



ABET Surveys Report

2016-2017





Exit Survey

To enhance the student learning experience in the engineering and technology faculty and to measure the continuous improvement as one the ABET requirements; a student exit survey has been conducted from 15^{th} to 20^{th} of December, 2017. 47 graduate students filled the survey online using Google forms. 19 questions have been written. Four levels of choices have been implemented for 18 questions. These choices are as in table 1. One question has only three choices.

Level	Description
1	Fair
2	Good
3	Very Good
4	Excellent

The questions in this survey are utilized to assist ABET students' outcome in the engineering faculty. They contain 11 outcomes named a-to-k. Other questions are used to assist the overall experience of the students. The following sections show the results of assisting each one of these outcomes.

1- Basic Sciences

Three questions have been utilized in this section to assist ABET outcome 'a', which defined as, "An ability to apply knowledge of mathematics, science and engineering". These two questions are as follows

1.1 Do you agree or disagree that the program provided you with the ability to apply mathematical concepts to solve technical problems?

Figure 1 shows the result of this question. We can observe that most of the students selected "Very good" with 42.5% and "Excellent" with 22.2%. This show that more than 62% of the students have confidence in their math skills

1.2 Do you agree or disagree that the program provided you with the ability to apply basic science concepts to solve technical problems?

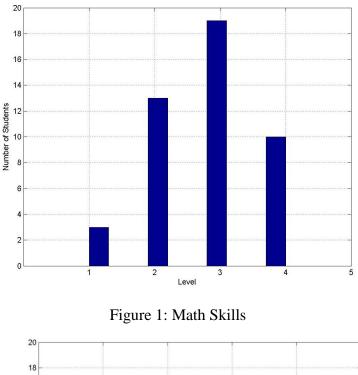
As in figure 1, Figure 2 shows student indirect assessment of basic sciences. We can observe that student confident level is higher than 62% in basic sciences as in mathematics.

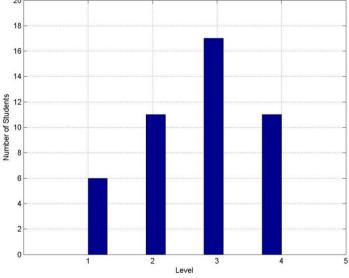
1.3 Do you agree or disagree that the program provided you with the ability to apply engineering science concepts to solve technical problems?

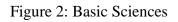




Figure 3 shows the results of engineering skills. The "Excellent" selection reached 24.4% and the "Very good" selection is 40%. The overall confident is higher than 60%.











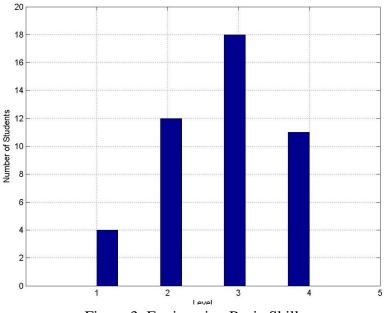


Figure 3: Engineering Basic Skills

2- Experiments

Three questions have been used to assist outcome 'b', which defined as, "*an ability to design and conduct experiments, as well as to analyze and interpret data*". The following two subsections show the results of them.

2.1 Do you agree or disagree that the program provided you with the ability to design and conduct meaningful experiments to gather data?

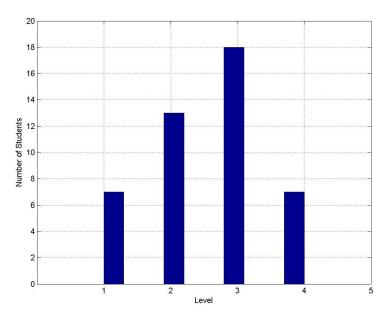


Figure 4: Design Experiments





In Figure 4 we can observe that the students' confidentiality level in conducting and designing experiments is lower than basic sciences skills". 15.5% of the students selected "Excellent" and 40% of them selected "Very good"

2.2 Do you agree or disagree that the program provided you with the ability to analyze and interpret experimental data?

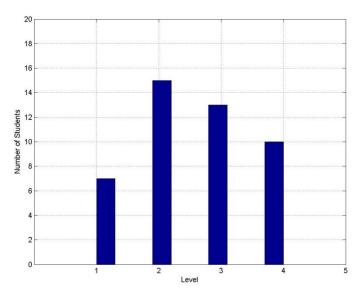


Figure 5: Data Interpretation skill

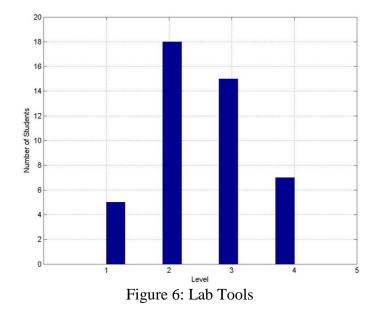
Figure 5 shows the results of experimental data interpretation students' skills. We can observe that "very good" selection descended and that "good" increased to 33.33%. Figure 4 and 5 shows that the students are more confident in designing experiment than digging information from the harvested data. This requires data visualization, statistical analysis, Matlab and computer skills revisions.

2.3 Do you agree or disagree that the program provided you with adequate lab equipment and facilities to complete your study?

This question is a facilities and services assessment question more than outcomes question. We attempted to measure the student satisfactory level of the labs and their equipment. We can observe that 40% of the students selected "good" and other 33.3% selected "very good".







3- System Design

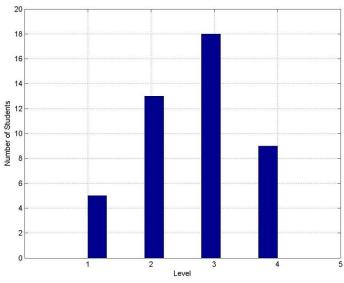
One question has been used to assist student outcome 'c', which defined as, "An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability", This question is

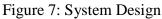
Do you agree or disagree that the program provided you with the ability to design a system or process to meet a desired objective?

Figure 7 shows the result for this question. As in basic sciences, the students are confident in their designing skills for systems or processes.









4- <u>Team Works</u>

One question has been used to assist student outcome 'd', which defined as, "An ability to function on multidisciplinary teams", This question is "Do you agree or disagree that the program developed your ability to effectively work on a team?"

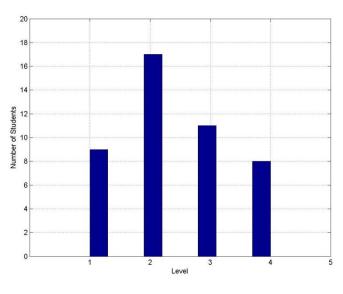


Figure 8: Team Work

Figure 8 shows the results of assisting student outcome 'd', we can observe from the figure that the students are not very confident in their "team player" skill. This confident can be improved in Labs, graduation project and in-term projects.





5- Solving Engineering Problems

One question has been used to assist student outcome 'e', which defined as, "an ability to *identify, formulate, and solve engineering problems*". This question is, "Do you agree or disagree that the program developed your ability to think logically and to solve analytical problems?"

Figure 10 shows the results for this outcome. 38% of the students selected "Very good" and 18% selected "Excellent".

6- Ethics and professionalism

Two questions have been used to assist outcome 'f', which defined as, "*an understanding of professional and ethical responsibility*". The following two subsections show the results of them.

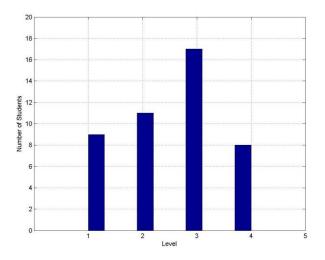


Figure 10: Solving Engineering Problems

6.1 Do you agree or disagree that the program provided you with adequate knowledge and skills to succeed in your chosen profession?

Figure 11 shows the result of this question. More than 57% of the students selected "Very good" and "Excellent".





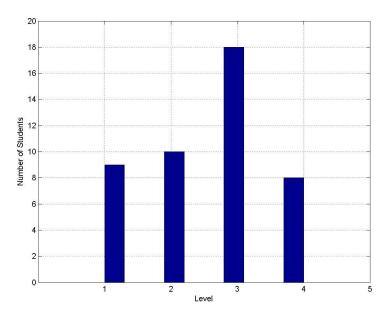
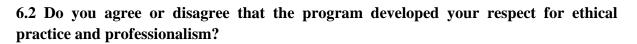


Figure 11: professionalism



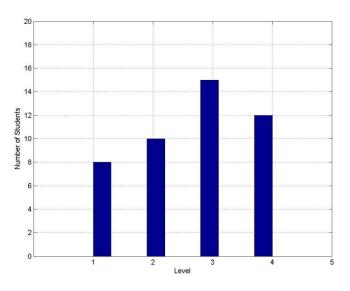


Figure 12: Ethics and professionalism

Figure 12 shows the results of this question. We can observe that more 60% of the students are confident in their knowledge of engineering ethics. However, improvement is required to reach a higher percentage. This can be fulfilled in the Engineering Ethics and Technical Writing class.





7- <u>Communication Skills</u>

Two questions have been used to assist outcome 'f', which defined as, "An ability to communicate effectively". The following two subsections show the results of them.

7.1 Do you agree or disagree that the program provided you with an adequate level of interaction with engineering faculty?

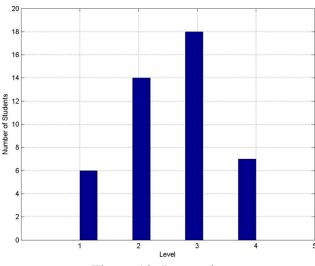


Figure 13: Interaction

Interaction is a kind of communication skills. It is result in figure 13 shows similar results as in the basic sciences. This shows that the learning process in our faculty cares of all outcomes.

7.2 Do you agree or disagree that the program provided you with appropriate technical communication skills?





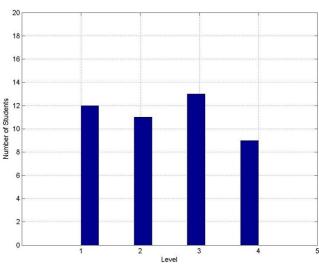


Figure 14: Communication Skills

Figure 14 shows the result of the communication skills. We can observe that students have issues in their communication skills "writing or oral". This requires more emphases on English language classes "101" and technical writing class.

8- Engineering Impact

One question has been used to assist student outcome 'h', which defined as, "*The broad* education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context", this question is

Do you agree or disagree that the program provided you with an appreciation of the impact of engineering solutions in a global economic/societal context?

Figure 15 shows the result for this question. Figure 15 shows that the students have issues in understanding the impact of engineering solutions in economic and social context. This can be improved in Engineering Economy and the last year subjects.





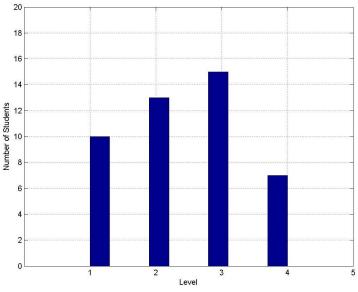


Figure 15: Engineering Impact

9- Life-long Learning

Two questions have been used to assist outcome 'i', which defined as, "A recognition of the *need for, and an ability to engage in life-long learning*". The following two subsections show the results of them.

9.1 Do you agree or disagree that the program developed your appreciation for the need for lifelong learning through self-study, professional society programs, and/or graduate courses?





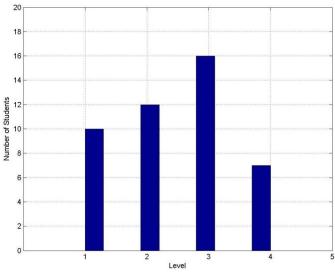


Figure 16: Life Long Learning Skill

Figure 16 shows the result of this question. We can observe that the students have a good confident in their lifelong learning skills. However, another question has been used in this category. This question shows how this skill can help in studying a graduation and post grad studies. This question is show in the next subsection

9.2 Do you agree or disagree that the program provided you with adequate academic preparation to enter a graduate degree program?

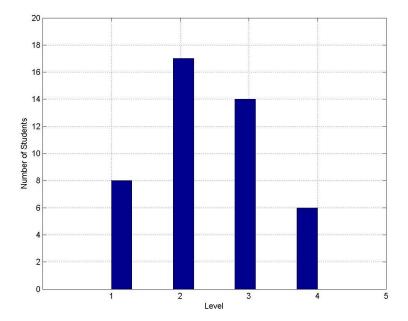


Figure 17: Graduation Studies





Figure 17 shows the result of this question. This question is a hard question to answer since it measures or assists three different outcomes, "i", "j" and "g". We can observe that students have self-confident in their skills to continuo their graduation studies.

10-<u>contemporary issues</u>

One question has been used to assist student outcome 'j', which defined as, "A knowledge of contemporary issues", this question is the same question utilized in section 9.2.

11- Engineering Tools

One question has been used to assist student outcome 'j', which defined as, "An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.", this question is the same question utilized in section 2.3, which is

2.3 Do you agree or disagree that the program provided you with adequate lab equipment and facilities to complete your study?

12- After Graduation Guidance

Two questions have been used in this section. This questions as follows

12.1 Do you agree or disagree that the program provided you with knowledge of the various professional and technical organizations available to you in your field of engineering?

Figure 18 shows the harvested results of this question.

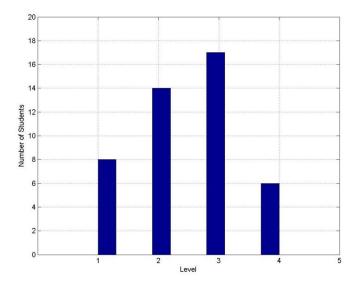


Figure 18: After Graduation Services





12.2 Do you agree or disagree that the program provided you with an awareness of the variety of career opportunities available to graduates in your major?

Figure 19 shows the result of this question. The result shows that after graduation guidance's for students require improvement

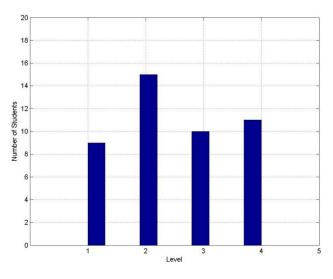


Figure 19: Career Awareness

13-Overall Assessment

Two questions have been used in this category. One to measure the student satisfactory level of the faculty and the second to show the impact of this satisfactory on recommending his/her major to other students. Figure 20 shows the overall satisfactory level of the graduate students. We can observe that 78% of the students recommend their majors to other students.

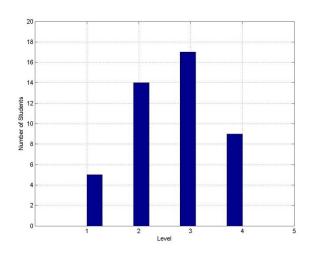


Figure 20: Overall Satisfactory level





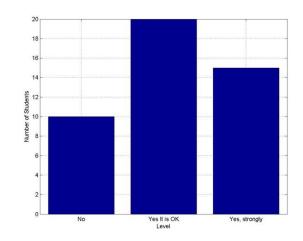


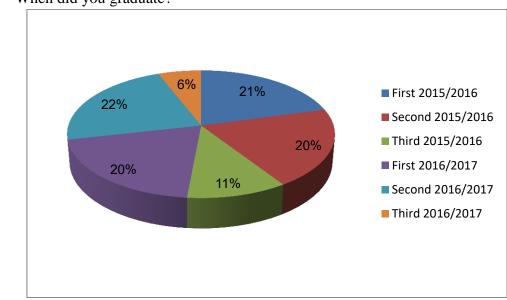
Figure 21: Recommending his/her major to other students





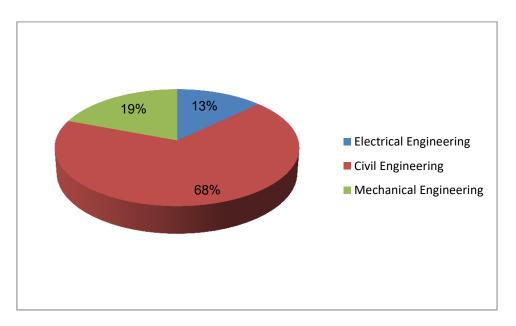
Alumni Survey

According to the information that have been supplied from the registration office, And according to the survey that have been done to the graduate of the faculty of the Engineering and technology, the following are the questions and the results:



1- When did you graduate?

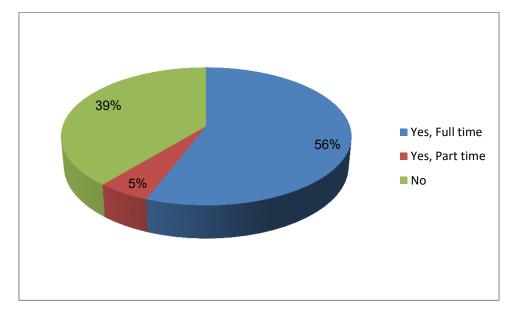
2- What was your undergraduate major at Al Zaytoonah University of Jordan?



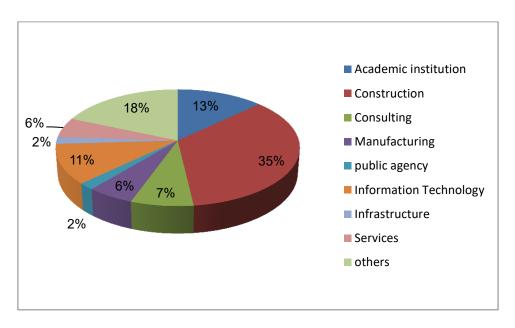
3- Are you currently employed (include military service, internships, graduate assistant ship)





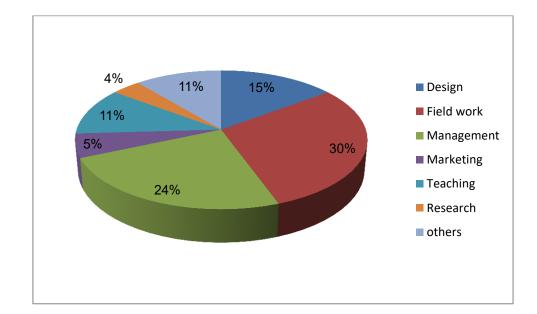


4- What type of organization is your employer?





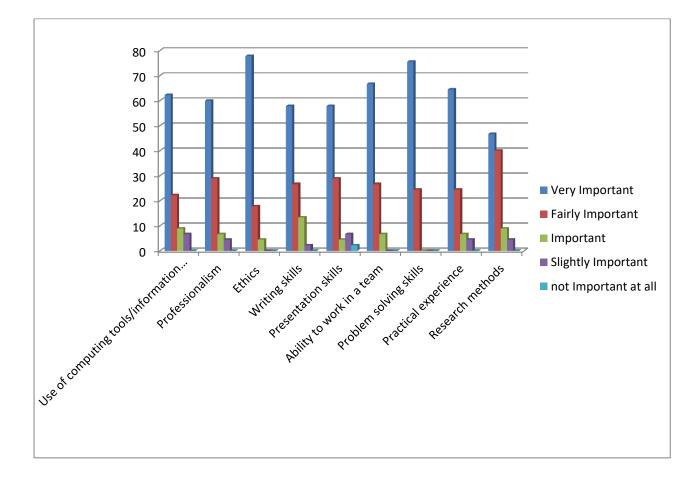




5- What are your major responsibilities?



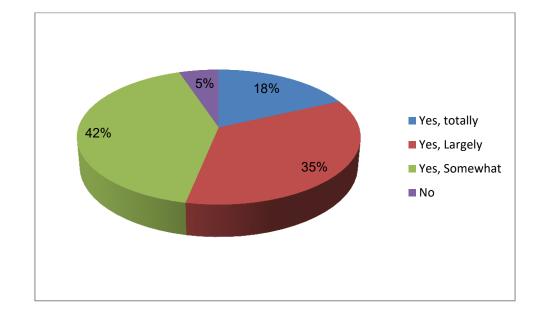




6- Please indicate which workplace skills are important to you

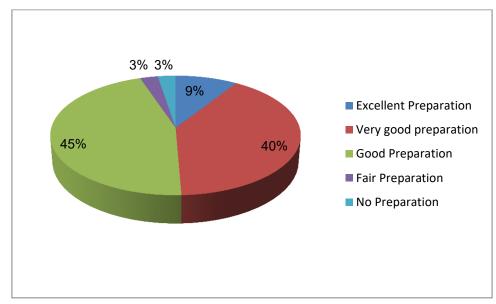






7- Did your undergraduate program of study at ZUJ meet your educational goals?

8- Rate your level of preparation as a result of your engineering education at ZUJ plus your work experience to date: to successfully identify, analyze, formulate, and sole engineering problems associated with your professional position, both independently and in a team environment

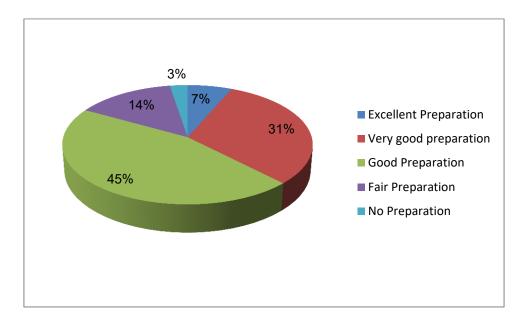


9- Rate your level of preparation as a result of your engineering education at ZUJ plus your work experience to date: Using a broad systems perspective, manage

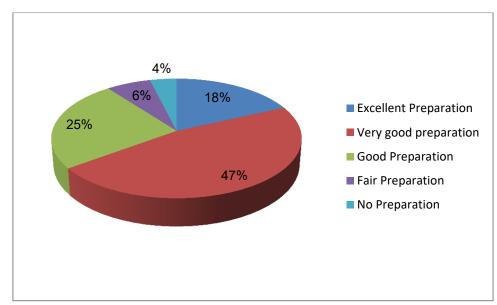




multifaceted and multi-disciplinary engineering projects with significant economic, legal, regulatory, social, and environmental consideration



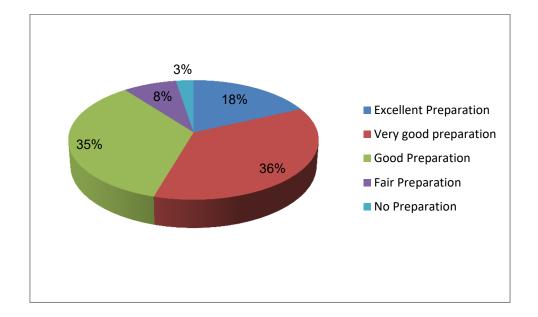
10-Rate your level of preparation as a result of your engineering education at ZUJ plus your work experience to date: Communicate effectively with colleagues, clients, and the public



11-Rate your level of preparation as a result of your engineering education at ZUJ plus your work experience to date: Engage in lifelong learning, professional development, leadership, and public service







12- Which of the following have you engaged in since graduation

Activity			
Professional workshops and training courses.			
Graduate or additional undergraduate course work.			
Completed graduate, professional, or second undergraduate degree.	7		
Professional society membership.	31		
Professional society activities beyond membership, such as technical	16		
committees, serving as an officer or organizing meetings, etc.			
Public service activities such as civic clubs, community volunteer work.			
Passed the Fundamentals of Engineering Examination.	15		
Passed the Professional Engineer Examination.			





Facilities Survey





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Introduction

An online facility survey has been conducted to assist and measure the satisfactory level of the electrical engineering department of the university services. The survey consisted of 50 questions assists different services. These services are

- Registration Service
- Library
- Catering
- Bookshop
- Transportation
- Bathrooms
- Medical Center
- E-learning
- Computer Labs
- Car parking
- Other Services

These services have been divided into 6 main categories. In each category, at least one question has been used to assist it. The survey questions are divided into two main groups. The first group includes multiple choice questions that have 6 levels or choices. These answers are shown below.

Poor	Adequate	Pass	Good	Very good	Excellent
0	1	2	3	4	5

The Second kind of questions is the list questions. In this kind, the students are allowed to select different answers for the same question.

The satisfactory criterion utilized in this survey is as follows

• 50% of the students select "Very good" or "Excellent".

38 Students took the survey in 15th December, 2017. The calculated results have been analyzed in the following sections.

1- Library Service

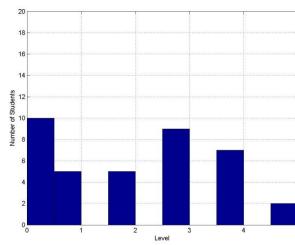
Library service is divided into two main categories, the university library and books' shops. In the following sections we will assist these two services.



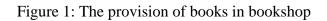


1.1- Books' Shops

4 questions have been used in this category. The following subsections and figures show the results of these questions. The satisfactory level of the students in this category is 42% in average. The bookshops shops should enhance their services by providing more text books and work for longer time.



1.1.1- The provision of books in the bookshop



1.1.2- The bookshop opening hours

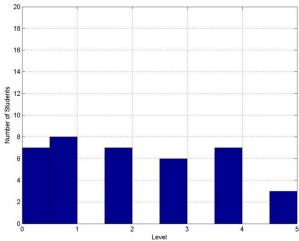
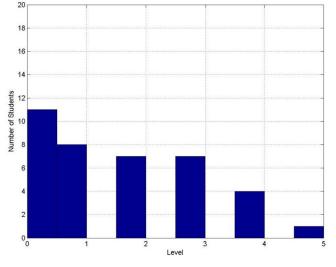


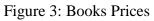
Figure 2: Opening Hours





1.1.3 The prices at the bookshop





1.1.4 The helpfulness of the bookshop staff

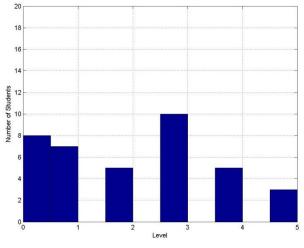


Figure 4: Helpfulness of the bookshop staff

1.2 Library Service

10 questions have been used to assist and measure the effectiveness of university's library. The first question was utilized to measure the students' frequency usage of the library. Figure 5 shows the result of this question. We can observe that 16% of the students did not attempt to visit the library at all. In addition, we found that 26% of the students frequently use the library. To analyze the next 9 questions of library's services, we have ignored 6 answers. These answers belong to "Not at all" category since it will be unrealistic to utilize their opinions of the library's services. However, the students should be encouraged to visit the library and obtain benefits from library resources and services.

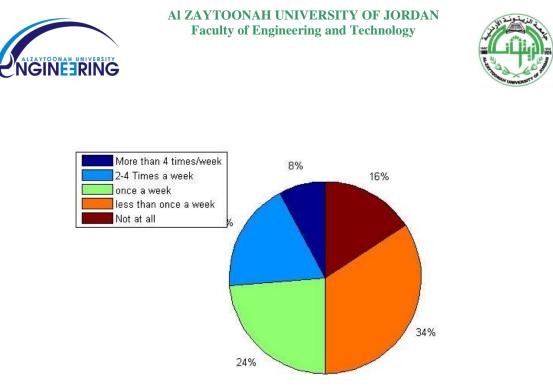


Figure 5: Library Usage

The next 9 questions are as follows

1.2.1 The helpfulness of the library staff

Figure 6 shows the results of this question. We can observe that 60% of the students are satisfied with the helpfulness of the staff.

1.2.2 The availability of journals and books in your subject area

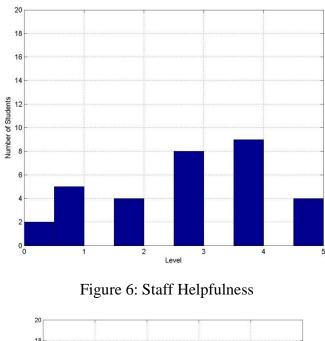
Figure 7 shows the results of this question. The satisfactory level is 54.3%. The students' comments were that the numbers of copies of the required book is limited. The students attempted to book them in the beginning of the semester until the end of it. We recommend a new booking policy for the library to solve this issue.

1.2.3 The provision of study space

Figure 8 shows the results of this question. The satisfactory level is 60%. The students are satisfied with the study space of the library. However, if we read the data of the first graph again, we will find that only 26% of the students may answer this question. These students were fully happy with the study place of the library. Do not forget that with the percentage of the first figure, the library is not congested.







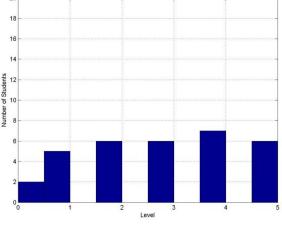


Figure 7: Books Availability

1.2.4 The content of the library information leaflets

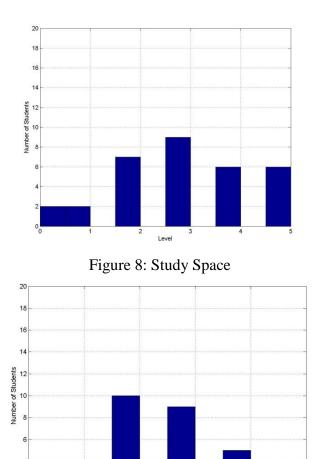
Figure 9 shows the results of this question. The satisfactory level is 51.4%. The library should provide more information in the leaflets to enhance students' satisfactory level and to show their services in a better way.

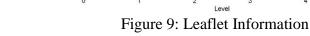
1.2.5 The provision of library e-resources

Figure 10 shows the results of this question. The satisfactory level is 51.4%. The e-resources have to be enhanced to provide more E-books, searching techniques and a better GUI.









1.2.6 The availability of photocopying machines

Figure 11 shows the results of this question. The satisfactory level is 51.4%. Students' comments were that the library has no photocopier. When we asked the other students they answered that there is a machine in the library. This conflict has been created due to the leakage in library leaflets and e-resources information. If these services are enhanced, no problem will exist in this question.

1.2.7 The efficacy of library search tools

Searching tools in the library are divided into two main categories. Finding library resources and finding books. For finding resources, we found that the information is not enough. However, for book searching, figure 12 shows the result of students' satisfactory level. 40% of the students are satisfied only. To enhance the searching process, e-resources and GUIs should be implemented.





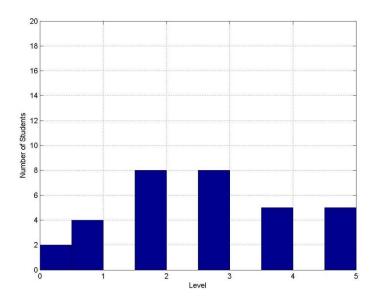


Figure 10: Library E-resources

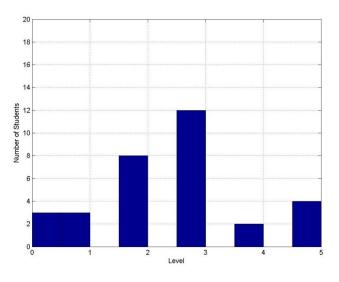


Figure 11: Library Photocopier

1.2.8 The extent to which ZUJ library meets your academic and intellectual needs Figure 13 shows the results of this question. The satisfactory level is 54.2%.

1.2.9 The library opening hours

Figure 14 shows the results of this question. Students are satisfied with 60% of the working hours of the library





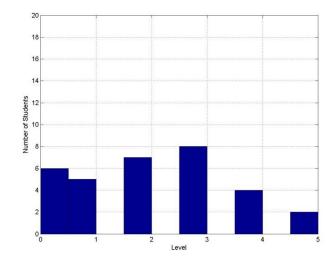


Figure 12 Library Searching Tool

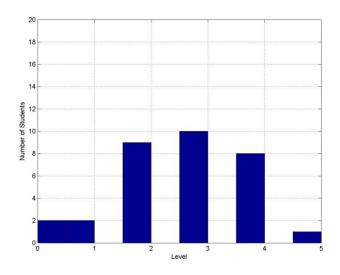


Figure 13: Academic Needs





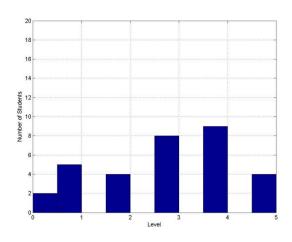


Figure 14: Opening Time

2- Catering Services

6 questions have been asked in this category. These questions are as follows

- The cleanliness of catering outlets
- The comfort of catering outlets
- The opening hours of catering outlets
- The helpfulness of catering staff
- The quality of food and drinks
- The price of food and drinks

Figures 15, 16, 17, 18, 19 and 20 show the histogram of the results. We can observe that the students are not satisfied with the price of the food and drink and they are satisfied with the staff and the quality.

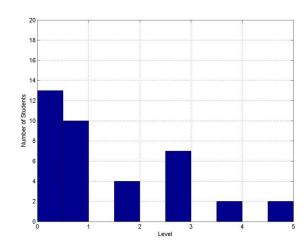


Figure 15: Cleanliness





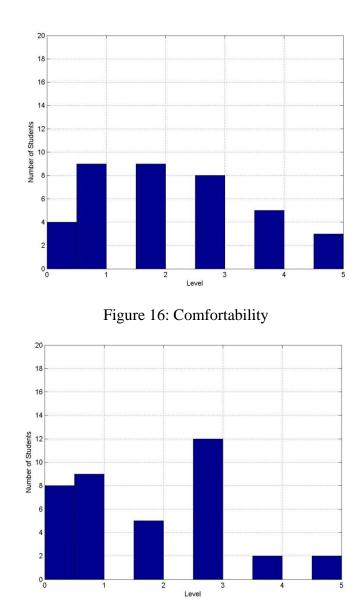


Figure 17: Opening Hours





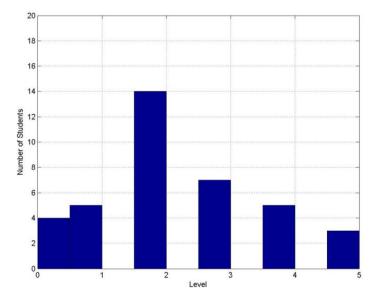


Figure 18: Helpfulness of catering staff

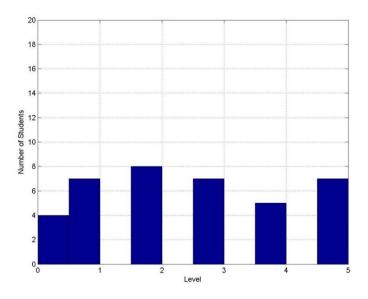
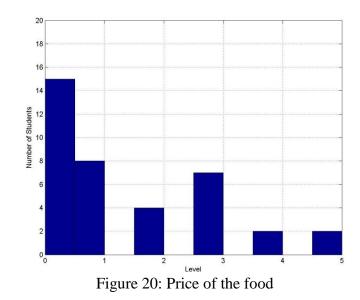


Figure 19: Quality of the Food







3- Computer Labs

10 questions have been used in this category. As in the library service, the first question is used to measure the usage frequency of the labs. Figure 21 shows the result of this question. We can observe from the figure that 16% of the students do not use computer labs at all. However, 21% of the students utilize it more than 4 times per week. The remaining questions in this category have been made by eliminating the answers of 9 students since they do not use the labs at all.

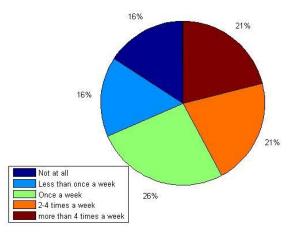


Figure 21: Computer Labs Usage

The remaining 9 questions utilized in the section are:

- The number of workstations
- The operation of workstations (the number of workstations operating effectively)





- The speed of the computer systems
- The range of software available
- The printing services
- The opening hours of the computing labs
- The physical environment of the computing labs
- The helpdesk support
- The internet services

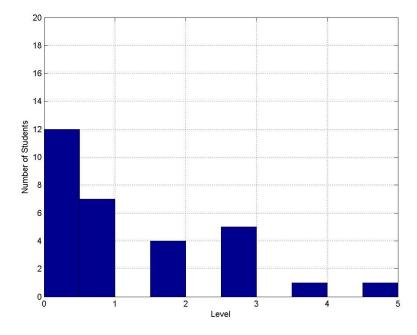
Figures [22-30] show the histogram results in this section. From the figures we can observe in the following table

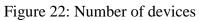
Question Number	Satisfactory Percentage	Student Comments	Recommendations
1	23.3%	More devices should be added in the lab.	New scheduling for the opening hours for fairness usage of
			devices
2	43.3%	Devices are slow. A lot of viruses and user permissions not satisfied	The permissions of computers need to be enhanced
3	33.33%	Devices are slow	Different OS and antiviruses should be installed
4	60%	-	-
5	50%	-	More printer should be added in the labs or in the bookshops
6	43.33%	More time is required	New scheduling for the opening hours for fairness usage of devices
7	43.33%	They are hot in summer	
8	60	-	-
9	43.33	Many sites are closed, such as, Youtube and Facebook	Enhancing the policy of computer center's firewalls

Table 1: Results of Computer Labs









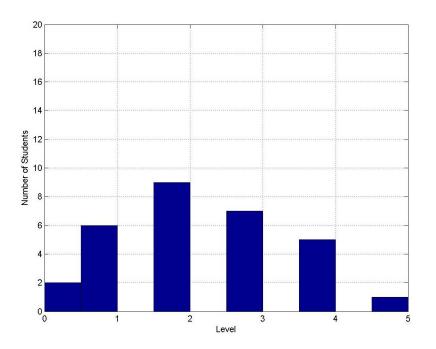


Figure 23: The operation of workstations





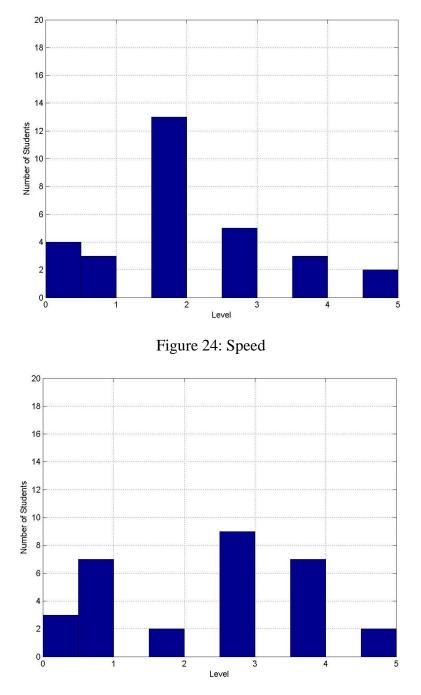
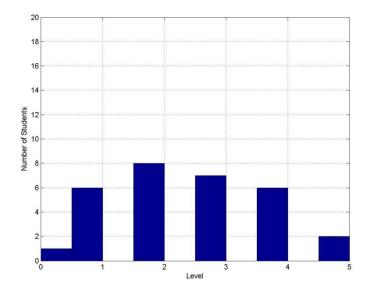
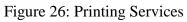


Figure 25: Software









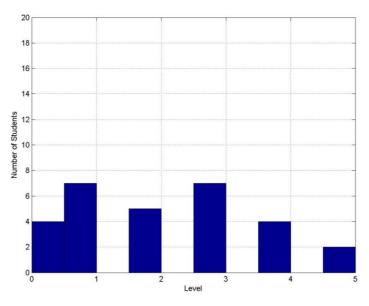
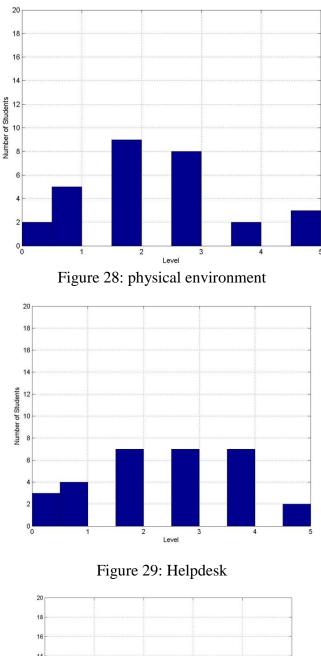


Figure 27: Opening Hours







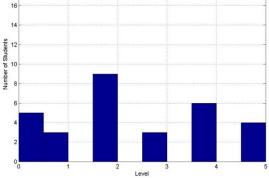


Figure 30: Internet Connection



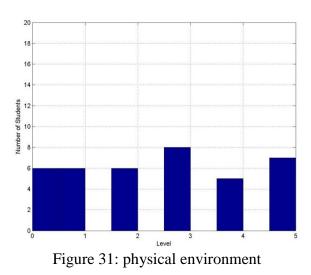


4- University Support Services

9 questions have been used to assist different services in the university, such as, bathrooms, transportations, teaching rooms and security. The following subsections show these services

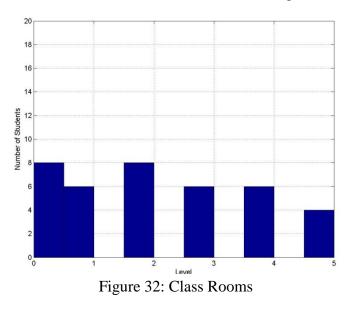
4.1 The physical environment of the University

Figure 31shows the histogram of results. We can observe that the satisfactory level is 60%. Some of the students did not understand the meaning of this question. However, if all students understand the meaning of this question, the percentage will be higher.



4.2 The comfort of the teaching rooms

Figure 32 shows the histogram of results. We can observe that the satisfactory level is 52%. The reason behind this percentage is the hot weather in summer. However, this issue has been solved by installing new 3 fans in each class room in the building







4.3 The arrangements for your physical safety and security within the University

Figure 33 shows the safety satisfactory level of students. We can observe that more than 62% of the students are satisfied.

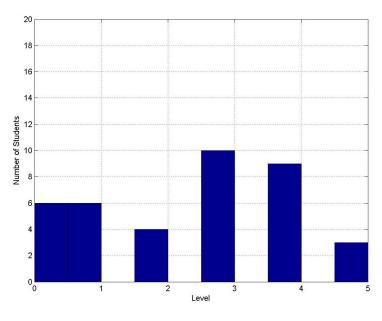


Figure 33: Safety

4.4 The maintenance and cleanliness of WC and washroom facilities

Figure 34 shows the histogram of results. We can observe that the satisfactory level is 60%.

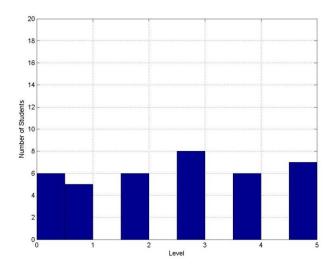


Figure 34: Bathrooms





4.5 Public transport links

Figure 35 shows the histogram of transportation satisfactory level of the students. We can observe that the satisfactory level is less than 40%. This service can be enhanced with new class schedules and adding more buses.

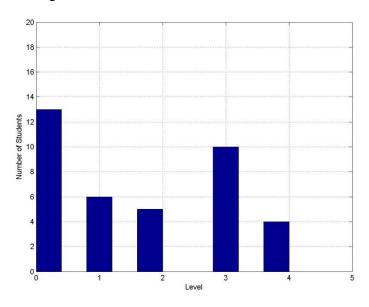
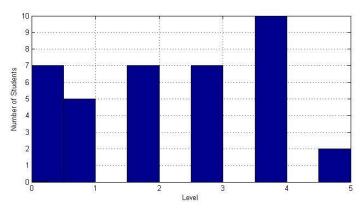


Figure 35: Transportation



4.6 The availability of Students Car Parks

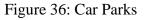
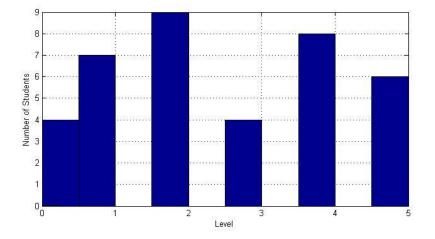


Figure 36 shows that 55% of the students are satisfied with the car parking in the university. The reason behind this is that parking is a first arrive service. If you are late you will find no place.







4.7 The availability of careers advice and services



4.8 The adequacy and fairness of the grant and scholarship system at ZUJ

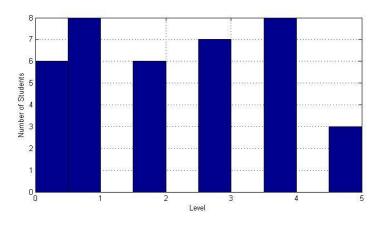


Figure 38: Scholarships and grants





4.9 The extent to which ZUJ introduced E-learning courses and methods for its students?

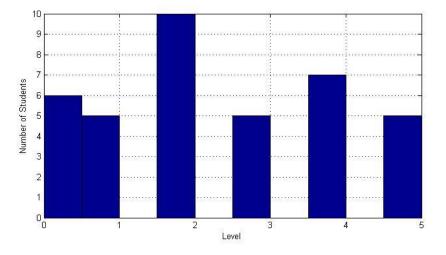


Figure 39: E-Learning Service

Finally in this category is the E-learning service. 44% of the students satisfied only. The reason is that E-learning service started this semester only and only few students utilized it. The number of courses in the E-learning service will increase with the time.

5- Admission and Registration Services

This is one of the most important services in the university. We assisted the opinions of our students in this service. 5 questions have been surveyed to assist the quality of information and the simplicity of the registration procedure. These questions are as follows:

- Which information sources encouraged you to apply to study at the University
- The information you received from the University prior to submitting your application?
- The procedures for your registration with the University
- The provision of information during your induction week
- The usefulness of information provided during your induction week
- The general arrangements for induction and welcome

Figures [40-45] shows the histograms of the harvested results. An interesting result is how the students heard about this university. 27% of the students utilized the website of the university. This shows that the information that provided on the website should be accurate and fulfill all the needs.





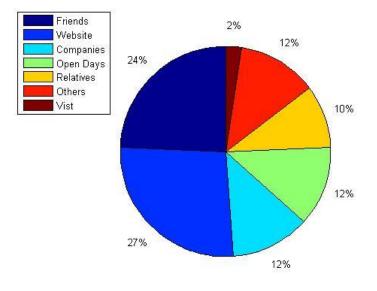
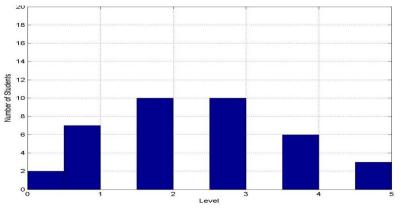
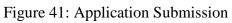


Figure 40: Information of ZUJ





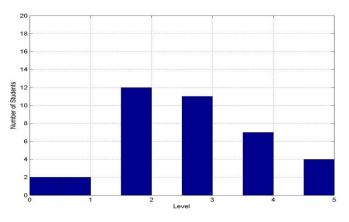
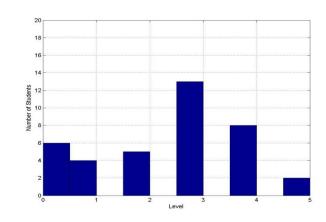
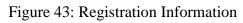


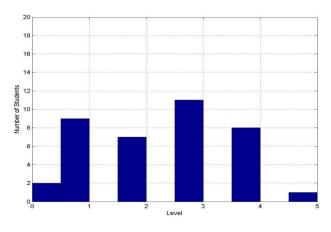
Figure 42: Registration Procedure

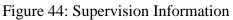












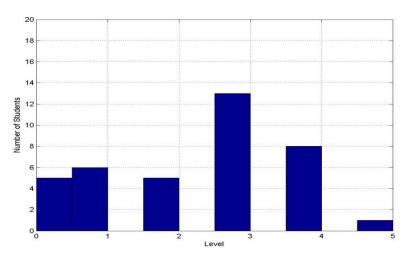


Figure 45: Arrangements for Induction and Welcome





6- Medical Center

Two questions have been used in this section. These questions are as follows

- If you have used the university medical center services, how satisfied were you with the support you received from them
- If you have a physical disability, a medical condition and/ or a learning difficulty, how satisfied are you with the help and support you have received from the University

Figure 46 and 47 shows the histograms of these questions.

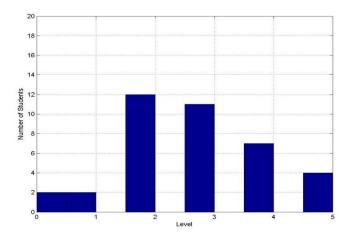


Figure 46: Medical Center

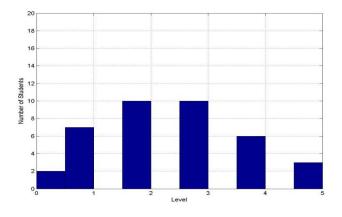


Figure 47: Disabilities

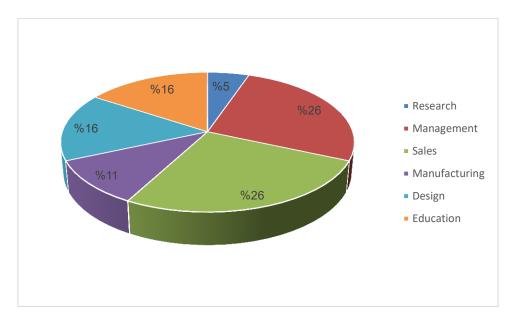




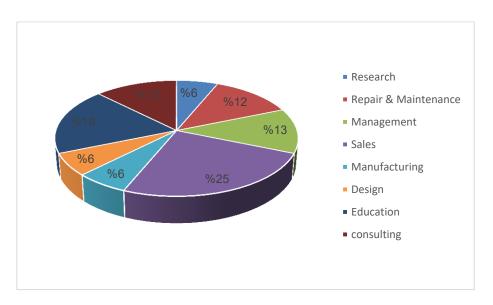
Employer Survey

According to the information that have been supplied from the academic department of the faculty of Engineering for the academic year 2016/2017, And according to the survey that have been done to the employer of the graduate of the faculty, the following are the questions and the results:

1- Please indicate your primary company functions:



2- In which of the following areas do you employ ZUJ Graduates:







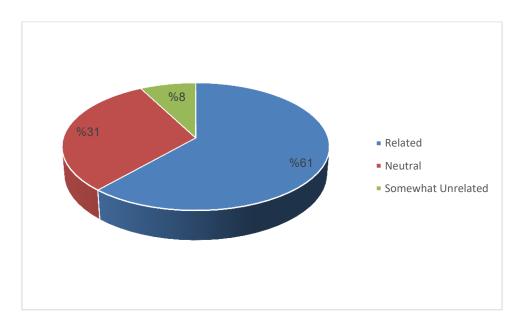
3- How many ZUJ Engineering graduates are employed by your company

The average was 1.25

4- Does your company regularly recruit ZUJ graduates, if no reasons?
10% answered with Yes
90% answered with No

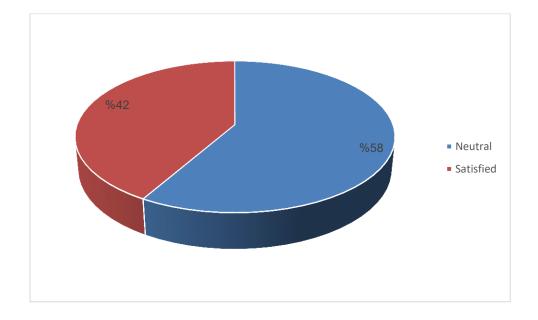
Reasons for No

- There is no agreement between the university and the company to recruit the graduates or giving them a priority in recruiting.
- The company tend to test all the competent for any vacancy in a fair way, so ZUJ graduate has an equal opportunity with other universities graduate.
- The company prefers to recruit someone with experience.
- 5- In your estimate, how well does the ZUJ graduate's education relate to areas of responsibility in which they work in your organization?



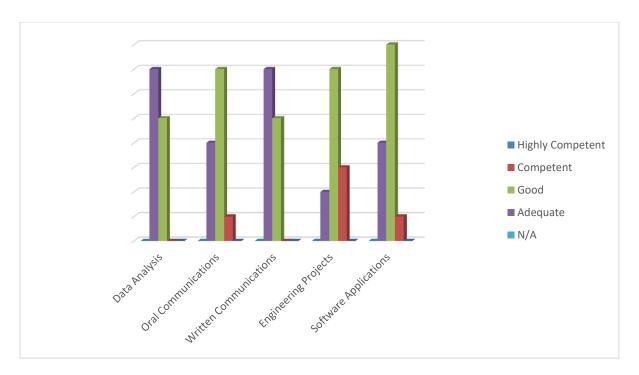






6- Overall, how well satisfied are you with the performance of the ZUJ graduates?

7- Using a Scale of "5" Highly Competent to "1" Not Competent, Please select the rating that you feel best describes the competence of ZUJ graduates in these curricular areas applicable to your company. (Use NA if the topic is Not Applicable to your company)







8- Rate your level of preparation as a result of your engineering education at ZUJ plus your work experience to date: to successfully identify, analyze, formulate, and sole engineering problems associated with your professional position, both independently and in a team environment

