

Tracer Study on Bachelor of Science in Electrical Engineering Graduates of a Polytechnic College in the Philippines from 2007 to 2010

Asia Pacific Journal of
Multidisciplinary Research
Vol. 6 No.2, 36-46
May 2018 Part II
P-ISSN 2350-7756
E-ISSN 2350-8442
www.apjmr.com

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Date Received: February 27, 2018; Date Revised: May 15, 2018

Abstract– *The main objective of the study is to determine the present employment status of the graduates of BS Electrical Engineering from 2007 – 2010. It established among others, the level of employment , professional registration, labour mobility, job satisfaction and utilization of skills. The study also assessed the relevance of the Electrical Engineering program outcomes and school factors to the world of work. The study had 79 respondents which were purposively selected because they used the same curriculum. A big number of graduates are passers of licensure examination and other certificates and attend to various relevant trainings. Significantly, findings revealed that the graduates are highly employable in a wide range of industry such as Consultancy, Design and Inspection, Operation, Maintenance and Repair and Electric Utility and holding a position that varies from supervisor, designer, academician, technician, and staff engineer. Metro Manila and its suburb turned out to be the number one importer of manpower although a significant number are employed in overseas. A high mobility rate was found among the graduates for various reasons, among others, low salary, insufficient benefits and hostile environments. Respondents, in general, acknowledge the positive contribution of the program to their professional development. They admitted that it developed their ability to engage in life-long learning, critical thinking, problem solving and communication skills. Recommendations for the improvement of the program were given, notably exposure to modern electrical equipment with hands-on experience on the different software used by the industry, and provide a course that will prepare them to supervisory and managerial positions.*

Keywords – electrical engineering graduates, tracer study.

INTRODUCTION

Education in the Philippines is of great importance because it is considered as the primary avenue for upward social and economic mobility. Recognizing this fact, the Commission on Higher Education (CHED) is mandated to the national government's commitment to transformational leadership that puts education as the central strategy for investing in the Filipino people, reducing poverty, and building national competitiveness that shall promote, among others, relevant and quality education which is accessible to all [1]

The Camarines Sur Polytechnic Colleges is a public school in the Philippines created anchored on the feasibility study and approved as a bill later known as Batas Pambansa Blg. 512. Foremost, the College was tasked to primarily provide higher technological, professional, and vocational instruction, and training in fisheries, trade and technology, arts and sciences, as well as short term

technical and vocational courses. The existence of the college in the region was justified by offering a "unique" curriculum, that is, a ladderized one where in any year level finished corresponds to an earned diploma or certificate.

Realizing the effectiveness of ladderized curriculum to fight out unemployment, the former president of the Philippines, President Gloria Macapagal-Arroyo signed the Executive Order No. 358 in September 15, 2004 which mandates Technical Education and Skills Development Authority (TESDA) and CHED to develop and implement a unified national qualifications framework that establishes equivalency pathways and access ramps for easier transition and progression between Technical-Vocational Education and Training (TVET) and higher education. The framework shall include among other mechanisms, adoption of ladderized curricula/program [2].

In compliance to this executive order, the engineering programs of CSPC revised and implanted new curriculums in 2007 to incorporate the skills, technical and theoretical competencies among the graduates.

But the success indicator of any curriculum is the status of employment of its graduates. After graduation, are they equipped with the skills and knowledge required by the industry? Are they globally competitive? What is the employment status of engineering graduates in the Philippines?

Relative to these concerns, the Philippine Statistics Authority (PSA) conducted a survey on hard-to-fill vacancies for which establishments found difficulties in recruitment. The study revealed that among the groups of job seekers, job vacancies found difficulties in recruitment is topped by professional groups, seconded by technicians and associate professionals and third are the clerks. The study further revealed that among the top-20 Hard-to-fill vacancies (professionals), electrical engineers ranked ninth (9th) which is in the better position than Electronics and Communication Engineers and Civil Engineers who are in the 8th and 4th rank, respectively. Notably, establishments cited lack of skills and competencies as the top reason for recruitment difficulties [3].

From the cited reason, acquired school experiences by the graduates are very vital in their employability, thus continual enhancement of curriculum should be done periodically to be abreast with the fast-changing trends and technology by eliciting feedbacks from the graduates. These feedbacks are imperative to every higher education institutions and one way to obtain these is thru tracer studies.

A tracer study or graduate survey is conducted among graduates of education institutions which may take place some time after graduations. The most common questions the survey would like to determine are the transition to work, work entrance, job career use of learned competencies, current occupation and bonds to the education institution [4].

Moreover, Rocaberte [5] conducted a tracer study whose objectives are to determine the graduate's employment/unemployment rate, the reasons of unemployment, what programs are most sought, what type of graduates are most employable, waiting time before employment, reasons for staying in the job, competencies learned in college and correlates graduate's employability.

Meanwhile, Gines' [6] tracer study dealt on the graduate's employment characteristics and transition, assessed the level of satisfaction with the university's

services, learning environment and facilities, program's contribution to the skills' development on communication, human relations, leadership, problem solving and research, and assessment on effectiveness, adequacy and relevance of the curricular programs.

Loquias [7] capitalizes on the different available forms of social media in gathering data to elicit information regarding the employability of the graduates. She determined the competencies developed which the graduates found useful in their employment and identify the factors that affect their employability.

The present tracer study is a significant means of evaluating the results of the education and training provided at the college. This gives basic information regarding the level of employment, unemployment among graduates, the first and current position of graduates and the correspondence between educational qualifications and required work skills. The results that will be derived will indicate whether there is a mismatch between the provided education and trainings by the college and the requirements of the workplace. It is desired that these results will serve as basis for future revision of curriculum, if necessary.

OBJECTIVES OF THE STUDY

This study aimed to determine the present status of Electrical Engineering graduates of Camarines Sur Polytechnic College School Year 2001-2010; to determine their personal and professional profiles; how extensive is the graduates application of learned/acquired knowledge, skills and attitudes and the school factors that contributed to their professional readiness.

METHODS

Research Design

The researcher adapted two types of descriptive method. The descriptive-comparative method was used by comparing two variables [8], the professional registration of the graduates with their perception on their professional readiness, and determine if there exists significant difference. The descriptive-survey method was used in the gathering of information of the graduates' personal and professional profile based upon interviews and surveys to elicit the data needed for the specific problems of the study. Questionnaire was the main instrument in the data collection.

Respondents

The respondents consisted of 79 graduates of Camarines Sur Polytechnic Colleges in Bachelor of Science in Electrical Engineering from 2007 to 2010

which tried to have a total enumeration. Table 1 presents the distribution of the 79 respondents by year of graduation.

As shown in Table 1, the total number of graduates from year 2007 to 2010 was 82 but only 79 became the respondents. Two did not return back the questionnaire and one has passed away.

Table 1. Frequency and Percentage Distribution of Respondents by Year of Graduation

Year	No. of Graduates	No. of Respondents	% each year	% Total
2007	22	21	95.45	27
2008	22	20	90.91	25
2009	21	21	100	27
2010	17	17	100	21
TOTAL	82	79	96.59	100

Data Gathering Instrument

The researcher developed the questionnaire based on the objectives of the study. It consisted of two parts: first part is the personal profile and the second part is the personal perception towards professional readiness of the respondents. For the latter, the indicators were based on the content of CHED Memorandum Order No. 34, series of 2008 for electrical engineering [9].

Data Gathering Procedure

The researcher distributed the questionnaires personally, through acquaintances and different forms of social medium. Among the social medium, messenger and facebook were the most effective and fastest ones in data collection. Likewise, great number of data was also collected thru email and some were interviewed through landlines and via cellular network services.

Statistical Treatment

The statistical tools used in this study were the percentile technique, weighted mean and Friedman’s Analysis of Variance [10].

Percentile technique was used to determine the proportion of the variable in qualitative relation to the whole; weighted mean was used to determine the average degree of respondents’ perception on the application of acquired knowledge, skills possessed and attitude; meanwhile Friedman’s Analysis of Variance was used to determine if there exists significant difference between the perception of graduates’ application and their professional profile.

To interpret the result of the data gathered from perceptions of the respondents towards the Extent of

Applications, the researcher used the four (4) point Likert Scale [10] with the following range: 3.5 – 4.0: Excellent; 2.5 – 3.49: Very Satisfactory; 1.5 – 2.49: Satisfactory; 1.0 – 1.49: Fair

RESULTS AND DISCUSSION

Personal Profile of the Respondents

The distribution of the respondents according to sex is shown in Figure 2. The respondents were consisted of sixty five (65) or eighty two percent (82%) males and fourteen (14) or eighteen percent (18%) females. The big difference in the percentage shows that electrical engineering is still dominated by male practitioners. The data also shows that twenty seven (27) or thirty four percent (34%) were still single while fifty two (52) or sixty six percent (66%) were married. This implies that of the 79 respondents, majorities have their own family thus job is really a necessity.

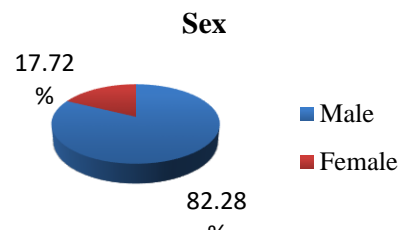


Figure 2: Distribution of Respondents According to Sex

It was also revealed that among the 79 graduates, only one (1) is pursuing a Master of Science in Electrical Engineering in one of the reputable engineering schools in Manila as DOST scholar. 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.

Table 2. Trainings Undergone after College*

Training/Seminar Title	f	%
Computer Programming	2	2.13
AutoCAD	58	61.70
Power System Analysis	2	2.13
Illumination Design	1	1.064
Pneumatic & Process Control	23	24.47
Instrumentation & Control Servicing NC II	1	1.064
Fire Detection & Alarm System (FDAS)	1	1.064
Pre-Action System (PAS)	1	1.064
Foam Extinguishing System (FES)	1	1.064
ISO 14001	1	1.064
ISO 18001	1	1.064
Quality Management	1	1.064
Safety Training for Executives	1	1.064
Total	94	100.00

*Multiple Response

Nevertheless, all the respondents adhered to advancing skills and professional development by attending to trainings and seminars related to their jobs. Table 2 shows the titles of such undertakings which the respondents attended after college. As shown in Table 2, AutoCAD has the most number of frequency (61.70%) which implies that with the advent of the use of computer in engineering design, industry offers big opportunity to graduates who possess skill in AutoCAD. It can also be noted in the table that training on Pneumatic and Process Control is in second with 24.74%.

Professional Registration

Figure 1 shows that of 79 respondents there were 33 or 41.77% licensed while 46 or 58.23% were not licensed. As for those who were not licensed, 10 or almost one-fourth (1/4) did not take the board exam because having job then was the priority after graduation and at present found a hard time to review for board examination.

Status of Professional Registration

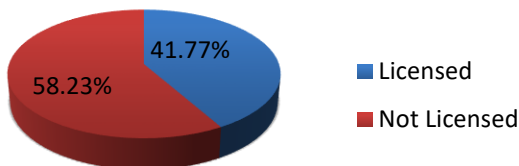


Figure 1: Distribution of Respondents According to Status of Professional Registration

Professional License Distribution

Table 3 presents the status of the distribution of the professional registration of the respondents.

Table 3 :Status of Professional License Distribution
n = frequency

Licensed						Not Licensed		
REE		REE & RME		RME		(%)	n	(%)
n	(%)	n	(%)	n	(%)			
18	22.78	7	8.86	8	10.1	41.77	46	58.23

It shows that among the licensed, 18 or 22.78% are REE, 7 or 8.86% are both REE and RME and 8 or 10.13% are RME. This implies that among the licensed REE has the highest percentage, second is RME and the fewer are both REE and RME.

Employment Status and Salary

Out of the 79 respondents 78 were presently employed and 1 was self-employed. 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.

Place of Employment

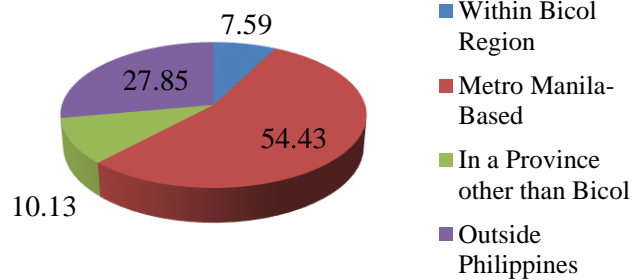


Figure 3: Distribution of Respondents According to the Place of Employment

Figure 3 shows in pi-graph the place of employment of the respondents. Working in Metro Manila got the biggest slice that out of 79 respondents 43 or 54.43%, working outside the Philippines was in second with 22 or 27.85%, followed by working in a province other than Bicol with 8 or 10.13%, and least number of graduates are working within Bicol Region with 6 or 7.59%. This information shows that more opportunities for electrical engineering practitioners are in Metro Manila and suburbs as well as Middle East. Bicol Region, being a non-industrialized zone, is not a green pasture for EE graduates.

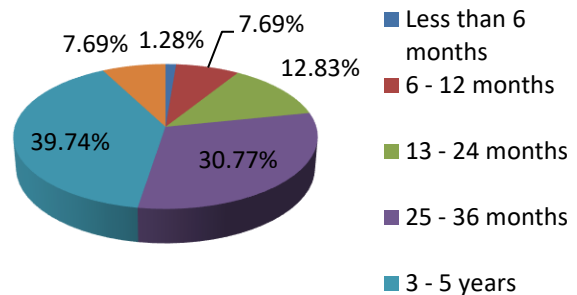


Figure 4: Distribution of Respondents According to Number of Years Working for the Current Employer

As to the number of years the respondents are working for the current employer at the time of gathering the data, 39.74 percent or majority of the graduates are in the current job for 3 – 5 years already, 30.77 percent are working 25-36 months, 12.83 percent are in their 13-24 months, 6 years above and 6-12 months tied with 6.79 percent sand the least is 1.28 percent who have just been working in the current job for only less than 6 months. The distribution is shown in pi chart in Figure 4.

The data further revealed that of the 78 respondents working with an employer, 44 or 56.41 percent have a permanent status and 34 or 43.59 percent are contractual. 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.

Figure 5 shows the respondents' monthly income. It is to be noted that of the 79 respondents, 7 or 8.97 percent had a monthly salary of Php 50 001 – 100 000, 16 or 20.52 percent had Php 40 001 – 50 000, 2 or 2.56 percent had Php 30 001 – 40 000, 27 or 34.62 percent had Php 20 001 – 30 000, and 26 or 33.33 percent had Php 10 000 – 20 000.

As expected, the respondents who are working abroad in land-based or seafarer receive salary of Php 30 000 to 100 000. The study further reveals that majority of the respondents belonged to the bracket of the society a little above the poverty line, meaning that they are justly compensated based on their specific jobs.

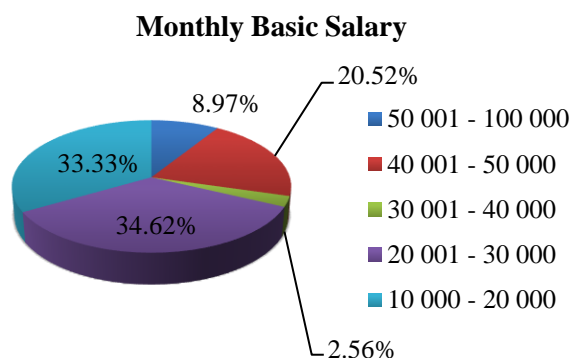


Figure 5: *Distribution of Respondents According to Monthly Basic Salary*

Generally, industry companies offer several benefits to their employees other than the basic salary. Table 5 shows the other benefits being received by the respondents. It shows that most largely of the respondents, which is 69 out of 79 or 88.46 percent, received Medical Allowance which ranked 1. ranked 2 is Free Housing which is 26.92 percent, ranked 3 is

Representation and Travel Allowance (RATA) which is 23.08 percent, ranked 4 is service car which is 19.23 percent, ranked 5 is 3 months vacation with pay which is 3.85 percent, ranked 6 is project/sales commission, and ranked 7 is project allowance which is 1.29 percent.

Table 5. **Other Benefits Received by the Respondents***

Benefits	Frequency	Percentage	Rank
RATA	18	23.8	3rd
Free Housing	21	26.92	1st
Service Car	15	19.32	4th
Medical Allowance	19	24.05	2nd
Others			
3 mos. Vacation with pay	3	3.85	5th
Project/Sales Commission	2	2.56	6th
Project Allowance	1	1.29	7th

*Multiple Response

Job Nature and Position of Respondents

The graduates were also asked regarding the status, nature, and job positions with regards to their previous and present employment, and the problems they encountered in seeking a job.

The respondents were first asked whether their present job is their first or not as well as the position and nature of their work. The researcher believes that the information will reveal whether the graduates move from one job to another and what job they generally land on after graduation. It was revealed that majority of the respondents moved from one company to another for various reason.

Meanwhile, Figure 6 shows the distribution of the respondents with regards to the present job. It revealed that 47 or 60.25 percent have the present job as their second job, 14 or 17.95 per cent have the present job as their first job, another 14 or 17.95 percent have the present job as their third job, 2 or 2.56 percent have the present job as their fourth job, and 1 or 1.28 percent has the present job as his fifth job. As expected, as the pi chart further revealed, graduates who graduated earlier have work for several companies already.

On the other hand, Table 6 presents the nature of the past and present work/job of the respondents. The respondents were made to identify which among the field of practice of electrical engineering they were hired for various jobs.

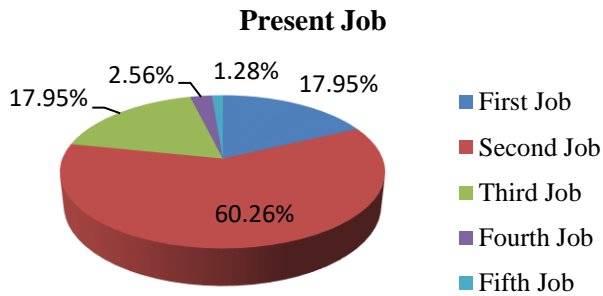


Figure 6: Respondents Present Job

The table shows that as their first job, design and inspection ranked 1, operation ranked 2, sales ranked 3, maintenance and repair ranked 4, installation ranked 5, manufacturing ranked 6, electric utility ranked 7, and consultancy ranked 8. No fresh graduate worked in enforcement and education.

As for their second job, design and inspection again ranked 1, installation, operation, and maintenance and repair all ranked 2, manufacturing ranked 3, sales ranked 4, electric utility ranked 5 and consultancy ranked 6. Again,

Table 6: Respondents' Nature of Work/Job

no graduate worked for enforcement and education as for their second job.

Field of Practice	Job					Pre - sent	%	R
	1st	2 nd	3 rd	4 th	5 th			
1. Consultancy	2	1	0	1	0	4	5.06	5 th
2. Design & inspection	21	16	6	0	0	48	60.76	1 st
3. Installation	9	10	4	1	1	8	10.13	3 rd
4. Operation	12	10	2	0	0	5	6.33	4 th
5. Manufacturing	7	9	0	0	0	2	2.53	6.5 th
6. Maintenance & Repair	10	10	5	1	0	9	11.39	2 nd
7. Education	0	0	1	1	0	2	2.53	6.5 th
8. Electric Utility	6	2	0	0	0	0	0	9.5 th
9. Enforcement	0	0	0	0	0	0	0	9.5 th
10. Sales/ Entrepreneur	11	6	0	0	0	0	0	9.5 th
11. Others (Self Employed)	1	0	0	0	0	1	1.27	8 th
Total	79	64	17	3	1	79	100	

As for their third job, design and inspection again ranked 1, maintenance and repair ranked 2, installation ranked 3, operation ranked 4 and education ranked 5. No graduate worked for consultancy, manufacturing, electric utility, enforcement, and sales as for their third job.

As for their fourth job, consultancy, installation, maintenance and repair, and education got one each. No graduate worked for design and inspection, operation, manufacturing, electric utility, enforcement, and sales. Among the 79 respondents, only one has the fifth job as the present job and is working in an installation company.

As for nature of their present job, the table further shows that among the different field of practice in electrical engineering, Design and Inspection ranked 1, Maintenance and Repair ranked 2, Installation ranked 3, Operation ranked 4, Consultancy ranked 5, and Manufacturing and Education tied at rank 6. No respondents at present are employed in Electric Utility, Enforcement, and Sales, while 1 is self employed.

Figure 7 shows the nature of present work/job of the respondents in pi chart. It shows that out of 79, 4 or 5.06 percent are in Consultancy, 48 or 60.76 percent are in Design and Consultation, 8 or 10.13 percent are in Installation, 5 or 6.33 are in Operation, 2 or 2.53 percent are in Manufacturing, 9 or 11.39 percent are in Maintenance and Repair, 2 or 2.53 are in Education, and 1 or 1.27 percent is self-employed.

The foregoing results show that design and inspection is the field of practice to where most graduates will be first field in and as their present job.

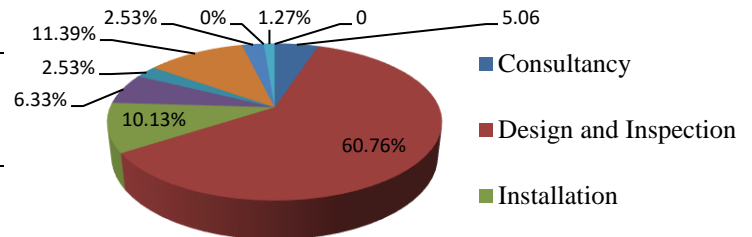


Figure 7: Distribution of Respondents According to Nature of their Present Work/Job

Another information for which the researcher deemed important to know is the position currently the graduates are occupying. From the pi chart shown in Figure 8 it shows that 4 or 5.13 percent are supervisors, 3 are designers, 69 or 88.46 percent are staff engineers, and 2 are instructors or academicians. Included positions as indicators are owner, manager, and consultant but it is noted that no graduate is holding the said positions.

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.

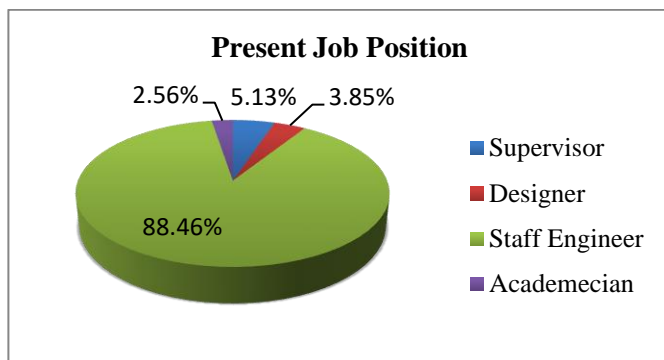


Figure 8: Distribution of Respondents According to Present Job Position

As presented earlier, most of the respondents moved from one employer to another one for various reasons. The study wishes also to determine the employability, in terms of job position, of the graduates 1 to 10 years after graduation.

Table 7 presents the various job positions of the respondents after graduation. It is noted that the first job of out of 78 employed, 61 or 78.20 percent were hired as staff engineers, or 11.54 percent worked as technicians, and 8 or 10.27 percent as sales agents for electrical equipment and devices.

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 supervisor as their second and third job.

Table 7. Respondents' Various Job Position After Graduation.

Position	1 st Job	2 nd Job	3 rd Job	4 th Job	5 th Job	Present Job
Supervisor	0	2	2	0	0	4
Designer	0	1	2	0	0	3
Staff Engineer	61	55	12	2	1	69
Academician	0	0	1	1	0	2
Technician	9	4	0	0	0	0
Sales Agent	8	2	0	0	0	0
Total	78	64	17	3	1	78

n = frequency

Reasons for Staying in their First Job

If most of the respondents moved from one company to another, there are also a few who remained in their first employment. In this study, the researcher provided 5 indicators in which the respondents may tick one or more of them. They were also asked to indicate other reasons not included in the choices.

As presented earlier, out of 78 employed respondents 14 are still working for their first company. Table 8 shows

the reasons of the respondents for staying in their first employer. The table shows that job satisfaction ranked 1 with 92.86 percent, proximity to place of work ranked 2 with 64.29 percent, friendly work environment ranked 3 with 50 percent, sufficient benefits ranked 4 with 42.86 percent, and high salary ranked 5 with 28.57 percent. The result reaffirms that not all workers consider remuneration as the most important factor in employment but sociological satisfaction.

Table 8: Respondents' Reasons For Staying in their First Employer

	Reasons	f	%	Rank
1	High Salary	4	28.57	5 th
2	Sufficient Benefits	6	42.86	4 th
3	Friendly Work Environment	7	50	3 rd
4	Proximity to Place of work	9	64.29	2 nd
5	Job Satisfaction	13	92.86	1 st

Reasons for Leaving the Previous Jobs

As expected, the study revealed that out of 78 employed respondents, 64 hopped from one job to another. Table 9 shows the respondents' reasons for leaving their job. Wanted a new challenge and low salary ranked 1 with 100 percent each, insufficient benefits ranked 2 with 59.38 percent, proximity from place of residence ranked 3 with 26.56 percent and hostile work environment ranked 4 with 1.56 percent.

The result reaffirms that the main reason of one's employment is economic thus make people continue to look for a greener pasture.

Table 9: Respondents' Reasons For Leaving their Job

	Reasons	n	%	Rank
1	Low Salary	64	100	1 st
2	Insufficient Benefits	38	59.38	2 nd
3	Hostile Work Environment	1	1.56	4 th
4	Far from Place of Residence	17	26.56	3 rd
5	Wanted a New Challenge	64	100	1 st

n = frequency

Mode of Applications (Present Job)

The respondents were also asked how they were able to find their first up to present jobs. The respondents were provided with 6 modes in which they will check. The result is presented in Table 10.

From the table it is noted that except in the fourth job the respondents were hired thru direct hire or walk-in which ranked 1, internet or print media ranked 2, and friends or family referral or recommendations ranked 3.

In the fourth job internet or print media ranked 1, and direct hire or walk-in ranked 2.

Table 10. Respondents' Mode of Application

Mode of Applications	1 st Job	2 nd Job	3 rd Job	4 th Job	5 th Job	Present Job
Direct Hire/ Walk-in	65	55	10	1	1	65
Internet/ Print Media/ Advertisement	10	6	6	2	0	11
Campus Counseling/ Career Placement Manpower Dep't./ Employment	0	0	0	0	0	0
Agency Job Fairs Friends/ Family Referral or Recommendations	0	0	0	0	0	1
Offer from Employer during OJT/OJT absorption	0	0	0	0	0	1
Total	78	64	17	3	1	78

As for the present job, still majority of the respondents applied for their job thru direct hire or walk-in which is 83.33 per cent, 14.10 per cent said thru internet or print media, and a very small portion thru job fairs and OJT specifically both has 1.28 per cent each.

Waiting time before getting employed (right after graduation from college)

Another 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.

Table 11 shows the responses of the respondents of the waiting time before getting employed to their first job. Out of the 78 employed respondents, 40 or 51.28% said 7 months to 1 year. The reason for this figure maybe the fact that most of the graduates spent the first 5 months after graduation for the review in preparation for licensure examination. The other 27 or 34.62 percent of the respondents said 1 year to 2 years, 8 or 10.26 percent said 3 to 6 months, and a small portion specifically 3 or 3.85 percent said less than

1 month to 3 months. Fortunately, no graduate was unemployed for more than 2 years after graduation.

Table 11: Waiting Time before Getting Employed

Waiting Time	f	%	Rank
Less than 1 month	0	0	*
1 month to 3 months	3	3.85	4 th
3 months to 6 months	8	10.26	3 rd
7 months to one year	40	51.28	1 st
1 year to 2 years	27	34.62	2 nd
More than 2 years	0	0	*
Total	78	100	

Extent of Application

The researcher also recognizes that the personal perception of the respondents towards the extent of application of the acquired education and trainings is essential to any tracer study. Thus the respondents were asked to rate each factor as to the degree of extent of application that affects their employability and performance when they join the industry. Listed in Table 9 are the identified factors classified into two categories, namely: Graduate factors and School factors. Graduate factors consist of knowledge, skills, and attitudes while School factors comprised of: curriculum, placement program, physical and Laboratory facilities, OJT programs, industry linkages, and skills enhancement programs.

Table 12 shows the perception of the respondents towards the extent of application. The data revealed that the knowledge factor has an average of 2.60 which is interpreted as satisfactory. This implies that graduates had enough confidence that they were equipped with the knowledge required from them as professional worker. As for the skills possessed, the respondents rated themselves with a high rating of 3.15 which has a descriptive rating of very satisfactory.

This result is not surprising considering the graduates undergone a ladderized curriculum wherein the first three ladder earned them One Year Certificate in Building Wiring Electrician, Two Year Certificate in Senior Electrician, and Three Year Diploma in Electrical Technology respectively.

With regards to the attitude, the data shows that attitude in relation to extent of application has an average of 3.15 which is interpreted as very satisfactory. This perception of the graduates implies that the school trained them how to work independently and within a team as well as instilled in them the professional ethics and social responsibilities.

The respondents were also asked to rate seven common school factor indicators which are considered contributors to professional readiness.

Table 12: Perceptions of the Respondents towards the Extent of Applications

1. Graduate Factors	WM	VI
A. Knowledge		
a.1 Possess an ability to apply knowledge of mathematics, physical, life, information and engineering sciences appropriate to the field of practice.	2.61	S
a.2 Possesses an ability to design and conduct experiments, as well as to analyze and interpret data.	2.44	S
a.3 Possesses an ability to design a system, component, or process to meet desired needs within identified constraints.	2.55	S
a.4 Possesses an ability to recognize, formulate, and solve engineering problems	2.59	S
a.5 Abreast with the contemporary issues	2.64	S
a.6 Possesses an ability to engage in life-long learning and an understanding of the need to keep current of the developments in the specific field of practice.	2.73	S
a.7 Possesses an understanding of the effects of engineering solutions in a comprehensive context.	2.67	S
Average	2.60	S
B. Skills Possessed		
b.1 Possesses an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.	2.95	S
b.2 Ability to effectively communicate orally and in writing using the English language	2.81	S
b.3 Possesses a skill in electrical wiring and troubleshooting	3.95	VS
Average	3.24	VS
C. Attitude		
c.1 Possesses an ability to work effectively in multi-disciplinary and multi-cultural teams.	3.14	VS
c.2 Recognizes professional, social, and ethical responsibility	3.16	VS
Average	3.15	VS
2. SCHOOL FACTORS		
A. Curriculum	2.96	S
B. Placement Program	1.58	F
C. Physical and laboratory facilities	2.29	S
D. On the-Job-Trainings	2.51	S
E. Industry Linkages	1.29	F
F. Skill Enhancement	3.25	VS
Average	2.31	S

F = Fair; S = Satisfactory; VS = Very Satisfactory

Furthermore, the respondents indicated that skill enhancement is the best school factor for landing them a job with a weighted mean of 3.25 and described as very satisfactory. Another factor is curriculum with a weighted mean of 2.96. This infers that the ladderized

curriculum programs enhanced their skills in electrical technology at the same time provided them the opportunity to proceed to degree program. Among the least factors are placement program and industry linkages which were perceived as plain fair. Overall, the school factors got an average weighted mean of 2.31 which is interpreted as satisfactory.

Table 13: Difference in Extent of Application and Professional License

Graduate Factors	Computed Value	df	Decision
Knowledge	9.48*	3	Rejected
Skills	4.0	3	Accepted
Attitude	3.5	3	Accepted
School Factors	17.82*	3	Rejected

*Tabular Value at 0.05: 7.815; * Significant*

Table 13 shows the result of Friedman's Analysis of Variance when the respondents are grouped according to Professional License. The table shows that for the knowledge attribute the computed value is 9.48 which is greater than the tabular value of 7.815. This means that the extent of applications of the graduates are significantly related when they are grouped according to professional license, such as REE, both REE and RME, RME and non-licensed.

As for the skills and attitude the computed value are 4.0 and 3.5 respectively which are lesser than the tabular value which mean that these attributes are not significant whether one is REE, both REE & RME, RME or non-licensed.

With respect to school factors the computed value is 17.82 which is higher than the tabular value which means that the extent of application of the respondents are significantly related to their professional license status.

Recommendations from Graduates

The respondents were also asked what recommendation they can give to improve the employability of the graduates. The following recommendations were elicited and stated here as it is but edited for clarity.

The college may offer computer subjects to able the graduates to cope with the changing technology and be competitive enough not only in local labour market but also intentionally. The college may give the BSEE students enough exposure in operating modern electrical equipment in addition for their knowledge and skills. The college may increase the time in computer laboratory for office applications and offer subjects that will gain them

basic knowledge in enterprise resource planning such as oracle, primavera, SAP, etc. The college may help the students be familiarized with industrial system applications such as PLC and SCADA and let them acquire knowledge in basic operation of industrial electrical equipment such as AC and DC UPS, soft starter, variable frequency drives, etc., switchgear and switchgear component.

The college may prioritize the improvement of physical facilities and laboratory buildings and procure equipment which are state-of-the-art. The college should give the students trainings in the operation and trouble shooting of power supply, controls, relays, and motor control. The college must enhance the English language skill of the students in both oral and written communication.

The college should design a BSEE curriculum that will prepare the students to supervisory and management positions. The college should extend OJT/Industry immersion to a one whole semester. The students must be sent to national or international electrical companies. The college must help their graduates in finding jobs by putting up job placement office. The college may widen the linkages with industry that caters for electrical engineering graduates and endorse qualified ones for employment.

CONCLUSION

The BSEE graduates are majority male; although less than 50% of them are not professional licensed nevertheless they are employed and with permanent and regular jobs. Only one pursued graduate study although many attended various trainings and seminars related to their work.

Most of the respondents are employed in Metro Manila and are working related to the degree earned and the present job is their second job. The average salary is Ph 20 000 – 30 000 and mostly are working with the present employment for 3 – 5 years now. They commonly found their first job within 3 to 6 months after graduation, and through direct hire or walk-in mode of application. For their first employments, most of the respondents worked in a Design and Inspection nature of company and were hired for entry-level positions such as staff or cadet engineers and some worked in the professional/technical and supervisory position after their first job. A great percentage of the respondents hopped from one job to another because of insufficient salary and for a new challenge while those who remained found job satisfaction amidst low salary.

As for graduate factors, respondents found the knowledge attribute satisfactory while skills and attitude very satisfactory in performing their job as required from them. Meanwhile, they agreed that the college enhanced their skill to perform electrical wiring and other tasks as electrical practitioners. On the other hand, they implied that the college has a poor placement program and linkages whereby can help the graduates land for employment.

The respondents' extent of application of knowledge attribute shows relationship when they are grouped according to professional registration but not significant with both skills and attitude. Interestingly the perception of school factors and professional registration has significant relationship.

LIMITATION

The respondents of this study was limited to 3 batches of graduates. This is further delimited to their perceptions as to the extent of applications.

RECOMMENDATION

The College to conduct regular review of the EE curriculum together with industry representatives to make the course offering of CSPC more responsive to the needs of the industry. More programs involving apprenticeship Entrepreneurship training, internships and on-the-job training should be institutionalized in the academic program. These programs should help to ease the transition from school to workplace.

A similar study should be undertaken having respondents from all the batches of graduates. The perceptions of the employers should also be included to determine whether there is no significance difference in the perceptions towards the extent of applications of the graduates between the two groups of respondents.

3.The College to conduct regular studies to analyze the employment/unemployment of new graduates not only of Electrical Engineering but of all its programs and provide up-to-date information that will assist policy makers to address graduate unemployment.

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