



Tracer Study of BS Electrical Engineering Graduates of Laguna State Polytechnic University Towards Employability

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Date of Submission: 08-10-2023

Date of Acceptance: 22-10-2023

ABSTRACT

Studies on tracer studies are practical findings of every learning institution in order to determine the whereabouts of graduates after finishing their tertiary education. Holders of any bachelor's degree like Electrical Engineering have a propensity to find an occupation after graduation. Graduates are expected to possess employable qualifications (Wickramasinghe & Perera, 2015) which any learning institutions are increasingly propelled like the colleges and universities taking more seriously their obligations (Carey, 2014) in order to produce highly mobile for the ever-changing needs of contemporary workplace (Andrews & Higson, 2016). Electrical Engineering used to be just one of the fields of discipline included as a degree program offered in the Laguna State Polytechnic University. This college is envisioned to mold and guide students to become efficient and effective future electrical engineers and to produce globally competitive Electrical Engineers with proper values, knowledge, and skills. This survey is to trace the 2016-2021 graduates of the Bachelor of Science in Electrical Engineering in order to get feedback regarding their employment status, their demographic profile, their educational background and their employment profile. Furthermore, their competencies and skills acquired in their tertiary education which they found it useful in their current job are also the concerns of this study.

Keywords: Tracer Study, Employability, Electrical Engineering, BSEE Graduates

I. INTRODUCTION

The importance of education in boosting the economic growth of the country cannot be overemphasized. Even today where some jobs abound that do not necessitate college degrees,

people still believe that higher education pays. Students enroll in colleges and universities to earn degrees to make themselves competitive in the job market. Higher educational institutions also continue to increase in order to serve the growing educational demand. Contrary to this positive outlook on education is seemingly a negative picture of employment.

According to Schomburg (2015), graduate and employer surveys constitute one form of empirical study which can provide valuable information for evaluating the results of the education and training of a specific institution of higher education. This information may be used for further development of the institution in the context of quality assurance. In addition, Schomburg cited that a tracer study sometimes also called as "alumni survey" or "follow-up survey" should enable the institution of higher education to get information to indicate possible deficits in a given educational programs and to serve as a basis for future planning activities. Information on the professional success (career, status, income) of the graduates are needed as well as information on the relevance of knowledge and skills (relationship between knowledge and skills and work requirements, area of employment, professional position). More so, consequences of university expansion can be determined with respect to the relationship between higher education and work through tracer studies (Teichler, 1981).

On the other hand, Holtkamp and Teichler, (1983) study conducted concerning the status of graduate surveys for the restructuring of study programs. These were to identify possible means in order to refer from the professional activities of the graduates to the requirements and potentials of teaching and study programs. Another importance of tracer study is that it aids to examine the changes in the career pattern of the graduates in order to



provide a basis of evaluation of the current programs and it provides a continuation of the process of evaluation of the performance of the University. A study of Dato' Seri Mohamed Khaled bin Nordin and Menteri Pengajian Tinggi (2016) cited that Graduate Tracer Study has proven to be an effective method in getting accurate and quick inputs for the purpose of ensuring the human capital produced by higher education institutions are at all times relevant and be able to meet the ever-changing demand of job market.

Electrical engineers design and build electrical systems and equipment for industrial, commercial, domestic, military, or scientific use. They prepare technical drawings and specifications, topographical maps and system specifications for the installation, maintenance, and upgrades. These engineers must be familiar with systems analysis, and CAD, analytical and configuration management software and electrical schematics.

STATEMENTS OF THE PROBLEM

The study primarily aims to trace the graduates of Bachelor of Science in Electrical Engineering of Laguna State Polytechnic University – Sta. Cruz Main Campus from Academic Year 2016 to 2021.

Specifically, it answers the following problems:

1. What is the demographic profile of the graduates in terms of the following:
 - a. Sex
 - b. Age
 - c. Civil Status
 - d. Year Graduated
 - e. Honors/awards Received
 - f. Professional/Licensure Examinations
 - g. Employment Status
 - h. Trainings Attended
2. Is there a significant relationship between the educational profile variables and the employability status of the BSEE graduates?
3. Is there a significant relationship between the relevance of the skills and competencies acquired in college and the status of employability of the graduates.
4. What are the problems and challenges did the BSEE graduates encounter with regards to their employability status.
5. What proposed academic curriculum enhancement may be suggest based on the findings of the study?

II. LITERATURE REVIEW

Tracer Study

There have been tracer studies on employability (Melink, & Pavlin, 2015; Aspiring Minds, 2016; Domingo, 2013; Gedye & Beaumont, 2018; Baking, 2015; Woya, 2019; Javier, 2015; Boholano, 2014; Navida, 2017; Abarro, 2017; Napallaton & Baquiller, 2017). However, there is a scarcity of research on the employment status of graduates (Infante, Junco, & Marquez, 2014). One of these was our previous tracer that covered both the employability and employment status of the three batches of graduates (Caingcoy & Barroso, 2020). Much more, there is a need to establish an inventory of employability skills among graduates, including the adequacy of competencies acquired in college. The purpose is to constantly evaluate the curriculum and its responsiveness to job demands.

According to, Woya (2019) and Siraye, Abebe, Melese, and Wale (2018) conducted employability tracer studies among statistics graduates, and business and economics graduates, respectively. In the Philippines, there are also several attempts to conduct employability tracer studies among graduates of B.S. in Industrial Technology (Del Rosario, 2019), Bachelor of Secondary Education (Cañizares, 2015; Navida, 2018), and Bachelor of Elementary Education (De Vera, 2018), to name a few. In fact, the studies of Del Rosario (2019) and Navida (2018) adapted the GTS questionnaire from the country's Commission on Higher Education. However, the study of Navida (2018) has a very low participation rate with only 29 out of 130 (22.31%) graduates completed the questionnaire. Another local study which is noteworthy is that of Balingbing (2014) because the respondents of her study were also B.S. in Information Technology graduates which are similar to the respondents of this study but with inclusion of B.S. in Computer Science graduates.

According to Peng-Tan and Nang (2015), Tracing graduates is an important action on the part of the institution, making it as essential tool in the evaluation of institution's program for improvement.

Weber et al. (2016), on the other hand pointed out that tracing graduates re-invigorate the rapport between the Alma Mater and her graduates while Omeje (2015) and Flomo (2014) noted that tracing graduates is a retrospective assessment of the graduate's course in relation to the industry's needs and the connection between the theory learned at school and the application of the same to work.



Employability

“Employability of graduates therefore has become an issue that is not easy to be ignored in the global economy” (Misra & Khurana, 2017). Studies like this have become the main instruments to determine the areas of strength and weakness of an institution’s graduates. “Graduate Tracer studies (GTS) are important to Higher Education Institutions since it enabled such institutions to accommodate changes in the society especially the demands of the actual and potential employers, through evaluation and constant review of their curricula” (Cañizares, 2015, p. 82). Hence, this present study is conducted.

Mason et. Al (2016), noted the effort of the universities to improve it graduates employability and to determine their successes insinuate getting a better chance of landing a short-term than long-term job. However, students believe that the trainings they receive from the learning institutions are not useful in the stiff competition in the labor market. However, they acknowledge that academic qualifications are still necessary for employability. They considered having a high degree gives high advantage in landing for a job (Tolimson, 2018).

Blossfeld and Shavit (2016), who found that through the 20th century, people have observed the increasing importance in industrial societies the role of education in nation building.

Educational Profile

According to the graduate school dean of the Pennsylvania State University, “Graduate education is an investment in solutions for the future” (Zimmerman 2015). The dean explained that graduate students support the research enterprise that contributes to the country's economic development, provide the future intellectual capital for research and development enterprises throughout the U.S. assuring that the country will remain competitive in innovation and discovery, and contribute a great deal to the instructional mission in undergraduate classrooms.

In an article published in the University World News (Sharma 2014), it was reported that Asian countries have experienced huge increases not only in undergraduate enrolment but also in postgraduate education and university-based research because of the governments' demand for highly qualified faculty to teach at the university level.

According to the Tertiary Education Commission (2009), graduate tracer studies are important for educational planners because these can provide valuable information that can be used to gauge “the

results of the higher education and training institutions.” This information, the commission explained, may be used to minimize “any possible deficits in a given educational program in terms of content, delivery and relevance and for further development of the institution in the context of quality assurance.

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III. MATERIALS AND METHOD

Research Design

This study made used of the descriptive-survey employing a modified questionnaire as the main instrument in the gathering the data or information from the graduates of Bachelor of Science in Electrical Engineering of Laguna State Polytechnic University – Sta. Cruz Main Campus, Sta. Cruz, Laguna. In the study, the researcher obtained information about employability of the graduates from 2016-2021. The graduates’ employability was identified, described, analyzed and interpreted to gain in depth analysis.

Participants of the Study

The respondents of this study were the graduates of Bachelor of Science in Electrical Engineering under the College of Engineering of Laguna State Polytechnic University – Sta. Cruz Main Campus, Sta. Cruz, Laguna from the school year 2016-2021. Adopting Slovin’s summed to 100 respondents but only 65% which is equivalent to 65 respondents was a part of the study.

Data Gathering Instrument

This study made used of the CHED Graduate Tracer Study (GTS) as standard questionnaire for Graduate Tracer Survey. The questionnaire consisted of general information, educational background, trainings attended after college. It included, too, the employment data, assessment of academic program. The researcher made used only on the data useful and relevant to this study. Interview and e-mail and other electronic



messaging apps was also adopted to supplement and complement information about the respondents.

Data Gathering Procedure

Lists of graduates were taken from the University Registrar's Office and Alumni Affairs Office. Employing the Slovin's, simple random sampling was used. Questionnaires were floated personally to respondents while others were floated by students having relatives and friends. Social media like Facebook, messenger and emails were also adopted. Technology like the use of cellular phones and referrals, the researcher was able to contact some of the respondents since most of them is former student of the researcher.

RESULTS AND DISCUSSION

The researcher gathered data is presented in this section. Presentation is categorized into respondent's profile and their perception. The total number of respondents for this study is 65 students who graduated BSEE in LSPU from year 2016 to 2021. Below are the gathered.

Demographic Profile:

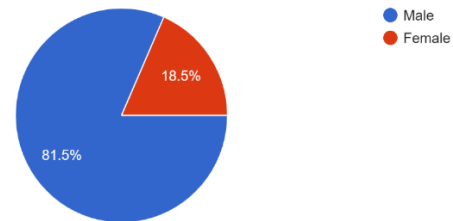


Figure 1. Gender of the Respondent's

As presented, the majority of the respondents which comprises 81.5% are male graduates while 18.5% are female graduates.

The data imply that there were more male who preferred to graduate with the course of Bachelor of Science in Electrical Engineering who also were employed because of their possessed competencies in the field in planning and designing of electrical projects.

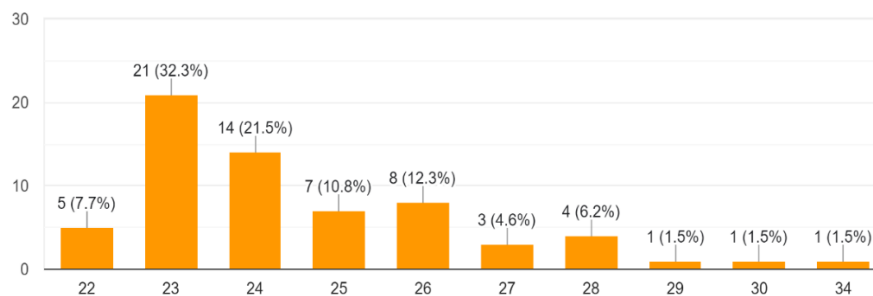


Figure 2. Age of the Respondent's

As presented, majority of the respondents are ages 21 which is composed of 32.3% of the total respondents followed by 21.5% which are ages of 24, third is ages 26 which is equivalent to 12.3% of the total respondents while others are ages 25 equivalent to 10.8%, ages 22 equivalent to 7.7%. Other respondents are ages 27, 28, 29, 30 and 34.

It can be gleaned from the table that in terms of age, the Electrical Engineering graduates are in their middle to late twenties, since they graduated based on expected age or timeline as regular students.

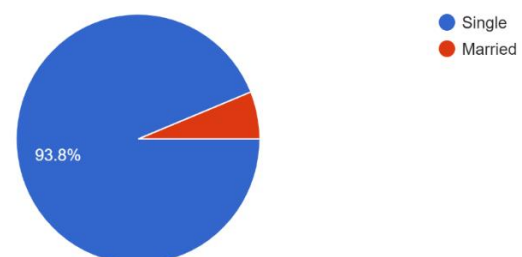


Figure 3. Civil Status of the Respondent's

As presented, 93.8% or 61 respondents is still single while 6.2% or 4 respondents is married. Further interview revealed that some graduates would like to pursue if their work would allow them and only a few implied not keen of pursuing formal higher education.

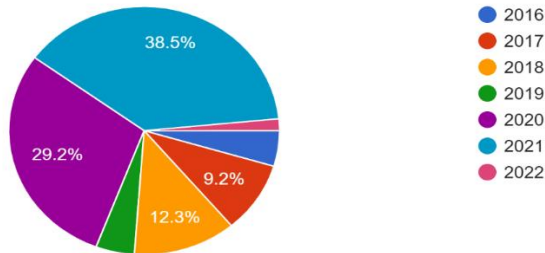


Figure 4. Year of Graduation of the Respondent's

Figure 4 shows that majority of the respondents are graduates of Batch 2021 which is composed of 25 graduates followed by Batch 2020 composed of 19 graduates while Batch 2016, 2019 and 2022 are the least number of respondents which is composed of 3 and 1 graduates, respectively.

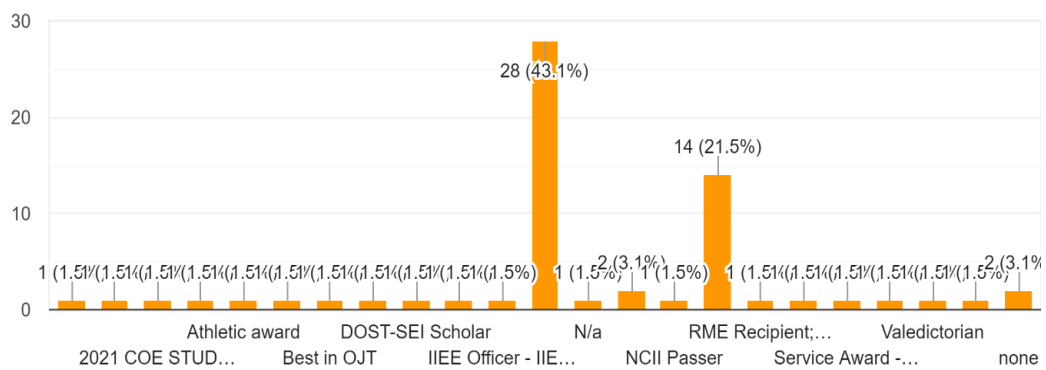


Figure 5. Honor/Awards Received by the Respondent's

Based on the figure 5, majority of the respondents which is composed of 43.1% did not received any award during their graduation while other graduates received awards like Best OJT, RME & NC2 Passer, Service Award, etc.

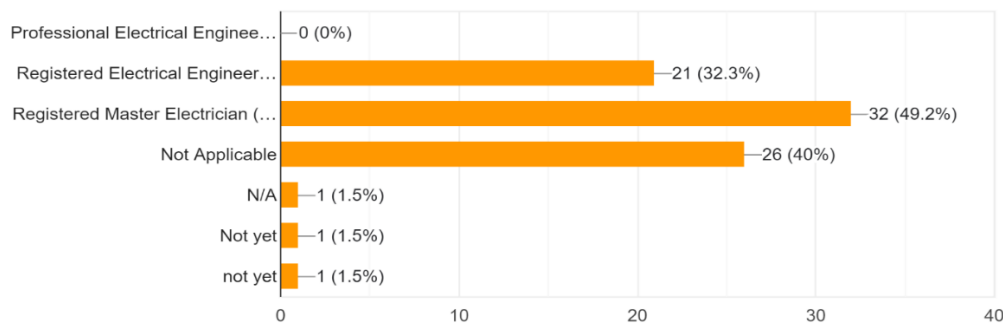


Figure 6. Professional/Licensure Exam passed by the Respondent's

Figure 6 shows that 32 or 49.2% of the respondents are Registered Master Electrician (RME) while 21 or 32.3% passed the licensure examination for Electrical Engineer (REE).

Table 1. Trainings Attended

Parameters	Frequency	Percentage (%)
Training Related to BSEE	58	89.23%
BOSH or COSH	5	7.69%
Others	2	3.08%



As presented to table 1 for trainings attended, majority of the respondents answer their trainings related to Electrical Engineering which comprise of 89.23%. Most of the trainings the respondents attended are Electrical Installation and Maintenance NCII, Arc Flash, Power Cable Termination and Splicing and Renewable Energy

while 7.695 attended training about Safety Training for Basic Occupational Safety and Health (BOSH).

Nevertheless, all the respondents adhered to advancing skills and professional development by attending to trainings and seminars related to their jobs.

Employability Profile:

Respondents' employability profile is presented in the figure below.

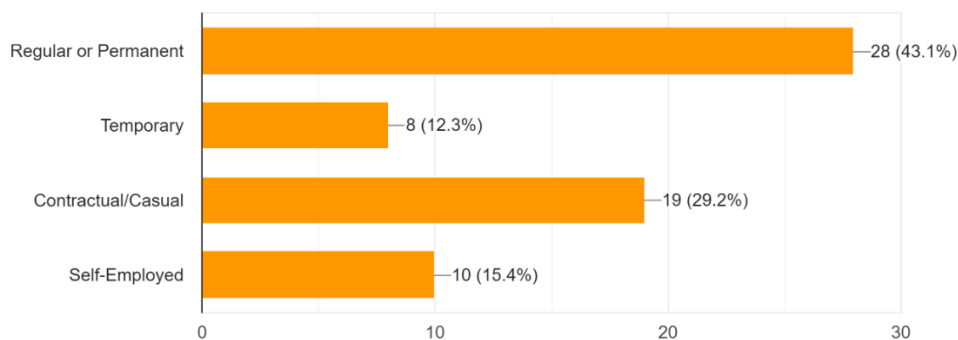


Figure 7. Employment Status of the Respondent's

Presented in figure 7 the employment status that shows that 43.1% or 28 respondents are regular or permanent in their current work followed by 29.2% or 19 respondents are contractual or casual employee while 15.4% and 12.3% are self-employed and temporary employee. Those employed are working in line with the baccalaureate degree earned and as for the self-employed, further interview revealed that it was his own decision to put up his own business which is not related to course. The respondents were also asked with regards to the place of their present employment. This question may give the researcher the

information of the workplaces in which the graduates may be field in here and abroad.

This implies that majority of the BS Electrical Engineering graduates are working, though, as contractual or casual status due to restricted permanent positions both in public and private institutions. This may also be accounted to end of contract from one employer to another and to the fast turn-over of human resources for various reasons. However, this result is not a good one to take because this implies that contractualization is still prevalent even among big companies in the country which even the graduates of baccalaureate degree and licensed do not warrant a tenure.

Table 2. Length of time to land to 1st Job

Parameters	Frequency	Percentage (%)
Less than a month	29	44.6
1 to 6 months	27	41.5
7 to 11 months	6	9.2
1 year to less than 2 years	3	4.6
2 years to less than 3 years	0	0
3 years to less than 4 years	0	0

Table 2 shows the length of time to land in first job after they graduated to LSPU- Sta. Cruz College of Engineering. It shows that majority of the graduate which comprises of 44.6% landed to their first job in less than a month followed by 41.5%

between 1 to 6 months while others landed to 1st job in less than 2years. This confirms that students who earn a BS in Electrical Engineering may pursue entry-level positions in Electrical-related careers. It can be noticed that with respect to job landing



period, specifically on the month the respondents started looking for work on the year of graduation, they are determined to apply and eventually work as

early as August of the same year of graduation and they persevere on the succeeding months.

Table 3. Length of time of Stay to 1st Job

Parameters	Frequency	Percentage (%)
Less than a month	7	10.8
1 to 6 months	24	36.9
7 to 11 months	13	20
1 year to less than 2 years	13	20
2 years to less than 3 years	2	3.1
3 years to less than 4 years	3	4.6
4 years to less than 5 years	3	4.6

Table 3 shows BSEE graduates which comprises of 36.9% stay in their current job while between 3 to 5 years is only around 4.6%. As per survey, most of the respondents are commonly fresh graduates which less than 2 years since they finished their course to LSPU.

Also, in an interview with the graduates, it reaffirms that not all workers consider remuneration as the most important factor in employment but sociological satisfaction. Also, most of the respondents moved from one company to another, there are also a few who remained in their first employment.

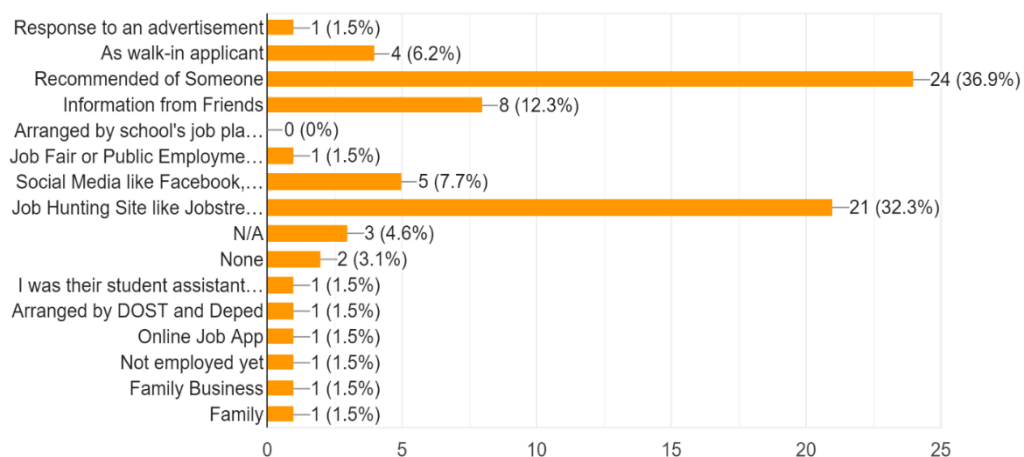


Figure 8. Different ways to Find Job

As presented in figure 8, it shows that 36.9% find a job through recommendation from someone, followed by 32.3% from job hunting sites like Jobstreet, 12.3% is coming from information to friends and others are thru advertisement, Job Fair, arranged by DOST and Deped and have a family business.

This indicates that walk-in application or directly approaching the employer even without prior awareness of the vacant position has been a

very good strategy for the graduates to find their first job. On the other hand, the school must fortify its placement unit in order to benefit more of the graduating students. It is an important aspect the researcher considered in the conduct of study regarding the employability of the graduates is the waiting time they spent before getting hire because this signal their economic independence and productivity

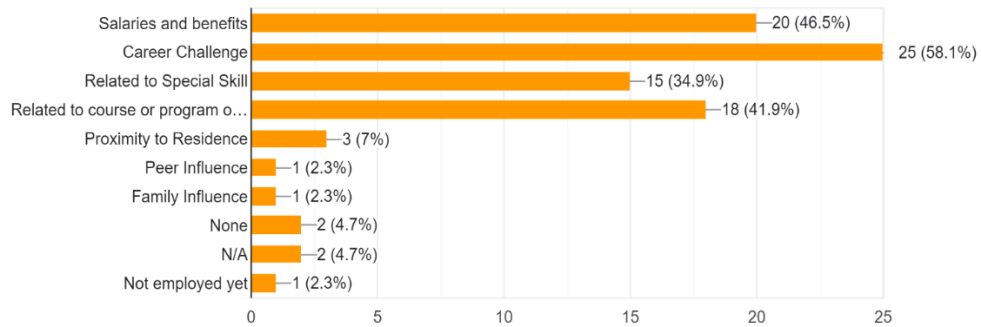


Figure 9. Reason for Staying on the Job

Figure 9 shows the top reasons of the respondents on staying to their current job. Majority of the respondents which is equivalent to 58.1% stay on their job for career challenge while 46.5% stay for salaries and benefits followed by 41.9% in which their current work is related to Electrical

Engineering and others say proximity to residence or with influence to family or peer. The result also, reaffirms that the one of main reason of one's employment is economic thus make people continue to look for a greener pasture.

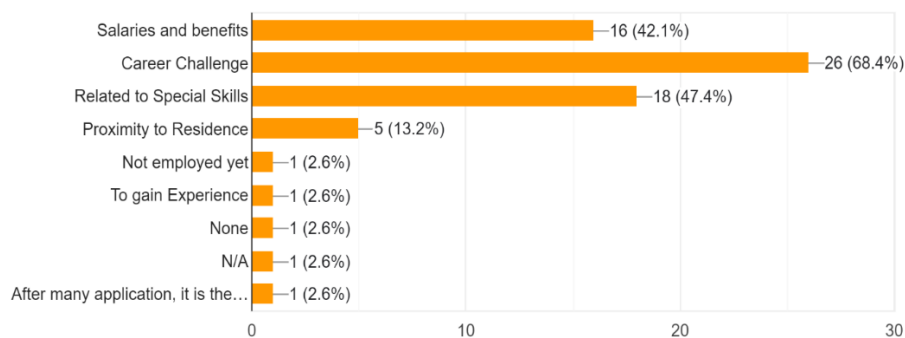


Figure 10. Reason for Accepting the Job

As presented to figure 10, it shows that 68.4% of the respondents accepting the job for career challenge, while 47.4% related to special skills, 42.1% for salaries and benefits while others accept the job to gain experience and after many applications, it is the first company that hired them.

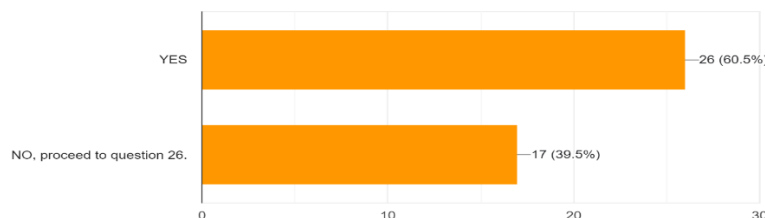


Figure 11. Relevance of first Job to BSEE course

As presented to figure 11, it shows that 60.5% of the respondents says that their first job is related to Electrical Engineering course while 39.5% says that their first job is not related to electrical engineering.



Table 4. Major Line of Business of the company where Respondents working

Parameters	Frequency	Percentage (%)
Manufacturing or Semiconductor	15	23.1
Electricity, Gas or Water Supply	11	16.9
Construction	20	30.8
Wholesale and Retail Trade	1	1.5
Transport Storage & Communication	1	1.5
Real Estate and Renting	2	3.1
Government Employee	1	1.5
Education/Academe	3	4.6
Maintenance	1	1.5
Information Technology	1	1.5
Others	9	14%

Table 4 shows that most of the respondents are working in construction industry which is equivalent to 30.8% followed by 23.1% from manufacturing or semiconductor companies, third is 16.9% from electricity, gas or water supply while 14% of the respondents is working to other industry not mention to above line of business. The information gained are important for it can be the basis, during the enhancement of the curriculum, to

offer courses enhancing and preparing the managerial capabilities and entrepreneurial skills of the students. Meanwhile, the result shows that most likely the fresh graduate may be hired as staff engineer. This is expected but it is important to note that a few number became government employee, engage in whole sale and retail trade, maintenance and information technology as their second and third job.

Assessment of Adequacy of Educational Profile to their Employment

Table 5. Respondent's perceptions on the relatedness of educational profile to their employment

Variable	Frequency	Percent (%)
Is first job related to graduate degree programs		
Very Much	24	36.9
Much	26	40
A little	11	16.9
Not at all	4	6.2
Total	65	100
Relevance of graduate degree program to current job		
Relevant	43	66.2
Not Relevant	22	33.8
Total	65	100

Table 5 shows that 40% of the respondents revealed that their first job is related to their degree course with a rating of much while 36.9% says that their first job is very much related to BSEE. Also, a great majority of the respondents comprise of 66.2% perceived that their bachelor's degree is highly relevant to their current job.

Table 6. Respondent's perceptions on Usefulness of Skills and Competencies to their Employment

Usefulness of Training	Frequency	Percentage (%)
Extremely Useful	40	61.54
Very Useful	21	32.31
Useful	3	4.62



Somewhat Useful	1	1.53
Not Useful	0	0
Total	65	100

As indicated in table 6, majority of the respondents which is composed of 61.54% perceived that the skills and competencies they gain during their course of study are extremely useful to their employment and followed by 32.32% of the respondents revealed the usefulness of skills and competencies to their employment.

IV. SUMMARY, CONCLUSION AND RECOMMENDATION

Summary and Conclusion

This graduate's tracer study was conducted to gather information on the status of the Bachelor of Science in Electrical Engineering Graduates of LSPU from 2016 to 2021. Based on the results of the study, the respondents are mostly single, majority are male, most of the BSEE graduates are passed the licensure examinations and holder of Electrical Installation & Maintenance (EIM) NC2. From the information gathered, most of the respondents or graduates are gainfully employed and in less than six months graduate-respondents landed to their first job. Most of the graduates are employed in Construction Industry and Manufacturing or Semiconductor Factories. However, there is a need to enhance or review the existing curriculum of the program that focus in developing learning and skills related to the need in the industry and continue to improve to meet the needed skills and competencies expected to our graduates.

Recommendation

1. The Office of Job Placement and Alumni should come up with a better way to contact or communicate with the graduates of the university so that each class or batch can be represented in the tracer studies in the future.
2. The Office of Job Placement and Alumni should make a regular feedbacking to be used as basis for curriculum enhancement and development to address the industrial needs.
3. Future researchers should consider a much bigger sample of population or number of respondents from each batch so that the total respondents can be well represented.

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