

**ASSESSMENT OF PREPAREDNESS OF VIETNAMESE ENGINEERING TECHNOLOGISTS IN TERMS OF ATTITUDE AND DISCIPLINES AND CURRICULUM OF THE COLLEGE/ UNIVERSITY FOR ASEAN INTEGRATION**

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**ABSTRACT**

In this paper, we assessed the preparedness of engineering technologists in terms of attitude and disciplines and curriculum of the college/ university of Vietnamese companies for asean integration. To do this, a total of 250 employees from two companies in Vietnam were questioned and surveyed during the last two years (2015 and 2016). The results shows that the engineering technologists of these companies should be trained more to improve the attitude and discipline in work and the curriculum of the college and university is needed to be improved to enhance the quality of training program. This study will be helpful in contributing to the understanding of capacities of Vietnamese technology engineers for ASEAN integration.

**Keywords:** ASEAN integration, Competencies, Preparation, Vietnam

**INTRODUCTION**

Integration and internalization of ASEAN in science, education, and technology might help the developing countries like Vietnam to exploit effectively the scientific and technological achievements of the world. Moreover, it might raise and develop the level of science and technology in the country and contribute to economic development.

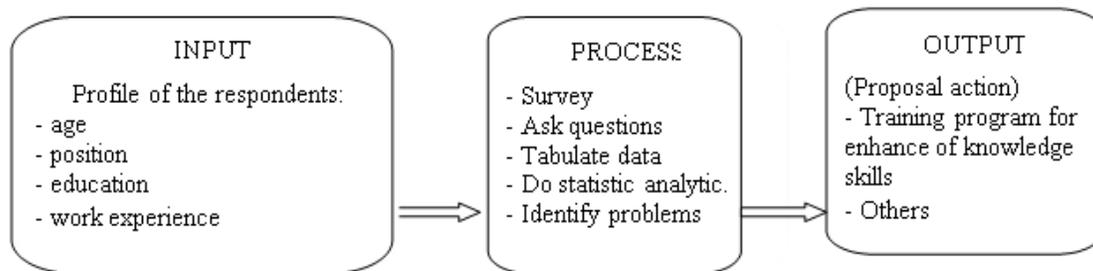
Vietnam is being in the quick development process, thus, it is important to have engineering technologists who are qualified and skilled enough to promote the process. Importance of this section for the economic development of Vietnam is no debated; the author would like to have a comprehensive investigation about competencies and preparedness of Vietnamese engineering technologists for integration in the ASEAN region.

In this paper, we assess the preparedness of engineering technologists in terms of attitude and disciplines and curriculum of the college/ university of Vietnamese companies for asean

integration. To do this, a total of 250 employees from two companies in Vietnam were questioned and surveyed during the last two years (2015 and 2016). By assessing the preparedness of engineering technologists in terms of attitude, curriculum of the college/ university, we want to focus on how engineering technologist prepared for becoming engineers in the future and which factors influence the preparedness of engineering technologists for ASEAN integration.

### **RESEARCH PARADIGM**

Depending on research background, problems, objectives as well as theoretical foundations for analyzing competencies and preparedness of engineering technologists in selected companies in Vietnam, the author's research paradigm is based on experimental perspective to do this research. It means that the author used the quantitative method with questionnaire survey and observation of real issues to investigate the objectives of research. Therefore, the author develops research paradigm to implement this study as in Figure 2.1.



**Figure 1: Research paradigm**

In order to implement this study with objectives, the author need input data related to respondents' background such as age, position, education and work experiences. From the basic input data, the author can analyze the level of competencies and preparedness as well as the differences between different groups related to objectives of the study.

In order to implement this study, the author needs clear processes to do step by step as in Figure 2 including conducting survey, asking questions, tabulating data, doing statistics analysis, and finding problems.

For output of this study, the author hopes that some proposal action and training programs can be suggested to improve competencies and preparedness of engineering technologists in Vietnam.

## **DATA USED**

In this study, data was collected in the North of Vietnam with many companies related to different fields. A combination of questionnaires and interviews was used in acquiring information from the respondents. For automobile industry, the survey was carried out at two companies in the North of Vietnam: Vietnam Automobile Technology Joint Stock Company and VINFAST Production and Trading Company Limited for understanding the competencies and preparedness. The population composed of workforce doing in their jobs in different companies with various fields, include Engineering Technologist and managers who are working in these companies. The author sent 400 questionnaires by email and through direct meetings with these companies. The researcher set 5% allowance for sampling error; the sample size is 350 respondents and sampled using the Simple random sampling technique.

## **RESULTS AND DISCUSSION**

### **Attitude and discipline in work**

According to Table 1, the engineers gave their rated ethics and health, social, social and legal knowledge of Engineering Technologist are very good, corresponding to grades WM= 4.00, 3.40 and 4.10. But item 5.2" Have good awareness of organization discipline, responsible for themselves and work," 5.3: "Compliance with labor discipline" was rated at WM = 3.30. Engineering Technologist at work in businesses are judged to have good morals, but either come late, leave early, or violate the company's working regulations, do not use labor protection equipment. There are cases of taking company's goods, do not comply with labor discipline. Thus, this is an issue that the school needs to consider in the student training program. The training program of school should teach them the ways of behavior, the principles of moral and responding to different situation of working in their companies as engineering technologists. The good awareness of organization discipline and compliance with the labor discipline should be trained and practiced as normal behaviors of technologists.

**Table 1: Assess the attitude and discipline in work of Engineering Technologist of competency as perceived by the respondents**

| Attitude and discipline in work   | Engineering |                            | Manager     |                            | Weighted mean |                            |
|---|-------------|----------------------------|-------------|----------------------------|---------------|----------------------------|
|   | Mean        | Qualitative Interpretation | Mean        | Qualitative Interpretation | Mean          | Qualitative Interpretation |
| 5.1-Have good ethical qualities   | 4.00        | Good                       | 4.20        | Good                       | 4.05          | Good                       |
| 5.2-Have good awareness of organization discipline, responsible for themselves and work | 3.30        | Average                    | 3.40        | Good                       | 3.32          | Average                    |
| 5.3-Compliance with labor discipline  | 3.30        | Average                    | 3.10        | Average                    | 3.25          | Average                    |
| 5.4-Understanding of society and law  | 3.40        | Good                       | 3.40        | Good                       | 3.40          | Good                       |
| 5.5-Have good health  | 4.10        | Good                       | 3.50        | Good                       | 3.96          | Good                       |
| <b>GRAND MEAN</b>   | <b>3.62</b> | <b>Good</b>                | <b>3.52</b> | <b>Good</b>                | <b>3.60</b>   | <b>Good</b>                |

According to the results of the table above, the manager gave rated good for all items, meaning they think that the Engineering Technologist have good health, good morals, understand Know the law - social and have a good sense of discipline of the organization, good self-responsibility spirit with the corresponding points are 4.20, 3.40 and 3.50 respectively. Compliance with work discipline is also assessed by Engineering Technologist at rated WM = 3.30. This is the weakest point of Engineering Technologist

**CURRICULUM**

Table 2 is composed of five items. The item with the highest mean score is M1:"The training program is suitable to the requirements of the job of the technology engineer when integrating into ASEAN" with the score of 3.32, the managers gave their mean rating at WM = 3.06 - "Average" and engineering gave their rating at WM = 3.58 - "Good".

The item with the lowest mean score is M5: "The training program gives you with ratio between theory and practice is reasonable" with the score of 2.70, the managers gave their mean rating at WM = 2.19 - "Poor" and engineering gave their rating at WM = 3.21 - "Average". The item with the second highest mean score is M2 "The training program helps you easy to master the advanced technology" with the score of 3.255. The managers gave their mean rating at WM = 3.19 - "Average" and engineering gave their rating at WM = 3.32 - "Average".

The item with the third highest mean score is M4: "The training program gives you the skills you need to do the job" with the score of 3.23. The managers gave their mean rating at WM = 3.30 - "Average" and engineering gave their rating at WM = 3.16 - "Average".

The item with the fourth highest mean score is M3: "The training gives you many opportunities to develop your future career" with the score of 2.85. The manager gave their mean rating at WM = 2.45 –"Poor" and engineering gave their rating at WM = 3.25 –"Average".

**Table 2: Mean Distribution for assess the Curriculum of the college as perceived by the respondents**

| Curriculum   | Engineering |                            | Manager |                            | Weighted mean |                            |
|--|-------------|----------------------------|---------|----------------------------|---------------|----------------------------|
|  | Mean        | Qualitative Interpretation | Mean    | Qualitative Interpretation | Mean          | Qualitative Interpretation |
| M1. The training program is suitable to the requirements of the job of the technology engineer when integrating into ASEAN | 3.58        | Good                       | 3.06    | Average                    | 3.32          | Average                    |
| M2. The training program helps you easy to master the advanced technology  | 3.32        | Average                    | 3.19    | Average                    | 3.255         | Average                    |
| M3. The training gives you many opportunities to develop your future career  | 3.25        | Average                    | 2.45    | Poor                       | 2.85          | Average                    |
| M4. The training program gives you the skills you need   | 3.16        | Average                    | 3.30    | Average                    | 3.23          | Average                    |

|  |             |                |             |                |             |                |
|--|-------------|----------------|-------------|----------------|-------------|----------------|
| to do the job  |             |                |             |                |             |                |
| M5.The training program gives you with ratio between theory and practice is reasonable | 3.21        | Average        | 2.19        | Poor           | 2.70        | Average        |
| <b>GRAND MEAN</b>  | <b>3.30</b> | <b>Average</b> | <b>2.84</b> | <b>Average</b> | <b>3.07</b> | <b>Average</b> |

Though all of the managers and staff have different mean responses for some of the questions, all of them agreed, and gave an average rating for 5/5 questions.

An Engineer is a master of job performance, a master in the mastering of the scientific knowledge related to the profession in which the engineer practiced the theory and applied it in product development. of the whole society. Thus, the skill masters perform the task. The term "engineer" should be the criterion for the training of engineers in every field. In my opinion, that is the ultimate criterion for training engineers. During the work process, if the engineer has to answer the question why, also means that he has to know how to find the cause to solve the problem. , to make the work continue to achieve results to the end. From the search for the cause of the problem, the basis for the formation of a different field for the engineer is the ability to create, the methodology for thinking to create new, is the ability to actively carry out work. This is the engineer class.

Being an engineer, it is possible to show an innovative product or new product to society. But it depends on the dynamics of each person and the influence of the objective context of society. Products manufactured by the knowledge and skills of modern engineers must meet the advanced criteria of technicality, reliability and effectiveness in use, industrial aesthetics, competitiveness, in quality and price. In order to create products that meet the above criteria, engineers must find technical know-how for each type of product based on the application of the knowledge of natural laws. This technical know-how, in English, is the word "know how". As such, want to know how to master the basic science and scientific knowledge related to the product to reflect them into the product. The answer is related to the quality of training technical staff in our country during the past time. The explanation from the engineer, the criteria of engineering training and the skill of the engineer as inevitably the relevant factors, which will influence each other will be the basis for the selection, compose The content of the training program of training engineers for all technical fields in a synchronous way. The synchronicity here refers to the list of theoretical disciplines and the corresponding disciplines of each discipline must be fundamental, in sync but not separated from the elements of the time.

Practical subjects are intended to reinforce the disciplines of the discipline and the discipline of the discipline. That requires technical schools to invest in their respective age-appropriate equipment. At least there should be links with the production facilities equipped with modern equipment to provide students with conditions to learn, approach and practice. This allows students to have the skills to control and exploit laboratory equipment in the school's factory so that when practicing in the production units they can achieve a masterly level of control.

Instructors who guide students to practice in off-campus production units are also an opportunity for them to have access to modern manufacturing practices. In other words, the product is now contained in the intellectual content of the person who created the product, which is the amount of gray matter contained in the product. That is the content of the word "Technique". Product design techniques will determine the selection of raw materials, materials handling techniques as well as the implementation work to be carried out on the equipment selected to suit the ability of the condition of production investment. In order to create the basis for the creation of basic skills for students who have been trained as engineers, the indispensable training curriculum equips students with theories of equipment Experimental, practical skills and related research in the discipline. This is also the difference in ability and skill between the trained to obtain a degree in engineering and the only trained technician.

Thus, the position and quality of the training staff in the Schools of Engineering Training in particular and the types of schools in general are extremely important because it is crucial in contributing to the creation of the excavation product of quality creation. In terms of philosophy, it is not possible to create good products by means of old, obsolete or worn-out products. The teacher in the position of human training is also referred to as the means of training. These vehicles must also have specific quality criteria for each type of trainee. To become a qualified engineer.

For a teacher, the professional qualifications he or she possesses are only necessary conditions, not sufficient conditions. To ensure sufficient conditions, in addition to grasping all the professional knowledge of the sector to ensure that basic science, modern to be able to dialogue with students, the teacher should have the knowledge of sociology. To explain factors influencing and controlling the development of society. In addition, the teacher needs to impart knowledge in a lively way, Associated with the social development practice to point out, students will learn how to apply knowledge of science - technology - technology in a flexible way.

## **CONCLUSION**

In this paper, we assessed the preparedness of engineering technologists in terms of attitude and disciplines and curriculum of the college/ university of Vietnamese companies for asean

integration. To do this, a total of 250 employees from two companies in Vietnam were questioned and surveyed during the last two years (2015 and 2016). Based on the analysis results of this study, we can have conclusions as below:

In terms of attitudes and disciplines, the two areas that need to be improved are: high awareness of organization disciplines, responsibility for themselves and work; and compliance with labor disciplines. The other areas are considered good enough by both respondent groups are: good ethics; good understanding of society and laws; and good health. In order to enhance the two areas mentioned above, there should be some methods to raise people's awareness in disciplines and responsibility, such as incentives for good compliance of disciplines and punishment for misconduct and discipline breaking. Incentives can be related to finance, and punishments can range from criticisms to salary deduction. By doing this, disciplines will no longer be a problem for a company.

In terms of curriculum taught at universities and colleges, the respondents were generally not very happy with them. All the sub-categories were rated "average": suitability to job requirements when integrating into ASEAN; ease to master advanced technology; opportunities to develop future careers; proper skills for job performance; proper ratio between theory and practice. This rating means all of the sub-areas in this category of college curriculum assessment should be improved. This can be done by hiring professors and highly-qualified lecturers in Vietnam and from overseas to redesign the curriculum, then have professionals edit them before use.

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