Are Finishing Schools Necessary for the Geotechnical Engineering Profession?

Srinivas, Manchikanti  
Professor & Head  
e-mail: manchisri@yahoo.com  

Department of Civil Engineering, Gayatri Vidya Parishad College of Engineering, Visakhapatnam

ABSTRACT

In today’s educational system there is a gap between the skill set needed for the geotechnical engineering profession and what the engineering graduates actually possess after graduation. There is a huge gap in what is taught in the class and the requirement of industry. To bridge this gap, finishing schools play a very important role in fine tuning the skill set of the graduating students to match the industry requirement. Therefore, a finishing school aims at enhancing the employability of technically qualified graduates and offers a ready-made talent pool to the industry who are a directly employable manpower, in geotechnical engineering-related jobs. There are a few finishing schools in Visakhapatnam, which offer short courses on geotechnical engineering-related skills. This paper also discusses the author’s experience of having interacted with one such finishing school in Visakhapatnam, and this school has proved to be very useful for recruiting companies, in terms of the exact skill set required by these recruiting companies.

1. INTRODUCTION

Some companies invested heavily in designing their own training to help their new recruits “unlearn” outdated skills and absorb industry-relevant skills after they join the firm. Not anymore, as companies have decided not to invest in training, but would rather prefer those who can be immediately put on the job, so that the recruits start contributing from the first day they join the company.

Such recruits are expected to have a (i) very good grasp of the fundamentals of soil mechanics (ii) fair knowledge about the properties of different soils (iii) very good idea about the various stages of soil investigation for a project (iv) good knowledge of laboratory testing procedures (v) very good idea about the soil from visual identification and touch and feel.

There are some institutes in Visakhapatnam which offer specialised training on computer software pertaining to geotechnical engineering, and students who got trained in such institutes have obtained jobs in design offices which do geotechnical consultancy.

2. THE GENESIS

Imperial Geotechnics (name changed upon request by the company) is a company which has a flourishing construction business. A few years back, the Managing Director (MD) (an ex-service man) of the company got a huge contract and was dismayed to note that there were not many technically skilled/ qualified geotechnical engineers to take up the job, which actually pertained to soil investigation and testing. As he had no skilled men to carry out the work, he lost the opportunity to execute the work. The client also cancelled the contract to Imperial Geotechnics. This was a huge blow to the company. Thereafter, the MD decided to start a training division to produce industry-ready personnel, who could execute, mainly geotechnical engineering-related jobs. Their mission was to create skilled geotechnical testing engineers.

3. THE TEAM AND SERVICES

The company has retired and experienced geotechnical engineers on its faculty. The faculties are provided very good facilities and are paid well. The company has a laboratory equipped with all the material testing equipment, majority of which pertain to soil tests. The company also offers testing & consultancy services to various organizations.

4. THE SELECTION PROCESS

For admission into the training school, the company invites applications from both diploma and engineering degree holders, who are not more than 22 years of age, and should be able to speak, read and write. The company received a lukewarm response during the initial days. They persisted and chose only those candidates who suit the company’s requirements. Now, after ten years, of the training programme, the current batch consists of 30 students (it is restricted to 30, for a good teacher-to-student ratio, and due to changing times), with a long waiting list (students willing to join, in case there are dropouts). The company does not
take bright students, only average students are permitted to go through the selection process, which is very elaborate, in the sense that, the candidates have to clear a written test, which is set in the local language. Candidates who score pass marks are required to appear for a so-called ‘endurance test’. This test consists of making the candidates run five rounds in a cricket ground. Later, they are required to walk up the staircase up to the last-5th floor of the company’s building and return and repeat this process for four more times, in a stipulated time.

Candidates who are successful in this round are required to undergo a thorough medical examination. Only after the candidates clear the medical round, they are permitted to appear for a personal interview round. The overall personality of the candidate is assessed in this round. The family background of the candidate is given a lot of attention, and the successful candidates are offered an appointment letter by the company on the spot, signed by the MD. The candidates are required to execute a bond for 5 years. During training period the candidates are paid a stipend of Rs 5000pm, for 6 months. The students are not required to pay any fee to the company.

5. THE INDUCTION PROGRAMME

The successful candidates are invited to the induction programme. In this programme the candidates are given information about the course and the company, work culture, organizational chart, past projects executed by the company and the projects in progress.

6. THE CURRICULUM OF THE FINISHING SCHOOL

The syllabus has four components,

(a) laboratory testing methods of soils,
(b) methods of soil investigations and field testing of soils,
(c) physical exercise,
(d) communication skills.

The required theory and practical to understand the various concepts are explained by the inhouse experts. Every theory class is followed by a practical class, wherein the student gets on-hand experience and the concepts become clear. When a student conducts a liquid limit test, he/ she is also taught the practical significance of the test and they are made to understand the range of values for different soils.

Students do not perform the laboratory tests just for the sake of doing it, rather, they are made to understand the applicability of the tests, their practical significance and limitations.

Students are given a lot of assignments based on the topics covered in the class, and each student gets a different assignment, i.e. no two assignments are the same.

Students are also given hands-on experience of various geotechnical instrumentation and in situ testing. All the students are involved in the company’s consultancy projects.

Students are regularly provided with geotechnical reports of the various projects of the company. Students are required to go through them and develop an understanding about the reports and are required to come up with doubts.

In addition to geotechnical engineering-related teaching, students are taught about types of concrete, reinforcement, foundations, road laying and total station surveying. They are also taught English, communication and soft skills, written/ oral skills. Every student must perform yoga for at least one hour everyday, for which training is given. They are made to work for 12 hours a day on the site, or in the office.

The company also arranges regularly guest lectures by industry experts and academia to give the students a greater understanding and a different perspective to their learning.

At the end of the training period a written examination is conducted, in which the students have to secure pass marks, otherwise, they have to repeat the course.

Students who secure a pass in the examination will be posted at various work sites/projects of the company. They are required to work at these sites for another six months, during which each person is paid a consolidated salary of Rs. 8000pm. At the end of these six months the students are required to submit a report. The report should then be presented to an evaluation committee, for award of rewards or bonuses. After this training the students are absorbed in the company.

7. CONCLUSION

The preceding discussion dwelled on the good work done by a finishing school, which provides skilled manpower, to work on geotechnical engineering-related jobs. This finishing school never attempts to teach the geotechnical engineering courses per se which are a part of the syllabus in professional colleges. For every designer, about ten people are required on the field to execute the design. This finishing school has been successfully providing skilled geotechnical engineers to the construction industry for the past many years. Many more such schools should come up in the future to cater to the increasing demand for skilled geotechnical engineers. The author learns that employees of Imperial Geotechnics have secured very good jobs (after completing 5 years of service) in top notch companies without any interview.

ACKNOWLEDGEMENTS

The author would like to thank the Managing Director and the employees of Imperial Geotechnics (name changed), for all the help extended by them, to the author, in preparing this paper.

REFERENCES

Course on Practical Geotechnical Engineering for preparing industry-ready engineers(2000, revised in 2009), Imperial Geotechnics (name changed), pp-525.

Old newspaper articles in The Hindu, Eenadu (Telugu vernacular daily)