

Impact of Internship on Employability of undergraduate Engineering Students: A Case Study

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Abstract: Introduction of model curriculum and internships for all undergraduate engineering students by AICTE has shifted the focus of many engineering institutions towards building a relationship with industry and arranging for an internship for their students. This analysis aimed to assess the impact of the internship on the employment potential of students. Civil Engineering students from the 2010 Batch in Malla Reddy Engineering College (Autonomous), who had the opportunity to do an internship in industry, are the theme of this study. Students in the industry after jobs have been surveyed and evaluated by a degree Performance Assessment Method via questionnaire. The average percentage of internship students and employability based on internship students for the past 5 years is 67% and 53%. However, it is graded and evaluated at different levels with an average score of 82 percent for the success of students in the industry through internship [2]. This study also found the method to improve the internship levels to match the requirements of the industries. The internship section shall give confidence to the students in achieving their employability levels during the internship in reputed

MNC companies, which will be very much useful for placement once they graduated. The students are highly recommended to go through an internship program at under graduation level at Internship-based companies [2]. This program is important for undergraduate students to enhance their self-development and employment ability. In this case study interns students, non- intern students and companies are taken as an example and student's performance was rigorously evaluated in their workplace.

Keywords: Internship, Employability, MNC, Industries, Analysis, My Homes, Ark Infra.

1. Introduction

The Indian government recently required students in their course to complete at least three internships. This rule will be implemented from the year 2017–2018 onwards. The law was made because in the recent survey of 2015–16 it was found out that nearly 56% of student are unemployed being an engineer. Many IT careers are being rejected because of the lack of appropriate skills in recent times. From the academic year 2017–2018, AICTE made it mandatory with three internships for engineering students to fill the gap between academia and industry so that they can be properly hired. Each student will experience two summer internships each in the summer with the industry for two months. In the

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country, more than 10,000 technical schools are located. The execution of the internships cannot be controlled by AICTE alone. We will ask the universities to make the internships mandatory and make room for them in their schedule. Universities should at least offer credentials, grades, or credits for the same [4].

An internship can be said to be a training program meant for imparting practical training to any student in general and particularly to an undergraduate engineering student in this context to improve the application skills of the knowledge gained in the curriculum. The theoretical knowledge obtained in the college cannot make him or her an engineer and hence the internship always supplements and supports their domain knowledge and also helps the students get exposure to the practical solutions of real-time problems. In turn, this will also help the institutes to produce knowledgeable, skilled, and employable technical manpower. The internship will also make the student learn how to work in a team, interpersonal skills, communication skills, and leadership qualities. As a consequence of the successful completion of the internship, the student can also earn credit in the curriculum [1]. The cycle of an internship is based on Practice, Learning, Experience, and Success.

2. Literature Review

Marsono, Machmud Sugandi, Tuwoso, and Purnomo [1]: 11 points should be more concerned with conducting internships, including gathering data and providing students with simple assignments, providing accommodation locations, complying with the study program, allowing students to try to finish the job, providing students with orderly working hours, providing students with orderly holiday permission, preparing lunch for an internship, industries should implement school students provide the industry with input. Industries and schools should allow students the opportunity to finish their work with more than one supervisor to boost the competence of the internship program. To ensure that students do the right things, the supervisor should advise students to give them more trust in completing the work, as well as alert and punishing the wrong internship participants.

Sunyoto, Agus Nugroho, and Miftakhul Ulum [2]

There are some points inferred in this study based on the outcome and discussion:

- (1) The internship subject score for UNNES Department of Mechanical Engineering Education students is in the 'Excellent' group with an average percentage of 87.08 percent;
- (2) The entrepreneurial interest of UNNES Department of Mechanical Engineering Education students is the 'Excellent' category. The impact, however, is 7.9 percent in the poor group.

3. Methodology

This training will enable the undergraduate engineering students to get a feel of working in the industry as an employee and they will be prepared enough to accept a suitable role given to them in their jobs, once they get graduated. The potential qualities that a student can or will develop as a result of the internship program include sufficient knowledge of practices followed in the workplace, an understanding of the required skills, etc.[1]:

- Various civil companies focus mainly on construction practices like Reconnaissance, Planning, Management, Execution e.t.c.
- Various field visits consist of Quality Survey, Bill of Quantities, Bar Bending Schedule, Daily Project report, daily labor reports, safety execution systems, and industry practice reports.
- Various design companies facilitate on Analyzing and designing of various infra project works like buildings, bridges, dams, tunnels, irrigation e.t.c.

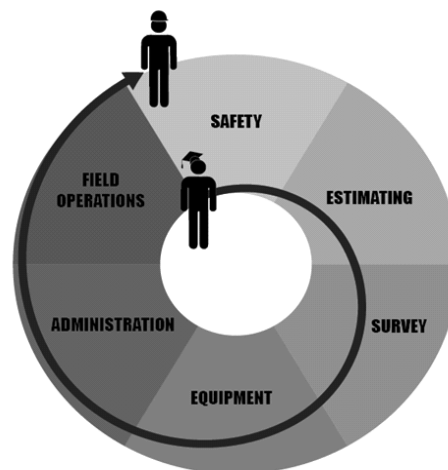


Fig. 1: Transformation of student

After they get approval from industries or have been accepted then the student is ready to do an internship in the industry [1]. Department of Civil Engineering is to set a lecturer to supervise the work done by every student in practice. In the final year of graduation, the placement officer chooses students for placements who have completed construction industry requirements in the form of an internship.

4. Description of Case study

This case study was conducted at the Department of Civil Engineering, Malla Reddy Engineering College (A)[6] for 5 Autonomous batches from 2010 to 2014. The period includes Internships, employability, and Performance as an employee.

- The preparation stage was needed to select the students who have an interest in doing internships in various domains. Based on their interest and references a group of students gets permission in doing internships at chosen industries. As an intern, every student is responsible to learn something from the industry and keen observations to be made on working culture in construction site and taking notes from the site engineer.
- Responsible lecturers who monitor the internships should conduct multiple seminars to know what exactly students learned from an internship. A group of faculty experts will evaluate the students' performance and collect reports on internship which should be submitted to the department at the end of the fourth semester. Moreover, feedback will be taken from the students and industry to evaluate their performance and to identify the deficiencies of the students' performance, the difficulties of the student ability in filling the gap between theoretical and practical applications.
- After the internship students who performed well and acquired practical knowledge will be considered first for placement opportunities. After the students get placed, our placement coordinator will take an employer Survey to know the student's performance in the real workplace. It is evaluated by some questionnaires and is used in this mapping of our Program objectives and Outcomes [1].

5. Results and observations from students Internships

The following results given in the tables explain the number of students shortlisted for internship in the study years. Also, the data about the percentage of students who got an internship are presented.

Table 1: Contribution Scale

Interval Percentage	Remarks
76% - 100%	Very Strong
51% - 75%	Strong
26% - 50%	Medium
1% - 25%	Weak

Table 2: Numbers and Percentage of Internship students for the past 5 years

S. No	Batch	No of students in Final Year (N)	Internship Students (S)	Percentage of Internship students (IP)
1	2010-2014	115	67	58.2 %
2	2011-2015	125	76	60.8 %
3	2012-2016	129	79	61.2 %
4	2013-2017	204	145	71 %
5	2014-2018	209	167	80 %
Average Percentage %				67%

Table 3: Numbers and Percentage of students without internship for the past 5 years

S. No	Batch	No of students in Final Year (N)	Non-Internship Students (P)	Percentage of Non-Internship participants (NIP)
1	2010-2014	115	48	41.7 %
2	2011-2015	125	49	39.2 %
3	2012-2016	129	50	38.7 %
4	2013-2017	204	59	28.9 %
5	2014-2018	209	42	20.1 %
Average Percentage %				33%

Remarks:

No of students in Final Year = N

Internship Students = S

Non-Internship Students = P

Percentage of Internship students = IP

Percentage of Non-Internship participants = NIP

$$\frac{N - P}{N} \times 100 = IP$$

$$\frac{N - S}{N} \times 100 = NIP$$

The following results give an idea of the students selected for employment from the group of internship as well as non-internship students. From this analysis, it can be clearly understood that there is a significant improvement in the percentage of employment from the internship group.

Table 4: Numbers and Percentage of Employability based on Internship for the past 5 years

S. No	Batch	Internship Students (S)	No of Employed (E)	Percentage of Employability (PE)
1	2010-2014	67	29	43.2 %
2	2011-2015	76	36	47.3 %
3	2012-2016	79	42	53.1 %
4	2013-2017	145	79	54.4 %
5	2014-2018	167	106	63.4 %
Average Percentage %				53 %

Table 5: Numbers and Percentage of Employability without internship for the past 5 years

S. No	Batch	Non-Internship Students (P)	No of Employed (E)	Percentage of Employability (PE)
1	2010-2014	48	12	25.1 %
2	2011-2015	49	18	36.7 %
3	2012-2016	50	26	52.1 %
4	2013-2017	59	29	49.1 %
5	2014-2018	42	20	47.6 %
Average Percentage %				42.1 %

Remarks:

Internship Students = S
 Non-Internship Students = P
 No of students Employed = E
 Percentage of Employability = PE

$$\frac{E}{S} \times 100 = PE$$

$$\frac{E}{P} \times 100 = PE$$

5.1 Performance Planning and Results by the Employer Degree Performance Appraisal Method:

It is a method wherein the employers assess the employees' performance, through some questionnaire Anonymous and employer confidential. Managers and subordinates execute this process by evaluating the performance of students at a 360-grade level and by examining certain variables affecting employees. The abilities and capabilities involved, including listening, preparing, and setting goals, coordination, character, and performance in leadership [3].



Fig. 2: Employee Performance Appraisal Process

To achieve a shared language and accuracy of overall ratings the following measures will be used. [3]:

Table 6: Performance Assessment levels based on Performance factors [7]

Level	Description
Excellent	Consistently superior
More than Expected	Routinely above job requirements
Expectation Met	Regularly competent and dependable
Less than Expected	Does not meet regularly work criteria
Not-satisfied	Still inappropriate

Table 7: Performance Assessment Questionnaire [3,5]

S.No	Performance Factors	Levels	PSE
1	Knowledge of Work	Excellent	10
		More than Expected	8
		Expectation Met	6
		Less than Expected	4
		Not-satisfied	2
2	Communication	Excellent	10
		More than Expected	8
		Expectation Met	6
		Less than Expected	4
		Not-satisfied	2
3	Teamwork	Excellent	10
		More than Expected	8
		Expectation Met	6
		Less than Expected	4
		Not-satisfied	2
4	Taking decisions / Resolving issues	Excellent	10
		More than Expected	8
		Expectation Met	6
		Less than Expected	4
		Not-satisfied	2
5	Human Resource Management	Excellent	10
		More than Expected	8
		Expectation Met	6
		Less than Expected	4
		Not-satisfied	2
6	Independent Action	Excellent	10
		More than Expected	8
		Expectation Met	6
		Less than Expected	4
		Not-satisfied	2
7	Job Knowledge	Excellent	10
		More than Expected	8
		Expectation Met	6
		Less than Expected	4
		Not-satisfied	2
8	Leadership	Excellent	10
		More than Expected	8
		Expectation Met	6
		Less than Expected	4
		Not-satisfied	2
9	Personal Appearance	Excellent	10
		More than Expected	8
		Expectation Met	6
		Less than Expected	4
		Not-satisfied	2
10	Dependability	Excellent	10
		More than Expected	8
		Expectation Met	6
		Less than Expected	4
		Not-satisfied	2

The critical evaluation was done on every questionnaire for all Academic years in improving the standards of internships, which play a major role in student's performance in industries. The achievement of the objectives of the task was assessed from the feedback forms from employers. A total of 8 industry respondents answered the questionnaire. The performance and the inference drawn are tabulated.

Nevertheless, the effect of internships on industry performance is classified and evaluated at different stages where the average score for 5 batches of civil engineering students is 82%.

Table 8: Performance Index

Performance Score	Performance Percentage	Category
81 - 100	81% - 100%	Excellent
61 - 80	61% - 80%	Good
41 - 60	41% - 60%	Medium
21 - 40	21% - 40%	Bad
0 - 20	0% - 20 %	Very Bad

Table 9: Numbers and Performance percentage of students based on employability for the past 5 years with Internship

S. No	Batch	No of Employed (En)	Performance Score (PSn)	Performance Percentage (PP)
1	2010-2014	29	73	73 %
2	2011-2015	36	81	81 %
3	2012-2016	42	79	79 %
4	2013-2017	79	88	88 %
5	2014-2018	106	89	89 %
Average Percentage %				82 %

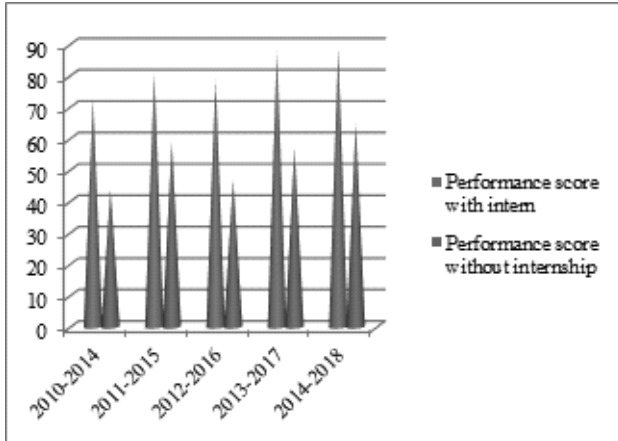
Table 10: Numbers and Performance percentage of students based on employability for the past 5 years without Internship

S. No	Batch	No of Employed (En)	Performance Score (PSn)	Performance Percentage (PP)
1	2010-2014	12	44	44 %
2	2011-2015	18	59	59 %
3	2012-2016	26	47	47 %
4	2013-2017	29	57	57 %
5	2014-2018	20	65	65 %
Average Percentage %				54.4 %

Remarks:

No of students Employed = E = En
 Performance Score of an Employee = PSE1, PSE2,PSEn
 Total Performance Score = PS = PSn
 Total Performance Percentage = PP %

$$\frac{PSE1 + PSE2 + PSE3 + \dots + PSEn}{En} = PSn$$



Graph 1: Comparison of Performance score of employees with and without internship

6. Conclusion

From the analysis of the questionnaire survey and general observation of overall internship and performance of students in industries, the following conclusions were made.

Within this report, several points are suggested based on the results and discussion:

- The score of student's performance in the industry is in the category 'Excellent' with an 82% average for 5 Academic years based on internship.
- The score of student's performance in the industry is in the category 'Medium' with an average of 54.4% for 5 Academic years based on non-internship.
- Out of all the students undergone internships more than 53% of students got placement in good companies.
- In the non-internship category, only less than 43% of students could secure employment.

- The performance of internship category students was significantly higher as can be understood from the analysis.
- The internship section shall give confidence to the students in achieving their employability levels during the internship in reputed MNC companies, which will be very much useful for placement once they graduated.
- The internships will also help in achieving program outcomes PO-(6,9,10,11) defined by NBA/ABET, as an indirect benefit of successful completion of the internship by the students.

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