of textbooks/reference books as recommended in the syllabus. 40 % of the teachers rated "excellent& good" for the composition of the Courses in terms of Basic Sciences, Engineering Sciences, Humanities, and Core. 44 % of the teachers rated "excellent" for the activities such as Guest Lecture and Industrial Visit for bridging the gap between academic and industrial needs. 52 % of the teachers rated "excellent" for the relationship of experiments in the lab courses to the real-life applications. 44 % of the teachers rated "excellent" for skill development courses in your curriculum. 44 % of the teachers rated "good" for Quality of Internships provided by the Department/ College. 48% of the teachers rated "excellent" for the relevance of courses from the point of employability.

From the analysis, the scale of teacher's opinion for all the questions falls in the "excellent" and "good" categories. The average percentage of opinion is found to 81.2 %

The critical suggestionsare as follows

- *Add Neural Networks&Fuzzy Logic course*

AK19 curriculum

Google form is used to collect the feedback from the teachers for AK19 curriculum of AITS (autonomous). The consolidated analysis of the responses is presented in Table 8& Figure 6.

Table 8: Consolidated analysis of AK19 curriculum

Q No	Excellent	Good	Moderate	Poor	Scale of opinion	% of opinion
Q1	28.0	56.0	4.0	12.0	Excellent & good	84.0
Q2	28.0	52.0	16.0	4.0	Excellent & good	80.0
Q3	48.0	48.0	4.0	0.0	Excellent & good	96.0
Q4	48.0	40.0	4.0	8.0	Excellent & good	88.0
Q5	56.0	40.0	4.0	0.0	Excellent & good	96.0
Q6	40.0	36.0	16.0	8.0	Excellent & good	76.0
Q7	28.0	56.0	16.0	0.0	Excellent & good	84.0
Q8	24.0	52.0	16.0	8.0	Excellent & good	76.0
Q9	0.0	72.0	28.0	0.0	Excellent & good	72.0
Q10	44.0	52.0	4.0	0.0	Excellent & good	96.0
Average (%)	**34.4**	**50.4**	**11.2**	**4.0**		**84.8**

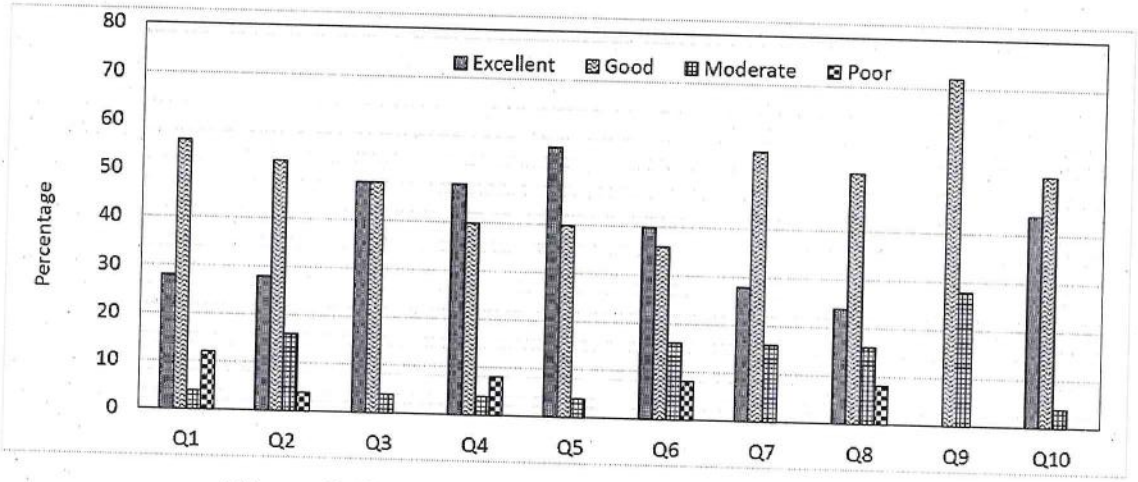

Figure 6: Consolidated analysis of AK19 curriculum

From the table 8, it is observed that 56 % of the teachers rated "good" for Curriculum in terms of structure, comprehensive, relevance and arrangement. 52% of the teachers rated "good" for the allocations of the hours and credits to the courses. 48 % of the teachers rated "excellent& good" for the relevance of electives to the technological advancements. 48 % of the teachers rated "excellent" for the availability of textbooks/reference books as recommended in the syllabus. 56 % of the teachers rated "excellent" for the composition of the Courses in terms of Basic Sciences, Engineering Sciences, Humanities, and Core. 40 % of the teachers rated "excellent" for the activities such as Guest Lecture and Industrial Visit for bridging the gap between academic and industrial needs. 56 % of the teachersrated "good" for the relationship of experiments in the lab courses to the real-life applications. 52 % of the teachersrated "good" for skill development courses in your curriculum. 72 % of the

teachersrated "good" for Quality of Internships provided by the Department/ College. 52% of the teachers rated "good" for the relevance of courses from the point of employability.

From the analysis, the scale of teacher's opinion for all the questions falls in the "excellent" and "good" categories. The average percentage of opinion is found to 84.8 %

The critical suggestion is as follows

- *Training in simulation software's*

Overall Analysis on teachers feedback on different curricula

Overall, the percentage of ratings in academic year 2020-2021 by teachers for different curricula such as R15 and AK19 are presented in Table 10 and Figure 8.

Table 10: Comparison of different curricula

Curriculum	Excellent	Good	Moderate	Poor	% of opinion
R15	41.3	41.7	13.5	3.5	81.2
AK19	34.4	50.4	11.2	4.0	84.8

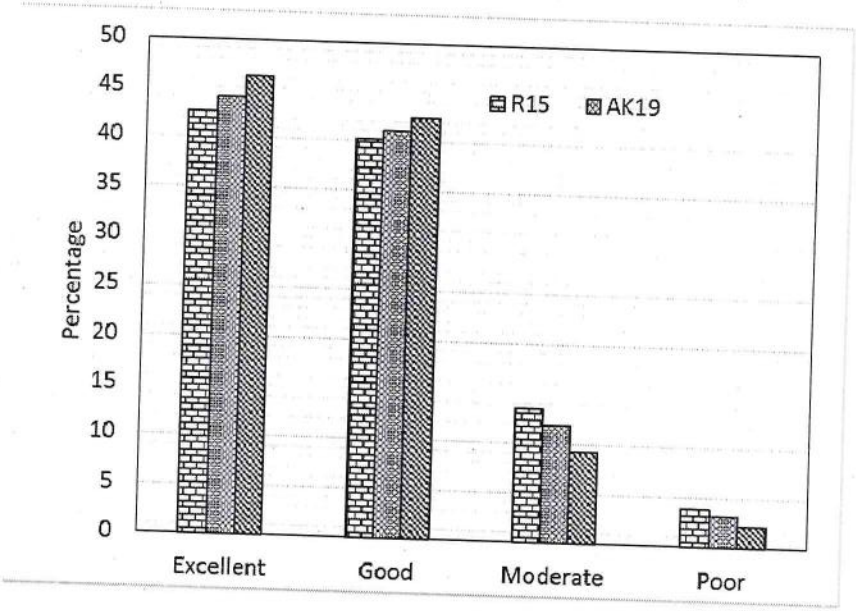

Figure 8: Overall analysis for different curricula in 2020-21

In R15 curriculum, the average rating for excellent, good, moderate and poor is41.3%, 41.7 %, 13.5% and 3.5% respectively. In AK19 curriculum, the average rating for excellent, good, moderate and poor is34.4%, 50.4%, 11.2% and 4% respectively.The "% of opinion" for R15 and AK19 curricula are 81.2 % and 84.8 % respectively. It is inferred that the rating for latest curriculum (AK19) by the teachers are better than curricula in all the questionnaires. The introduction of the new curriculum (AK19) is satisfactory for the teachers.

ALUMNI FEEDBACK ON CURRICULUM

Our alumni feedback is valuable for us by providingvaluable inputs regarding employability of our students. Offlinemodeis followed to collect the alumni feedback in the academic year 2020-21. Total numbers of responses received from the alumni are6. As listed in Table 11, eight standard questions were asked for the responses from the alumni.

Table 11: List of questions

Q No	Questions
Q1	How will you rate the Curriculum in terms of structure, comprehensive, relevance and arrangement?
Q2	How will you rate the relevance of electives to the technological advancements?
Q3	How will you rate the composition of the Courses in terms of Basic Sciences, Engineering Sciences, Humanities, and Core?
Q4	How will you rate the activities such as Guest Lecture and Industrial Visit for bridging the gap between academic and industrial needs?
Q5	How will you rate the relationship of experiments in the lab courses to the real-life applications?
Q6	How will you rate the skill development courses in your curriculum?
Q7	How will you rate the Quality of Internships provided by the Department/ College?
Q8	How will you rate the relevance of courses from the point of employability?

R15 curriculum

Feedbackfrom the alumni is collected for the R15 curriculum of JNTUA. The consolidated analysis of the responses is presented in Table 12 and Figure 9.

Table 12. Consolidated analysis of R15 curriculum

Q No	Excellent	Good	Moderate	Poor	Scale of opinion	% of opinion
Q1	33.3	33.3	33.3	0.0	Excellent & good	80.0
Q2	66.7	33.3	0.0	0.0	Excellent & good	100.0
Q3	66.7	33.3	0.0	0.0	Excellent & good	84.0
Q4	16.7	66.7	16.7	0.0	Excellent & good	80.0
Q5	16.7	83.3	0.0	0.0	Excellent & good	83.0
Q6	50.0	33.3	0.0	16.7	Excellent & good	80.0
Q7	50.0	33.3	16.7	0.0	Excellent & good	90.0
Q8	66.7	33.3	0.0	0.0	Excellent & good	90.0
Average (%)	**45.8**	**43.8**	**8.3**	**2.1**		**81.8**

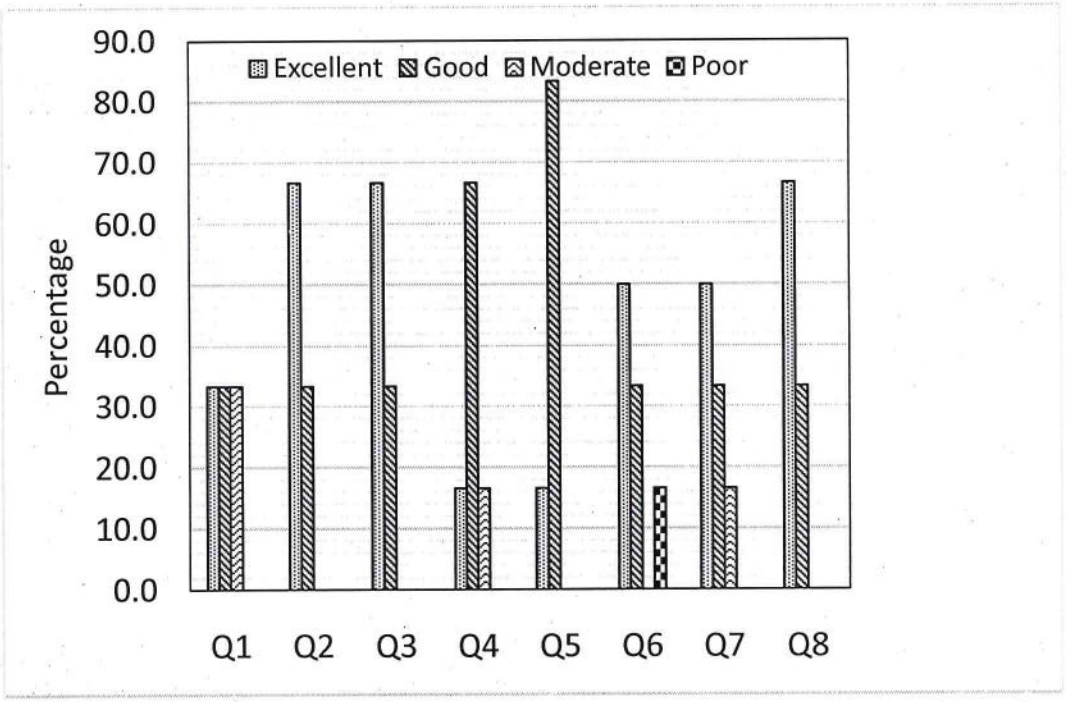

Figure 9 Consolidated analysis of R15 curriculum

From the table 12, it is observed that 33.3% of the alumni rated "excellent& good" for Curriculum in terms of structure, comprehensive, relevance and arrangement. 66.7% of the alumnirated "excellent" for the relevance of electives to the technological advancements. 66.7% of the alumni rated "excellent" and "good" for the composition of the Courses in terms of Basic Sciences, Engineering Sciences, Humanities, and Core. 66.7 % of the alumni rated "good" for the activities such as Guest Lecture and Industrial Visit for bridging the gap between academic and industrial needs. 83.3 % of the alumni rated "good" for the relationship of experiments in the lab courses to the real-life applications. 50% of the alumni rated "excellent" for skill development courses in your curriculum. 50% of the alumni rated "excellent" for Quality of Internships provided by the Department/ College. 66.7 % of the alumni rated "excellent" for the relevance of courses from the point of employability.

From the analysis, the scale of alumni opinionfor all the questions falls in the "excellent" and "good" categories. The average percentage of opinion is found to 81.8 %

The critical suggestion is as follows

- *Provide internships inMATLAB software's.*

EMPLOYER FEEDBACK ON CURRICULUM

Employer feedback is the most important determinant to evaluate the curriculum from the point of quality graduates. Offline system is used to collect the employer feedback for the academic year 2020-21. Four employers participated to rate the curriculum.Table13 presents the list of questions.

Table 13: List of questions

Q No	Questions
Q1	How will you rate the Curriculum in terms of structure, comprehensive, relevance and arrangement?
Q2	How will rate the exposure of curriculum to relevant software's?
Q3	How will you rate the relevance of electives to the technological advancements?
Q4	How will you rate the practical exposure of graduate to undertake real time projects?
Q5	How will you rate the composition of the courses in terms of Basic Sciences, Engineering Sciences, Humanities, and Core?
Q6	How will you rate the presence of analytical / problem solving / critical thinking / innovative skills in the courses?
Q7	How will you rate the quality of internships undergone by the students?
Q8	How will you rate the relevance of courses from the point of employability?

R15 curriculum

Feedback from the employers is collected for the R15 curriculum of JNTUA. The consolidated analysis of the responses is presented in Table 14 and Figure 10.

Table 14. Consolidated analysis of R15 curriculum

Q No	Excellent	Good	Moderate	Poor	Scale of opinion	% of opinion
Q1	50	50	0	0	Excellent & good	100.0
Q2	0	100	0	0	Excellent & good	100.0
Q3	50	0	50	0	Excellent & good	50.0
Q4	100	0	0	0	Excellent & good	100.0
Q5	50	0	50	0	Excellent & good	50.0
Q6	100	0	0	0	Excellent & good	100.0
Q7	100	0	0	0	Excellent & good	100.0
Q8	50	0	50	0	Excellent & good	50.0
Average (%)	**62.5**	**18.75**	**18.75**	**0**		**81.3**

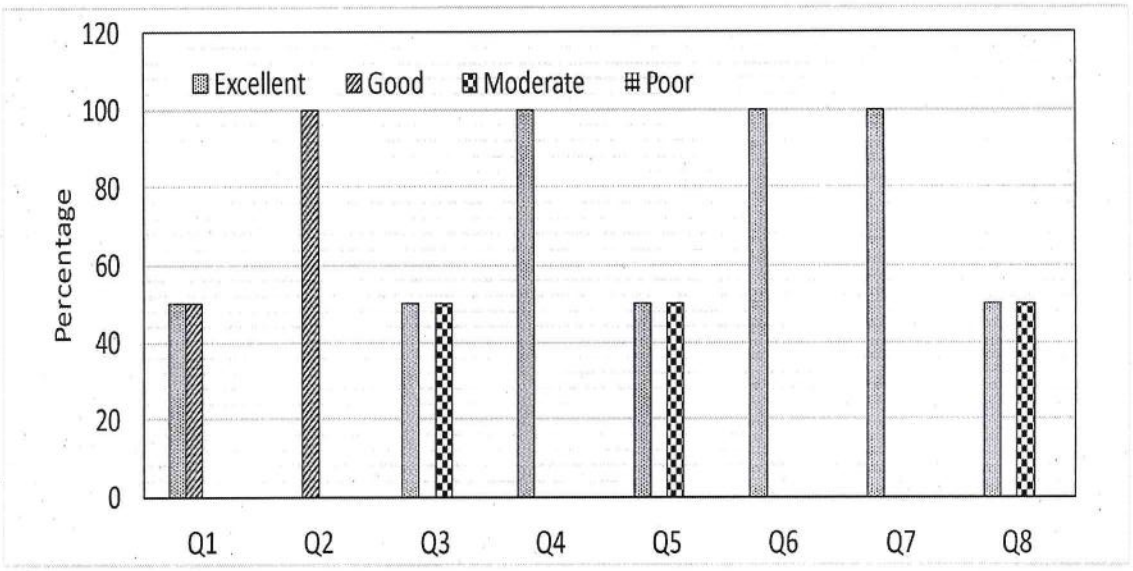

Figure 10 Consolidated analysis of R15 curriculum

From the table 14, it is observed that 50 % of the employers rated "excellent" and "good" for curriculum in terms of structure, comprehensive, relevance and arrangement. 100% of the employers rated "good" for the exposure of curriculum to relevant software's. 50 % of the employersrated "excellent" for the relevance of electives to the technological advancements. 100 % of the employers rated "excellent" for the practical exposure of graduate to undertake real time projects. 50 % of the employers rated "excellent" and "good" for the composition of the courses in terms of Basic Sciences, Engineering Sciences, Humanities, and Core. 100 % of the employers rated "excellent" for the presence of analytical / problem solving / critical thinking / innovative skills in the courses. 100 % of the employers rated "excellent" for the quality of internships undergone by the students. 50 % of the employers rated "excellent" for the relevance of courses from the point of employability.

From the analysis, the scale of employer'sopinion for all the questions falls in the "excellent" and "good" categories. The average percentage of opinion is found to 81.3 %

The critical suggestion is as follows

- *Students must gain knowledge on electrical grid systems*

Feedback Coordinator