

5. INTERNSHIP PROGRAMME IN AN ENGINEERING CURRICULUM AND IT'S PATTERN OF EVALUATION

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Abstract

Internship in an industry for an engineering degree student is considered a prerequisite for finishing the academic requirement of graduation. It is a training programme to make the student industry ready. It is beneficial to all stakeholders – the students, industry, university and society as a whole. The internship programme is proposed to be a credited, course embedded in the final year curriculum and offered in both semesters.

Many universities in India are offering internship programmes. But, unfortunately the final marks / grade for an internee is awarded based on the volume or weight of the report submitted at the end, which defeats the very purpose of sending the students to internship programme. Since the objectives of internship programme are different, the evaluation methodology used should also be different. Evaluation components designed must ensure that the objectives of internship programme are achieved satisfactorily. In this article, the methods of evaluation of the performance of an internee undergoing internship programme have been elaborated. A comprehensive method of evaluation is also proposed.

1. Internship Programme

Internship programme can best be described as an attempt to institutionalize the efforts to bridge the gap between world of work and academia. Internship is a vehicle through which an attempt is made to connect theory with practice by involving the student, like a medical intern, to actively participate in the on-going activities of a professional organization during the degree programme, under the direct supervision of professional experts from the host organization. The entire effort in this type of education is in terms of extending the programmes of education and evaluation, outside the classroom of a university (Rao & B.S. Nagendra Parashar (2007)).

During internship programme, a controlled simulation of real life, creates the circumstance

whereby the university is linked with the world of work. The curriculum containing internship programme finds a formal method of bringing the reality of the world of work into the educational process. Thus the internship programme institutionalizes efforts to establish a bond between the professional world and the educational world thereby enabling the much-needed university-industry linkage. The programme requires that the students undergo the rigor of the professional world in form as well as in substance, providing them an opportunity to apply their classroom knowledge to live situations (Nagendra Parashar .B.S & G.L. Datta (2010)).

The concept of internship programme is not new for India. It is existent, since our independence days. Many educational

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institutions in India offer this programme. The programme must be organized, conducted and monitored by the university / institution and students must work under the direct supervision of faculty deputed by the institute. The duration and period for which student undergoes the programme is decided by the university. It is desirable that student must undergo at least one full semester in the final year of his/her programme in the company as an intern. The programme must be offered in both the semesters of final year. Offering the programme in final year and in both semesters, offers dual advantage. First, it ensures a smooth transition from student life to professional life. Secondly, it ensures continuous supply of manpower to industry. In order to bring seriousness in the programme, the internship programme must carry credit of one full semester and should not be offered as an audited course (Nagendra Parashar.B.S, (2007)).

Universities, which are offering internship programme, must understand the essence of offering the programme. Many universities stress more upon carrying out a project work in the industry during internship. This is not correct. Unlike on-campus programme, internship programme has different objectives (Rao & B.S. Nagendra Parashar (2007)).

The main objectives of internship programme should be to:

- Enable student to have smooth transition from academic world to professional life.
- Provide opportunity for student to work independently and take decisions.
- Give an opportunity to students to practically apply skill sets acquired during on-campus courses.

For a student, the semester in which he/she undergoes internship programme is a transition period from student life to professional life. Because during internship programme, students:

- Attend the programme for one complete

semester in the host organization.

- Work like a full time employee and follow all the rules and regulations, which are applicable to other employees in the organization.
- Interact with professional experts; work on live projects/assignments, which are ongoing.
- Are normally paid suitable amount of stipend during the internship period.

Conventional practice in India is to award grade / marks in internship programmes based on the volume and/or weight of the report submitted at the end of programme. This is not correct. Akin to on-campus programmes, we need to conduct continuous evaluation components even for internship programmes also.

In the subsequent presentation, different evaluation components that can be conducted in internship programmes are discussed. Weightages that can be assigned to each evaluation component and mapping of these evaluation components with different soft skills, that is inculcated in students, are also indicated.

2. Evaluation Components

As mentioned earlier, Internship Programme must be a credited course carrying one full semester credit weightage and should be offered in either of the semesters in final year. If conducted properly, internship programme can help in moulding the career of students as successful professionals.

Since the main objective of internship programme is to prepare the students for professional life and facilitate them to have smooth transition from academic world to professional life, all along the programme more prominence should be given to:

- Improve their interpersonal skills,
- Understand the importance of teamwork,
- Inculcate leadership qualities,

- Improve communication abilities (both written and oral),
- Make independent decisions ,
- Improve knowledge domain,
- Meet deadline.

The hall mark of any educational programme is continuous evaluation irrespective whether it is on campus or off campus. Even in internship programmes, similar to on-campus courses, the students should be evaluated through a series of evaluation components, and the evaluation components must be spread throughout the programme. The students should be judged not only based on his/her intellectual ability but should also be evaluated based on all aforementioned attributes such as ability to work in team, communication skills, punctuality, ability to meet deadlines, decision making ability, leadership quality etc., which together play an important role in shaping a student into a successful professional.

From the above discussions, it becomes obvious that the method of evaluation used for internship programmes must be different from that of on-campus courses and the evaluation components should be designed in such a way as to test whether objectives of internship programme are satisfactorily achieved or not.

Unlike on-campus courses where the intellectual ability of students are evaluated by tests, quizzes, tutorials, practical etc., in an internship programme the method of evaluation should be designed in such a manner that students are evaluated for communication skills (both written and oral), decision making ability, ability to work in a team, capability to meet dead line etc. This does not mean that evaluation components should not give any scope for testing the intellectual ability of a student which is also required to become a successful professional. The evaluation component should test intellectual ability of a student also, but more emphasis should be given on testing and enhancing the soft skills of a student.

Evaluation components such as group discussion and seminar will prepare the students to participate in committee meetings and expressing their views/ideas before higher authorities. Evaluation component like viva will enable the student to build his/her confidence level to answer the queries of higher officials when he/she becomes professional. Preparing the project report, enables a student to produce a clear documentation of the work done during a professional work. All these skill sets which are normally required for a student to be successful in their professional life are not taught/evaluated in on-campus courses.

The following are the various evaluation components that can be used in internship programmes (Meenakshi Raman & Nagendra Parashar (2008)).

- Quiz
- Seminar
- Group Discussion
- Viva
- Project Report
- Observation
- Dairy

Following discussions will highlight the mode of conduct and other salient features of the evaluation components.

2.1 Quiz

In an internship programme, at least two quizzes are conducted. It is very important that the student should know about the organization where he undergoes internship programme. The first quiz would aim at evaluating the students in terms of "Know your organization". Quiz-I should be conducted immediately after one week of commencement of programme. This ensures that the student is aware of the organization before he/she starts his/her assignment / project in the internship programme. Other quizzes may be based on the gap lectures, held if any, or say, how much

the students are able to appreciate in terms of each other's projects at conceptual level or to evaluate the students in terms of skills acquired in tackling their own project.

Questions in quiz components are designed to test the students in terms of the following:

- i. Awareness about the organization,
- ii. Knowledge of basic concepts and physical principles,
- iii. Additional knowledge acquired,
- iv. Ability to apply the knowledge of basic concepts and physical principles,
- v. Ability to analyze a given problem or situation,
- vi. Intellectual Ability (to comprehend and act in a new situation and to follow a logical path).

2.2 Seminar

Seminar is an oral evaluation component. In seminars, students present their total work done till that date.

Seminar in an internship programme is different from seminar conducted at on-campus courses. In class room seminars, students present seminar by choosing a topic from textbook or journal in front of his/her own classmates and teachers. Whereas, in an internship seminar a student presents seminar on work carried out by him/her in front of professional experts of the host organization. Since the seminar is presented on his work in front of professional experts this improves confidence level of students along with oral communication skills.

At least two seminars should be conducted during the entire programme. First seminar should be organized during middle of the programme and second one at the end.

Seminar component serves several important purposes. Few of them include:

- It conveys results quickly to interested parties,
- It emphasizes the most important aspects

of the project,

- It allows the interplay of questions and answers and cross fertilization of ideas.

In a seminar component a student should be evaluated for:

- i. Knowledge of basic concepts and physical principles,
- ii. Creativity and Originality (in conceiving new ideas and suggesting practical solutions),
- iii. Intellectual ability (to comprehend and act in a new situation and to follow a logical path),
- iv. Ability to apply the knowledge of basic concepts and physical principles,
- v. Ability to analyze a given problem or situation,
- vi. Effective oral communication,
- vii. Self-reliance and cooperation,
- viii. Moderation,
- ix. Social sense (creating a good impression).

The presence of professional experts helps in judging the credibility of the report/work. Therefore, it is a good idea to invite the professional experts to participate in seminars.

2.3 Group Discussion

Like seminar, group discussion is also an oral component in internship programme. Similar to seminar component conducted in internship programmes, group discussions conducted in internship programme also should be different from group discussions held during on-campus courses.

Group discussion conducted during on-campus programmes consist of a small group of students meeting face-to-face and exchanging information through free oral interaction among themselves on a general topic or a problem and try to arrive at a common acceptable decision or a solution. Whereas, a group discussion conducted in internship programme will be held on a topic directly related to the activity of the organization or assignment (or project) of the students. Unlike

on-campus group discussion, where he discusses on a general topic with his own friends, in an internship programme students participate in group discussion with professional experts of the host organization. This approach enables a student to prepare for meetings when he/she becomes a professional. Also group discussion component will help the student to come out of his shy nature, improves his oral communication and interpersonal skills, leadership abilities, etc.

In the group discussion component the student should be evaluated for the following characteristics:

- i. Knowledge and comprehension of the problem/topics,
- ii. Level of participation,
- iii. Effective communication (Conveying ideas clearly, style of presentation, language, use of black board, platform manners, introducing & conducting the presentation),
- iv. Ability to lead discussion in the right direction and to cooperate with the fellow members,
- v. Ability to suggest new ideas for extending and improving group discussion,
- vi. Ability to initiate the topic when discussions subside,
- vii. Ability to moderate discussions (leadership),
- viii. Ability to create a good impression and act accordingly,
- ix. Self-reliance and cooperation.

In internship programme, at least two group discussions have to be conducted. First group discussion should be scheduled in the middle of the programme and the other at the end.

2.4 Viva

The viva component in internship programme enables to know how much the student has understood the project on which he/she is working. It should be conducted preferably in the presence of the professional expert (for judging the credibility of the answers). Viva can

be conducted with or without prior announcement.

In viva component, the student will defend his project that he/she has carried out in front of professional experts of the host organization. This enhances confidence level of students. Also, this component enables a student to understand the intricacies involved in defending the work carried out by them.

At least two vivas may be conducted in the internship programme. One in the middle and other at the end of the programme.

The viva should aim at testing the student in the following characteristics:

- i. Knowledge of the concepts,
- ii. Ability to conceive new and original ideas,
- iii. Ability to express; conveying ideas clearly.

2.5 Project Report

Project report is a written document submitted by the students on the project work/ assignment carried out by them. In project report, a student documents on findings of his own work. Hence, this component enables a student to enhance his written communication skills. It should be noted that a project report submitted in internship programme is not meant only for the author. It is in fact a valuable record, which is often referred to by various persons working in that area.

Hence, a project report should be judged for the following points:

- i. Knowledge and comprehension of the problem,
- ii. Ability to introduce the problem and setting the objectives of the project,
- iii. Documentation (Review of literature and organizing the material),
- iv. Effective Communication (Style of presentation and language),
- v. Ability to analyze the problem,
- vi. Logical path followed in arranging the

contents of the report,

- vii. Concluding remarks in terms of the objectives set earlier and the future scope of the problem,
- viii. Presentation of the abstract with precision,
- ix. Organization of the matter,
- x. Data handling (Gathering and Processing).

We feel two project reports should be submitted in an internship programme. An interim report at the middle of the programme and the final one at the end.

2.6 Observation

The observation is a channel for evaluation of the students' performance at the company by the faculty in terms of the students' day-to-day interaction with the faculty and the organizational personnel. Needless to say that this is one of the best methods of continuous evaluation.

The students should be evaluated for the following criterion in this evaluation component.

- i. Regularity and punctuality,
- ii. Efforts to know more and desire to exceed minimum efforts required,
- iii. Initiative and leadership (Organizing the efforts of the group),
- iv. Sense of Responsibility (Planning and meeting deadlines, punctuality and regularity),
- v. Social sense and adaptability to practical situations,

- vi. Self reliance and cooperation.

'Observation' evaluation component will make the student to be punctual, motivate him to meet deadlines, increase sense of responsibility, etc.

2.7 Diary

In this component an attempt is made to cultivate the habit of documenting professional matters by the students. It may include outcome of students meeting with professional experts of host organization.

The diary written by a student provides opportunity to the faculty member to study and evaluate the ability to collect and employ information analysis techniques. The faculty will check and sign the diary daily.

The technical diary written by the student should be judged for the following three points:

- i. Data handling, calculation and presentation,
- ii. Thought process,
- iii. Regularity.

3. Weightages

In the last section, we have mentioned about various evaluation components that can be used in conducting internship programmes. What should be the recommended weightages for these components? Table 1 shows recommended weightage and frequency for various evaluation components.

Evaluation component	Weightage	Suggested Frequency
Quiz	15%	2
Viva	05%	2
Seminar	20%	2
Group Discussion	15%	2
Project Report	25%	2
Observation	15%	Continuous
Diary	05%	Continuous

Table 1 Weightages for different evaluation components

4. Mapping

In the previous section, we have mentioned about different soft skills that can be achieved through internship programme. Annexure depicts mapping of various soft skills through different evaluation components in internship programme.

5. Conclusions

Based on the analysis and discussions presented in this article, the following conclusions can be drawn:

1. Internship in an industry of a semester duration in the final year engineering degree programme makes the student industry-ready, brings the academic institution closer to the industry and in turn industry gets a trainee as a prospective employee.
2. The success of internship programme depends on the rigor of the evaluation of the performance of the internee.
3. A continuous method of evaluation involving various components like quizzes, seminars, group discussions, viva, observation, and diary and project report during the course of internship can make the programme successful.

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(P.T.O.)

Annexure

Soft skills Evaluation Components Matrix in Internship Programmes

Soft Skills	Seminar / Viva	Group Discussion	Quiz	Project Report	Diary	Observation
1. Common Sense	✓	✓		✓	✓	✓
2. Good attitude	✓	✓				✓
3. Communication skills	✓	✓	✓	✓	✓	✓
4. Etiquette & Manners.	✓	✓				✓
5. Body Language	✓	✓	✓			✓
6. Cooperation & Team skills		✓				✓
7. Adaptability.		✓				
8. Flexibility .		✓				✓
9. Follow rules / Instructions.	✓	✓	✓	✓		✓
10. Initiative	✓	✓			✓	✓
11. Responsibility		✓		✓		✓
12. Reliability.	✓	✓		✓	✓	✓
13. Honesty.				✓	✓	✓
14. Dependability.	✓	✓				✓
15. Work ethics.					✓	✓
16. Punctuality	✓	✓	✓	✓		✓
17. Accountability	✓	✓		✓	✓	✓
18. Interpersonal Skills	✓	✓				✓
19. Intrapersonal skills		✓	✓			✓
20. Motivational skills	✓	✓			✓	✓
21. Problem Solving Ability				✓	✓	
22. Public Relations		✓				✓
23. Willingness to learn	✓	✓			✓	
24. Time Management	✓	✓	✓	✓	✓	✓
25. Commitment	✓			✓	✓	✓
26. Prioritizing Tasks.					✓	
27. Ability to meet deadlines				✓		✓
28. Listening Skills	✓	✓				
29. Judgment	✓	✓	✓		✓	
30. Leadership skills		✓				
31. Decision Making	✓	✓		✓		
32. Self-directed / Motivated.		✓				✓
33. Presentation Skills	✓	✓		✓	✓	

