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Faculty of Graduate Studies

Engineering Careers Diploma Reality in the West Bank Technical Colleges

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Dedication

بسم الله الرحمن الرحيم

(شَهِدَ اللَّهُ أَنَّهُ لَا إِلَٰهَ إِلَّا هُوَ وَالْمَلَائِكَةُ وَأُولُو الْعِلْمِ قَائِمًا بِالْقِسْطِ ۚ لَا إِلَٰهَ إِلَّا هُوَ الْعَزِيزُ الْحَكِيمُ)

(سورة آل عمران ، آية ١٨)

I dedicate this humble work in particular to:

- My father who helps, supports, encourage me to complete this work by his words "my son you can do it".
- My mother who always prays and asked our Gad to help and bless me to complete my work successfully.
- My brother and my sisters who help me to complete my work successfully.
- Palestinian martyrs who sacrificed their blood for the land of Palestine.
- Palestinian captives who sacrificed their freedom to free our land.
- Everyone who helped, supported me and to human conscience.

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Finally, I thank all of Engineering Management program staff and colleagues.

Thank you all

الإقرار

أنا الموقع أدناه مقدم الرسالة التي تحمل العنوان:

Engineering Careers Diploma Reality in the West Bank Technical Colleges

أقر بأن ما اشتملت عليه هذه الرسالة إنما هي نتاج جهدي الخاص، باستثناء ما تمت الإشارة إليه حيثما ورد، وإن هذه الرسالة ككل، أو أي جزء منها لم يقدم من قبل لنيل درجة أو لقب علمي أو بحثي لدى أية مؤسسة تعليمية أو بحثية أخرى.

Declaration

The work provided in this thesis, unless otherwise referenced, is the researcher's own work, and has not been submitted elsewhere for any other degree or qualification.

الإسم: **Student's name:**

التوقيع: **Signature:**

التاريخ: **Date:**

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Abbreviations

TVET	Technical and Vocational Education and Training
MOHE	Ministry of Higher Education
SPSS	Statistical Package For Social Sciences
UNEVOC	United Nations Educational for Technical and Vocational Education and Training Center
TVE	Technical and Vocational Education
OE	Occupational Education
PVE	Professional and Vocational Education
CTE	Career and Technical Education
WE	Workforce Education
VET	Vocational Education and Training
IMF	The International Monetary Fund
ILO	International Labor Organization
SME	Small and Medium Enterprises
BA	Bacalorous
N	Number
ME	Means
D	Descriptive
H	High
V.H	Very High
M	Mid
L	Low
PLC	Programmable Logic Controller
HVAC	Heating, Ventilating, and Air Conditioning
PBX	Private Branch Exchange
GSM	Global System for Mobile (communications)
LSD	Least Significant Difference

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Abstract

The aim of this study is to identify the real situation of engineering career diploma in the technical colleges of the West Bank, through identifying the issues facing all elements of education processes; teacher, student, institution and syllabus. Also to recognize the output of technical colleges through determining the required skills for graduated students, and evaluate the output from teachers, students and employers perspectives.

This study covers five specializations; automotive, refrigeration, production and machinery, communication, and industrial automation, in three colleges belonging to Ministry of Higher Education (MOHE) which are: Hisham Hijjawi College of Technology, Palestine Technical University (Khadoury), and College of Applied Professions.

The research utilized both qualitative and quantitative research methodology. Qualitative data were collected via interviews with some teachers, students, and employers from the three technical colleges mentioned above. In addition, the quantitative data were gathered from the population which include all graduated student in 2013(n = 151), all teachers (n = 40) in the three technical colleges, and a random sample of

fifty five companies works in a same specialties (n=55). The data collected via three different surveys developed to answer the research questions. We retrieved thirty nine (n=39) questionnaires from teachers, One hundred and forty five (n=145) questionnaires from students, and fifty five (n=55) from employers with a response rate of ninety seven percent (97%).

Based on the research findings, some issues facing the education process appear in engineering career diploma, such as; the lack of modern laboratory equipment, the technical colleges do not geographically spread out enough, and technical colleges do not following the students after graduation. Also the results show that the employers were not enough satisfied with student skills and competences.

Chapter One

Introduction

This chapter aims to introduce an overview of the research title and background. Moreover, this chapter clearly shows the problem statement, research questions, research objectives, and the structure of the thesis.

1.1 Background.

Investment in human capital is a key element of the development process, which increases workforce, productivity innovation, workforce flexibility, and workforce planning and metrics. The focus on education as a capital good related to concept of human capital to improve economic and production activate, healthy growth of the social and economic aspects absolutely depends on the quality and the effective development of the human resources. (Olaniyan and Okemakinde, 2008).

Anderson (2009) argues that philosophy of productive has a strong relation with industry revolution in Europe and North America, also argues that the technical and vocational education and training (TVET) institutions have a fundamentally instrumental function in providing the human capital which keeps up with market and industry. The important roles of the TVET are:

- Providing the community by the skillful workforce and qualified technicians.
- Providing the workforce with knowledge and skills which fit the demand of the market.

- Increasing productivity of the workforce by raising the performance and qualifications.
- Making the individuals aware of demand of the labor market and to be ready to face the challenges (MOHE, 1999).

This study is targeting one type of TVET system which is the "technical education" that leads to preparation of technicians with high ability to use modern techniques, usually in vocational activities.

Technical education is considered an important field of education in Palestine which is supervised by MOHE. The technical education is a basic item of the social and economic development by providing special practical practices in a high level of skillful and qualification techniques (MOHE, 1999).

MOHE directs more than twenty technical colleges in West Bank including fine arts, economical, medical, and engineering programs. This study highlights the engineering careers programs in the following college in West Bank.

- **Hisham Hijjawi College of Technology:** It is *a private college* located in Nablus city started in October 2001 and has six engineering careers programs which are Automecatronics, Production and Machine, Industry Automation, Communication, Air Conditioning and Electrical Installation **(**Hisham Hijjawi College of Technology, 2012**).**

- **Palestine Technical University (Khadoury):** It is a *state college* located in Tulkarm city and has seven educational programs which are Industrial Automation, Communication Engineering Technology, Architectural Engineering, Fashion Design and Dress Making, Air Conditioning and Refrigeration Engineering, Paint Technology, and Protected Agriculture (Palestine Technical University, 2012).
- **College of Applied Professions:** It is *a national college*, located in Hebron city and started in 1978 by eleven engineering careers programs which are Industrial Automation, Communication Engineering Technology, Architectural Engineering, Internal Design, Automobile, Production and Machine, Land Survey, Civil Engineering, Electronic, Air Conditioning and Refrigeration Engineering and Marble and Stone Industry (College of Applied Professions, 2012).

1.2 Problem Statement.

This study aims to identifying the issues facing the engineering careers diploma in the West Bank technical colleges to develop the different specialties to become more suitable with market needs, and to study the education level in technical colleges from the perspective of teachers and students to develop methods and techniques that support the achievement of education goals. To achieve research objectives the researcher compare required skills from the perspective of teachers, students and employers to identify how much the technical colleges can provide the market with the significant skills.

1.3 Significance of the Study.

The study is intended to benefit all involved stakeholders (student, employers, education process, and management staff) in the following manner:

- Student: when the engineering careers diploma improves, the graduates of these programs become more knowledgeable and skillful.
- Employers: when the engineering careers diploma improves, the technical college offer more qualified employees to the market, so the market satisfaction is achieved.
- Education process: to achieve high satisfaction for the market, the process of education must be improved by training needs, college staff, interacting with market needs.
- Management staff, strategists, and decision makers will have a wealth of facts which help them in doing a better job.

1.4 Research Questions and Hypothesis.

This study will respond to its major question which is: what is the real situation of engineering careers diploma in West Bank technical colleges.

The minor questions of this study are:

1. What are the issues facing the engineering careers diploma in the West Bank technical colleges?
2. Are students acquiring the desired skills from each specialization?
3. Are the acquired skills meeting the market needs?

This study is performed with the following hypotheses:

1. There is no significant importance difference between the issues facing educational process referred to teacher education degree.
2. There is no significant importance difference between the issues facing educational process referred to teacher specializations.
3. There is no significant importance difference between the issues facing educational process referred to student specializations.
4. There is no significant importance difference between the issues facing educational process referred to teacher experiences.
5. There is no significant importance difference between the issues facing educational process referred to teacher institution.
6. There is no significant importance difference between the issues facing educational process referred to teacher job title.
7. There is no significant importance difference between the issues facing educational process referred to student institution.
8. There is no significant importance difference between required skills for each specialization referred to teachers, students, and employers.

1.5 Structure of the Thesis.

The thesis is organized into five chapters as the following:

Chapter One : Introduction

Chapter Two: Literature Review

Chapter Three: Methodology

Chapter Four: Results

Chapter Five: Conclusions and Recommendations

Chapter Two
Literature Review

This chapter discusses the research conceptual framework and the previous literature concerning Technical Education. This chapter is divided into two parts; the first one discusses Technical Education terminologies, while the second part of this chapter discusses the scientific studies related to Technical Education in Palestine.

2.1 Technical Education Terminologies.

2.1.1 Technical Education Definition.

Technical education is one type of the Technical and Vocational Education and Training (TVET) system, so According the United Nations Educational for Technical and Vocational Education (UNEVOC), TVET is concerned with the acquisition of knowledge and skills for the World of Work, and refers to several terms which are used commonly in specific geographic areas, namely: Vocational Education, Technical Education, Technical-Vocational Education (TVE), Occupational Education (OE), Vocational Education and Training (VET), Professional and Vocational Education (PVE), Career and Technical Education (CTE), Workforce Education(WE).

The European Training Foundation explains some of terminology definition related to TVET which are: (Glossary of Labor Market Terms and Standard and Curriculum Development Terms (1997))

- Technical education "is a sort of education which enables students to acquire and practice skills required by certain occupations including employing and applying science and technology".
- Vocational education "is a kind of education which has the objective of preparing professional workers leading to a vocational secondary school diploma. After graduating, the student could continue his/her education in the technical colleges or in the academic universities".
- Vocational education and training (VET): "education and training which teaches marketable skills".
- Technical and Vocational Education and Training (TVET) System "is a system of technical and vocational training and education that incorporates all institutions that produce, preserve and develop the system, its programs and their relationship".
- Vocational Training "is training concerned with a specified vocation".

Several organizations have different definition for the "technical education" like:

- Palestinian Ministry of Education and Higher Education; which defined the technical education as "the form of education which involves the educational preparation of students, orienting of students behavior and the acquisition of skills and knowledge that would enable them to carry on their responsibilities in operations, production, industry and services".

- Arab Federation for Technical Education; which defined the technical education as the education which aims to prepare and develop technical workers located between specializations (university) and skilled workers in the pyramid of the workforce, and the duration of the study at least two years after high school.

On the other hand, the technical education was classified on technician level (level four) according to Arab Standard Classification of Occupation, whereas the Arab Standard Classification of Occupation classified the technical and vocational training and education system to five levels which are:

- Specialist level (level 5): this level requires high ability to knowledge, technical, and managerial skills to apply the scientific knowledge in jobs field, and this level required preparation and qualification from university.
- Technician level (level 4): this level is located between the specialist and vocational worker levels, and includes the business that required scientific and technical skills to enable them to understand and evaluate the performance, in additional follow up and implementation the business. On the other hand this level required preparation and qualification by community colleges or technical colleges.
- Vocational worker level (level 3): this level includes the business that required scientific skills and knowledge which covered all

sides of the profession. On the other hand this level required qualification from vocational rehabilitation center after secondary education.

- Skilled worker level (level 2): this level included the business that required scientific skills and technical information but don't cover all sides of the profession, on the other hand this level required qualification that faces the secondary education.
- Limited skill worker level (level 1): this level included the business that required scientific skills and technical information that covered the narrow part of the profession. On the other hand these skills can be acquired from short training or from experience.

Also, the technical education is classified as formal education in relation to place of education, whereas the technical and vocational training and education system is classified in relation to place of education into three types which are (Fien, J., Scott, 1999. Altinyelken, 2004):

- Formal education: education that takes place within systems operated by secondary schools, colleges and universities after primary school.
- Non-formal education: education that takes place outside the formal training system, this type of education is given by the businesses, public-sector organizations, government agencies,

not-for-profit organizations and trades union to raise the skills level for the workers.

- Informal education: education that takes place outside organized settings. It may involve, for example, the acquisition of attitudes, beliefs and expectations from the mass media, or the development of tacit knowledge through learning-by doing, whether individually or in a social workplace context.

2.1.2 Importance of Technical Education.

In the 1960s and 1970s, Sen and Edwards began to consider development from a human needs perspective, as it is dependent on the needs of individuals: their freedom, equity, participation and empowerment to fulfill their potential capabilities at the priorities, but does not focus on economic growth as the primary indicator of development. So, when the countries focus on the human capability developments worthwhile and freer lives are realized (Thomas & Potter, 1992 and Sen, 1999).

Human development is very important for rising of national incomes, it also create an appropriate environment to innovation. So, people can develop their full potential and lead productive, creative lives in accordance with their needs and interests. This leads to decent life for people as well as to improve the economic growth.

Education is one form of investment in work forces that can contribute to the economic development and raise the incomes of the poor just as much as investment in physical capital, such as transport, communications and energy (George Psacharopoulos and Maureen Woodhall, 1985).

Hallak (1990) argues that education is very important in economic growth, development of individuals and societies. More specifically education can contribute to:

- Individual creativity, improved participation in the economic, social and cultural roles in society.
- Improved understanding of an individual and their respect for others, thus promoting social cohesion and material understanding.
- Improvement in health.
- Improved chances of economic development.
- Improved technological development.
- Increasing people's awareness of their environments.

Bennell (1996) observed that achieving significant progress in national development at all countries depends on the education level; especially developing countries that must be made balanced development through all of the educational sectors. So to achieve national development the country needs to make balanced distribution of manpower for all professions, therefore the country should not depend only at general

education, it must offer a variety of courses for disciplines such as technical, vocational, professional, agricultural, and so on (Alam, 2003, 2007).

Investing in education including technical and vocational education (TVE) within a work forces framework, highly contributes to different kinds of skills that can made to economic growth. For this reason several financial institutions such as the World Bank, the International Monetary Fund (IMF), and the International Labor Organization (ILO) are highly interested in technical and vocational education investment (World Bank, 2011).

The role of technical and vocational education (TVE) is to provide people having skills required to improve productivity, raise income levels and improve access to employment opportunities. In addition the technical education is varying in three sides which are; the globalization process, technological change, and increased competition. Hence, it is required with high skills and productivity among workers in both modern sector firms and small enterprises (Bennell, 1999).

The work forces concept shows that education and training have an important role in raising the productivity of workers, and increasing their lifetime earning capacity (Fagerlind, Shah, 1989).

According to **Alam (2007),** governments perceive increased demands for skills when the labor supply shows rapid growth or when jobs are available significantly. He argues that government is interested in TVE to:

- Help unemployed people to get jobs.
- Reduce the burden on general education.
- Attack the foreign investment.
- Earn balance between rich and poor.

Colin (1999) says the TVE program is very important for a developing country because it develops the human resource which will contribute to national development the in labor markets. The TVE program must be updated to meet the challenges of labor market in the twenty first century.

According **World Bank policy paper on TVE (1991)**, there are some important factors that must be considered to get maximum benefit from TVE program they are; a variety of fields TVE courses must meet the global needs, Up-dating the TVE courses, and developed TVE courses based on demand and cost effectiveness.

2.1.3 TVET and Sustainable Development.

According **UNESCO-UNEVOC (2004)**, sustainable development refers to "dynamic balance in the relationships between social, economic

and natural systems, a balance that seeks to promote equity between the present and the future, and equity between countries, races, social classes and genders". So it combines three principal aspects which are:

1. Economic: it refers to produced goods and service on a continuing basis, with balanced between sectors such as agricultural and industrial production.
2. Environmental: it refers to maintain a stable resource base, exploitation of renewable resource systems, also maintenance of ecosystem functions such as biodiversity and atmospheric stability.
3. Social: socially sustainable means achieve distributional equity, balanced in social services as health and education, and political accountability and participation to promote active citizenship.

World Summit on Sustainable Development (2002) underlined the needs of all countries to meet “capacity needs for training, technical know-how and strengthening national institutions in economically viable, socially acceptable and environmentally sound”. On the other hand UNESCO and ILO (2002) show the role of TVET in sustainable development in three sides which are:

- Contributing to the achievement of the societal goals of greater democratization and social, cultural and economic development, so the TVET must be developing the potential of all individuals, both

men and women, for active participation in the establishment and implementation of these goals.

- Understanding the scientific and technological aspects accommodates the people of environmental aspect.
- Empower people to contribute to environmentally sound sustainable development through their occupations and other areas of their lives.

2.2 Technical Education in Palestine.

2.2.1 Technical Education History in Palestine.

Palestinian technical and vocational training and education system started in 1856 when the Ottoman government allowed the communities to establish the schools which see appropriate for it. In 1980 the first school was established which focused on professional and vocational training, whereas established a number of workshops for training such as tailoring, carpentry, blacksmithing, bookbinding, printing, shoe industry, and turnings (Atwan, 2001).

Before that in 1922, Islamic orphanage established industrial school in Jerusalem to help the orphans having a decent life by acquiring a specific career in this school. Then Khadoury agricultural school was set up in 1930, under the supervision of Palestinian Department of Agriculture, and the study duration in this school was two years after secondary school. After that the first training center was established in Jerusalem under the

supervision of Lutheran Federation in 1948 (Abu-Lughod and Hammad, 1997).

The idea of technical and vocational training and education Evolved in 1950s, whereas international relief agency started to set up vocational training center in Qalandiya in 1952, then it set up vocational training center in Gaza in 1953. After that, An-Najah National Community College was established as the first private college in Palestine in 1965, and then the University graduates union in Hebron set up the first Palestinian institution for technical education in 1978, after that it expanded the idea of technical education which led to the establishment of several community colleges in Palestine (Abu Jarad, 1994).

2.2.2 Educational System in Palestinian Technical Colleges.

The technical colleges in Palestine offer eight programs; Engineering Professions, Computer and Information Technology, Applied Arts, Medical Professions, Business Administration and Finance, Hospitality, Academic, and Social programs. Every program consists of many technical disciplines that will help in the growth of the community.

Students in the technical colleges study about (66-76) credit hours distributed on three types of syllabi which are (Hammad and Hamdan, 2003):

- General cultural courses: including fifteen credit hours distributed on five courses.
- Assistant science courses: aiming to creating a professional culture Common to all students in the same program.
- Technical courses: These courses are related directly to the subject of specialization.

2.2.3 Previous Studies on Technical and Vocational Education in Palestine.

Maswada and alkek study (1990): In this study the researchers determined the reality of technical and professional education, status of the technical education and its growing in occupied territories. On the other hand, the researchers identified the characteristic of the technical colleges and its employees, students and the amount of available equipment.

The researchers presented a set of recommendations that help the development of technical education and serve this search such as allow the registration for technical education students by universities to complete their education, and linked the technical colleges with community to increase interaction between them, to play its role as a social and cultural institution. In addition they suggested open new disciplines to meet the employers need, and developed the syllabus to link with employers need, provide the laboratories and workshops with the needed equipment to fit

the practical applications, and raise the efficiency of teachers through training and scholarships.

Nairab and fareed study (1998): This study aimed to identify the reality of technical education curriculum in the Gaza Strip from teacher perspective, and focused on discover the reality of technical education curriculum in the Gaza Strip as teachers recognized and if the reality of the technical education curriculum difference according specific variables. The main points highlighted by this study focused on developed comprehensive plan for the development of technical education and curricula, attention of disciplines to suit the needs of the community, raise the efficiency of teachers through training and scholarships, and exchange of experiences between specialists.

In addition, there is much other research interested on defining the problems facing vocational education and search for solutions. For instance, **Abu Assbe (2005)** tried to determine the problems facing vocational education in vocational secondary school in Palestine from teachers and students perspective, the researcher focused at five field which are; management and organization, the professional growth of teachers, capabilities and equipment, curriculum and educational plans and the society's perception of vocational education field. This study revealed that the percentage of problems facing vocational education is 72% from teacher perspective and 58% percentage from student perspective.

In order to find solutions for the problems facing the technical education, **Abu Assbe (2005)** proposed the development of vocational education by national planning which adopt developmental policies, formulate the professional standards reflect the requirements of the market needs. In addition, identify the required skills for market through league survey, strengthen the partnership with private employers to train the students, and prepare the programs to raise awareness and improve the professional society's perception in relation with vocational education.

Sadia, Mansour (2005) study: This study aimed to assessment the training process of employees in technical colleges in the Gaza governorates from the perspective of trainees and identified the training needs for the employee in technical colleges. This study revealed that there are weaknesses on training need assessment in relation to the job descriptive, the technical college administrators do not concern enough about training assessment plan, and the technical college administrators do not motivate the employee to participate with training process. This study explained the importance of establish strict commitment to assessing the efficiency of training and using difference assessment methods, link training with salary scales and grades, adopt training as a whole system in technical colleges, and support training process financially and spiritually as a major instrument of development and change.

Furthermore, the attention of technical education did not occur only in research, but there was different programs aimed to support technical

education and development in Palestine, for example USAID/ West Bank and Gaza's Technical and Vocational Education and Training Program, this program developed in 2005 to make an importance contribution to workforce development by strengthening and diversifying the skills of young Palestinians through developing the TVET sector. So the main goal of this program is to improve the quality and relevance of education for 12 private TVET institutions in the West Bank with multi fields such as carpentry, auto mechanics, information technology, hotel management, and heating, ventilation, and air conditioning.

Alramahi and Aldaifi (2006) discussed the reality of female TVET in Palestine by focusing on the supply and demand of institutions and specializations for women, this study explained that the programs of TVET are open for women, and discussed the main problems impeding female enrolment in TVET programs and supply and demand in the local labor market for female. On the other hand, this study defines many issues related to technical education such as: increased stakeholder interesting for female programs. In addition, illustrate the important of improving the output skills for graduated student and developing awareness programs to change society's perception.

According to **Shuwaikh Atef (2007)** the reality of strategic planning in technical education institutions in the Gaza governorates needs to apply strategic planning through identify the natural and important of technical education. The researcher used the descriptive and analytical method, and

he designed a 60-item questionnaire distributed at all college deans, deputy deans, and heads of department for technical colleges in the Gaza governorates. **Shuwaikh Atef (2007)** defined the relationship between strategic planning and the administration's commitment is positive by 77.3% from respondents, about 71% of respondents say there is relationship between strategic planning and the spread of its culture throughout the college, about 70% of respondents say there is relationship between strategic planning and the organizational structure in technical colleges, and about 66% of respondents say there is relationship between strategic planning and the availability of finance resources.

Based on the above study, strategic planning considered as administrative tool using to help institutions cope with internal and external environments. So, the colleges must be committed with all of term in strategy plan by provision of financial resources to the strategic planning process, focused on solving the problems which are hindering the strategic plan, and implement the periodic evaluation for current strategic plan.

Alajez, fuad, (2008) study: the aimed of this research is to identify the problems facing the teachers in vocational and technical learning in Gaza governorates, and how to solve these problems. The population of this study is 120 teachers distributed on Gaza Training College and Palestine Technical College. The researcher showed that the students do not participate on the educational programs; also there are no encouragement programs for students. In addition, most of students are

weakness in science materials and English language, and most problems related to teachers are the absence of reinforcement, encouragement, and Inadequate training courses which developed the teacher skills.

In order to cope with the issues facing the technical education reported in the above study, the technical colleges must encourage the vocational and technical learning culture in the Palestinian society, and motivate the teacher and developed their skills by training courses or the other methods.

Khalifa and Abdul Aziz (2010) studied the policies to improve capacity of technical education and vocational training to meet SME's needs, they focused in fighting poverty through focusing on developing strategies which would improve the conditions for small and medium enterprises in the occupied Palestinian territory, they also explained the ability of technical and vocational education to meet the training needs for small and medium enterprises in the occupied Palestinian territory.

Furthermore, implement a national strategy for TVET to establish a comprehensive legal and institutional framework increase the awareness of the importance of technical education and promote the vocational training sector to fulfill its needs. TVET centers must be responding to the temporary training demands of SMEs by developing curriculums and encouraging mergers among TVET institutions, and strengthen the level of

coordination between the supervising vocational education and training, and the training institution.

In addition, **Randa Hilal (2011)** discussed the qualitative and quantitative training needs assessment for qualified workforce within the basic work level, this study is comprehensive study related to vocational and technical education focused on: attitudes of school students and parents towards Palestinian (VET), the demand and interest of male and female students for professions/ specializations available in the various institutions, the features of VET institutions and obstacles facing training in various specializations, and the status of VET male and female graduates, quantitative and qualitative needs of the labor market for qualified workforce.

On the other hand, this study encouraged the students to join the vocational and technical education, and raised the capacity of (VET) institutions. So, the technical colleges must develops the technical and vocational program as appropriate for employers need and develop the equipment and trainers match the new technology in the market, this support the graduated students to access the employers and linkages between VET institutions and the employers.

From all above, it is obvious that researches discussed show the problems, challenges, and assessment the TVET program each one separately, from one perspective without linking the problems to the

outputs of program, and most researches focused on TVET in general. In addition, most of the previous studies related to Gaza strip only, and it is not interested with the reality of engineering programs in the West Bank technical colleges.

Finally, the researcher made this thesis to discover the real situation of engineering program in the West Bank technical colleges form three perspectives; students, teachers, and employers by define the issues facing the education process based on the output of colleges through access to a range of previous studies that reported above to reach and support the development of technical education.

Chapter Three
Methodology

This chapter discusses the study approach which is followed in this research. In this chapter the researcher explores the population and the tool adopted as well as the variables of the study.

3.1 Study Approach.

The researcher used the descriptive and analytical approach in this study, because this study designed to collect the information about the issues related to the education and acquired skills facing the students in the engineering careers diploma and then analyze them to discover the real situation of the technical education colleges.

3.2 Data Collection Tools.

To collect the required data the researcher used two different tools.

3.2.1 Interview.

The researcher made interviews with head of engineering professions department and the technical teachers in the three colleges to identify the required skills for five specialization which are Automotive, Refrigeration, Production and Machinery, Communication and Industry Automation specialization.

3.2.2 Questionnaire.

The researcher designed three types of questionnaires for students, teachers and employers. The questionnaires were designed based on the

interviews made with teachers and trainers from three colleges which are; College of Applied Professions, Palestine Technical University and Hisham Hijjawi College of Technology**.** Also the researcher depends on the related study in the technical and vocational education and training field to design these questionnaires.

The primary questionnaire sent to seven academicians from An-Najah National University, Hisham Hijjawi Technology College, Al-Quds Open University, and Jenin Industry Secondary School for peer-review. They made some comments about structure and added two items, after that all of them agreed about truthfulness.

The final form of students and teachers questionnaire consisted of three parts:

- **Introduction of Questionnaire:** this section includes information about research and the purpose of research, in addition, it requests for all respondents to take the sincerity and honesty when they report their answers.
- **Part One:** this section includes demographic data about teachers and students, so the teachers questionnaires contains the gender, qualification, specialization, years of experience in teaching, job title and institution. But the student questionnaires contain only the gender, specialization and institution.

- **Part Two:** this section contains the problems facing the education process and is divided into four categories whish are; problems related to teachers, syllabus, education institution and students as Table (1) shows.

Table (1): Part two categories of questionnaire:

The issues facing the education process
Issues facing the education process related to teachers
Lecturers are related with market
Lecturers use modern tools in lecture training
Lecturers connect the theoretical aspect with technical aspect
Lecturers are able to give student the needed skills in each course
Lecturers give training in verity ways
Lecturers improve the way of training continuously
Issues facing the education process related to syllabus
There is a text book for each technical course
Students get up a lot of technical skills in each course
Wanted skills connect with the modern technology
Technical education concerns on practical side more than academic side
Updating the syllabus in order to keep up with the market
The course is organized, whereas students can understand the content
The available equipment are enough for the academic demand
Issues facing the education process related to education institution
Technical disciplines cover the market demand
Technical colleges are distributed in geographical way, whereas students can join it easily
The building are suitable for technical training
The technical collages follow its graduated
The technical collages try to solve student's problems through their study
There are modern equipment which faces the modern technology in the market
The available equipment give the student the demand skills
Issues facing the education process related to students
Students do not care about the education
Students do not participate during the lectures and technical experiments
Students care about the marks more than the benefits and skills
The frequently absents of students
Students do not care about the public safety in the workshop
Student do not co-operate or work in team during experiments
Students do not care about the education

- **Part Three:** this section contains the skills required for five specialization which are; Automotive, Refrigeration, Production and Machinery, Communication and Industry Automation specialization. These skills are designed and reviewed from engineering staff of Applied Professions College, Palestine Technical University and Hisham Hijjawi College of Technology, so the numbers of skills for each specialization are shows in the Table (2).

Table (2): Number of skills for each specialization:

Specializations	Number of skills
Automotive	12
Refrigeration	10
Production and Machinery	11
Communication	9
Industry Automation	9

The third type of questionnaire is Company Employer questionnaire which contains introduction and two parts, so the introduction of questionnaire like the teachers questionnaire includes information about research and purpose of research. In addition it requests for all respondents to take the sincerity and honesty when they report their answers. The first part includes the skills required for each specialization like part three in

teacher's questionnaire, and the final part contains a question, if the skills required for each specialization meets the needs of the market or not.

3.3 Population and Sample of the Study.

This research covered all technical colleges in West Bank that provide engineering careers diploma programs which follow to MOHE, and five from ten engineering careers diploma programs which are the highest number of students and common in these three colleges. The sample will represent three technical colleges and five engineering careers diploma programs as mentioned in the Table (3).

Table (3): Number of graduated students and teacher staff (2013):

Institution	Hisham Hijjawi colleges		Palestine Technical University		College of Applied Professions	
Specializations	**Teachers**	**Students**	**Teachers**	**Students**	**Teachers**	**Students**
Automotive	4	26	-	-	3	9
Refrigeration	4	18	3	13	4	13
Production and Machinery	3	8	-	-	3	3
Communication	3	18	4	20	-	-
Industrial Automation	3	5	2	13	3	5
Total	18	75	9	46	13	30

Total number of the population is equal 151 graduates in 2013 and 40 teachers as Table (3) shows.

On the other hand, this study covered fifty five employers in the West Bank market related to these specializations. The samples of employers selected in this research depend on the college training centers

through determined the companies where the expected graduated students trained during the training period.

Table (4): Number of employers for each specialization:

Specializations	**Number of Employers**
Automotive	12
Refrigeration	11
Production and Machinery	10
Communication	10
Industrial Automation	12
Total	**55**

In addition, Table (5) summarizes the response rate for each of the students, teachers and employers.

Table (5): Collection of the data and response rate:

	No. of Surveys	Valid Surveys	Response Rate
Students	151	145	96%
Teachers	40	39	97.5%
Employers	55	55	100%
Total	246	239	97.15%

This study contains seven variables which are:

1. Group (teachers, students, and company employer).
2. Gender (male or female) for teachers and students.
3. Qualification (diploma, BA, and graduate studies) for teachers only.
4. Specialist for teachers, students, and company employer.
5. Teaching experience (years).
6. Job title (teacher or laboratory technician).
7. Institution.

The following tables shows the distribution of the data depend on the seven variable mentioned above.

- ❖ Group (teachers, students, and company employer) variable:

Table (6): Group distribution:

Group	Frequency	Percent
Teacher	39	16.3
Student	145	60.7
Company Employer	55	23.0
Total	239	100.0

- Gender (male or female) for teachers and students variable:

Table (7): Gender distribution among teachers and student:

Gender	Frequency	Percent
Male	169	91.8
Female	15	8.2
Total	184	100.0

- Qualification (diploma, BA, and graduate studies) for teachers only variable:

Table (8): Qualification among teachers:

Qualification	Frequency	Percent
Diploma	18	46.2
BA	16	41.0
Graduate Studies	5	12.8
Total	39	100.0

- Specialist for Teachers, Students, and Company Employer variable:

Table (9): Specializations frequency among teachers, students and employers:

Specializations	Frequency	Percent
Automotive	52	21.8
Industrial Automation	45	18.8
Air conditioning and Refrigeration	64	26.8
Production and Machinery	25	10.5
Communications	53	22.2
Total	239	100.0

- Teaching experience (years) variable:

Table (10): Teaching experience among teachers:

Teaching experience	Frequency	Percent
Less than two	5	12.8
2-5	6	15.4
6-10	7	17.9
more than 10	21	53.8
Total	39	100.0

- Job title (teacher or laboratory technician) variable:

Table (11): Job title among teachers:

Job Title	Frequency	Valid Percent
Teacher	27	69.2
Laboratory Technician	12	30.8
Total	39	100.0

- Institution variable:

Table (12): Teachers and students distribution for institution:

Institution	Frequency	Percent
Hisham Hijjawi College of Technology	91	49.5
Palestine Technical College	55	29.9
Applied Professions College	38	20.7
Total	184	100.0

3.4 Statistical Analysis.

SPSS program is used to analyze the questionnaires output and determined mean, standard divination, and percentage for population and sample.

3.5 Reliability.

The reliability was tested for the three type of questionnaire (teachers, students, and employers) by Cronbach's Alpha as given below:

Table (13) Cronbach's Alpha for questionnaire:

Questionnaire Type	Cronbach's Alpha	Number of items
Teachers	90%	36
Students	91%	36
Employers	86%	9

Chapter Four

Results and Discussion

This chapter presents and discusses the results obtains from teachers, students, and employers questionnaire. Firstly, it presents the results of the issues facing education process from different perspective for the selected specializations. Secondly, it presents the results of students required skills from teachers, students, and employers perspective.

The researcher used Likert scale which divides the questionnaire to five options to choose the degree of commensurate with participants view (strongly agree=5 – 4.2, agree=4.2 – 3.4, neutral=3.4 – 2.6 disagree=2.6 – 1.8, strongly disagree=1.8 - 1).

4.1 Issues Facing Education Process.

The issues facing education process can be classified into four major types which are: issues related to teachers, issues related to syllabus, issues related to education institution, and issues related to students. The following tables in this section explain the means and descriptions for the issues facing education process from teachers and students perspective.

Table (14) shows that there are no problems related to teachers from teachers perspective, so all issues which are related to teachers are positive, but there are difference in paragraphs grade, so the top grade is the teachers are experiences in performance with very high classification, and the bottom grade is the teachers are related to market with high classification.

Table (14): Means and descriptive of the issues dealing with teachers from teachers perspectives:

Issues Related to Teachers	Specialization											
	Automotive		Industrial Automation		Air conditioning and Refrigeration		Production and Machinery		Communication		Total	
	Mean	D	Mean	D	Mean	D	Mean	D	Mean	D	Mean	D
Teachers are experiences in performance	4.63	V.H	4.25	V.H	4.1	H	4.43	V.H	4.17	H	4.31	V.H
Teachers are related to market	4.50	V.H	3.50	H	3.5	H	4.14	H	3.83	H	3.87	H
Teachers use modern tools in lecture training	4.63	V.H	4.00	H	3.6	H	4.29	V.H	4.00	H	4.08	H
Teachers connect the theoretical aspect with technical aspect	4.63	V.H	4.25	V.H	3.6	H	4.43	V.H	4.33	V.H	4.21	V.H
Teachers are able to give student the needed skills in each course	4.63	V.H	4.13	H	4.0	H	4.14	H	4.33	V.H	4.23	V.H
Teachers give training in verity ways	4.50	V.H	3.75	H	3.6	H	4.29	V.H	3.67	H	3.95	H
Teachers improve the way of training continuously	4.25	V.H	4.00	H	3.6	H	4.00	H	3.83	H	3.92	H

Table (15) also show that there are no problems related to teachers from students perspective, so all of the issues which are related to teachers are positive, and there are no differences in paragraphs grade, but there are difference between teachers and students perspective in some issues which are:

- Teachers are experiences in performance.
- Teachers connect the theoretical aspect with technical aspect.

- Teachers are able to give students the needed skills in each course.

Table (15): Means and descriptive of issues dealing with teachers from students perspectives:

1ssues related to teachers	Specialization											
	Automotive		Industrial Automation		Air conditioning and Refrigeration		Production and Machinery		Communication		Total	
	Mean	D	Mean	D	Mean	D	Mean	D	Mean	D	Mean	D
Teachers are experiences in performance	4.16	H	4.24	V.H	3.95	H	4.63	V.H	4.14	H	4.13	H
Teachers are related to market	3.69	H	3.88	H	3.95	H	4.13	H	4.00	H	3.90	H
Teachers use modern tools in lecture training	4.06	H	4.04	H	3.56	H	4.38	V.H	3.92	H	3.89	H
Teachers connect the theoretical aspect with technical aspect	4.09	H	4.28	V.H	4.00	H	4.38	V.H	4.38	V.H	4.19	H
Teachers are able to give student the needed skills in each course	3.72	H	4.04	H	3.63	H	3.88	H	4.14	H	3.86	H
Teachers give training in verity ways	3.94	H	4.08	H	3.88	H	4.00	H	4.03	H	3.97	H
Teachers improve the way of training continuously	3.78	H	3.96	H	3.79	H	4.13	H	3.89	H	3.86	H

In addition, Tables (16, 17) show that there are no problems related to syllabus from teachers perspective nor students perspectives, so all of the issues which are related to syllabus are positive, but there are small differences between syllabus issues from teachers perspective and students perspective. On the other hand there are clear differences in the view between teachers and students, so the teachers view is better than students view in all of these issues except some issues in Refrigeration specialization, and these differences are:

1. The available equipment is enough for the academic demand in automotive specialization: teacher perspective is better than student perspective.
2. Technical education concerns on practical side more than academic side in automotive specialization: teacher perspective is better than student perspective.

3. Updating the syllabus in order to keep up with the market in Refrigeration specialization: student perspective is better than teacher perspective.
4. The available equipment is enough for the academic demand in Refrigeration specialization: student perspective is better than teacher perspective.
5. The available equipment is enough for the academic demand in Production and Machinery specialization: teacher perspective is better than student perspective.

Table (16): Means and descriptive of issues dealing with syllabus from teachers perspectives:

Issues which deals with syllabus	Specialization											
	Automotive		Industrial Automation		Air conditioning and Refrigeration		Production and Machinery		Communication		Total	
	Mean	D	Mean	D	Mean	D	Mean	D	Mean	D	Mean	D
There is a text book for each technical course	4.75	V.H	3.75	H	3.40	H	4.43	V.H	4.00	H	4.03	H
Students get up a lot of technical skills in each course	4.25	V.H	4.38	H	3.60	H	4.29	V.H	4.17	H	4.10	H
Wanted skills connect with the modern technology	4.00	H	3.88	H	3.40	H	4.14	H	4.00	H	3.85	H
Technical education concerns on practical side more than academic side	3.75	H	4.25	V.H	3.80	H	4.57	V.H	4.17	H	4.08	H
Updating the syllabus in order to keep up with the market	4.00	H	3.88	H	3.30	M	4.29	V.H	4.00	H	3.85	H
The course is organized, whereas students can understand the content	4.25	V.H	4.25	V.H	4.10	H	4.14	H	4.00	H	4.15	H
The available equipment's are enough for the academic demand	4.63	V.H	4.13	H	3.10	M	4.00	H	4.33	V.H	3.97	H

Table (17): Means and descriptive of issues dealing with syllabus from students perspectives:

Issues which deals with syllabus	Specialization											
	Automotive		Industrial Automation		Air conditioning and Refrigeration		Production and Machinery		Communication		Total	
	Mean	D	Mean	D	Mean	D	Mean	D	Mean	D	Mean	D
There is a text book for each technical course	3.69	H	3.68	H	3.49	H	3.88	H	3.89	H	3.69	H
Students get up a lot of technical skills in each course	3.56	H	3.96	H	3.65	H	3.88	H	4.00	H	3.79	H
Wanted skills connect with the modern technology	3.63	H	3.72	H	3.70	H	4.00	H	3.78	H	3.72	H
Technical education concerns on practical side more than academic side	3.25	M	3.68	H	3.53	H	4.38	V.H	3.92	H	3.64	H
Updating the syllabus in order to keep up with the market	3.50	H	3.68	H	3.53	H	3.88	H	3.81	H	3.64	H
The course is organized, whereas students can understand the content	3.56	H	3.92	H	3.44	H	4.25	V.H	3.76	H	3.68	H
The available equipment's are enough for the academic demand	3.22	M	3.92	H	3.53	H	2.75	M	3.92	H	3.59	H

Table (18) shows that there are no important issues related to education institutions from teachers perspective except one issue which is the technical colleges follow its graduated which refer to mid classification, and the otherwise is high classification. Also table (19) show problems in two issues related to education institutions which are:

- The technical colleges follow its graduated.
- Technical colleges are distributed in geographical way, whereas students can join it easily.

But there are clear differences in the view between teachers and students, and these differences are summarized in the following points:

1. Technical colleges are distributed in geographical way, whereas students can join it easily in automotive specialization: teacher perspective is better than student perspective.
2. The technical collages follow it's graduated in automotive specialization: teacher perspective is better than student perspective.
3. The technical collages try to solve student issues through their study in automotive specialization: the teacher perspective is better than student perspective.
4. Technical colleges are distributed in geographical way, whereas students can join it easily in Industry Automation specialization: the teacher perspective is better than student perspective.

5. The buildings are suitable for technical training in Industry Automation specialization: the student perspective is better than teacher perspective.
6. Technical disciplines cover the market demand in Refrigeration specialization: the student perspective is better than teacher perspective.
7. The buildings are suitable for technical training in refrigeration specialization: the student perspective is better than teacher perspective.
8. The technical collages follow its graduated training in refrigeration specialization: the student perspective is better than teacher perspective.
9. There is modern equipment which faces the modern technology in the market in refrigeration specialization: the student perspective is better than teacher perspective.
10. The available equipment give the student the demand skills in refrigeration specialization: the student perspective is better than teacher perspective.
11. Technical colleges are distributed in geographical way, whereas students can join it easily in production and machinery specialization: the teacher perspective is better than student perspective.
12. The technical collages follow it’s graduated in communication specialization: the student perspective is better than teacher perspective.

Table (18): Means and descriptive of issues dealing with education institution from teachers perspectives:

Issues which deals with education institution	Specialization											
	Automotive		Industrial Automation		Air conditioning and Refrigeration		Production and Machinery		Communication		Total	
	Mean	D	Mean	D	Mean	D	Mean	D	Mean	D	Mean	D
Technical disciplines cover the market demand	4.13	H	4.00	H	3.30	M	4.14	H	3.83	H	3.85	H
Technical colleges are distributed in geographical way, whereas students can join it easily	4.25	V.H	4.00	H	3.30	M	4.00	H	4.00	H	3.87	H
The building are suitable for technical training	4.25	V.H	3.38	M	3.10	M	4.57	V.H	3.83	H	3.77	H
The technical collages follow its graduated	3.75	H	3.00	M	2.60	M	4.00	H	3.33	M	3.28	M
The technical collages try to solve student's issues through their study	4.50	V.H	3.50	H	3.40	H	4.43	V.H	3.67	H	3.87	H
There are modern equipment which faces the modern technology in the market	4.88	V.H	4.13	H	3.00	M	4.00	H	4.00	H	3.95	H
The available equipment give the student the demand skills	4.25	V.H	4.50	V.H	3.20	M	3.86	H	4.33	V.H	3.97	H

Table (19): Means and descriptive of issues dealing with education institution from students perspectives:

Issues which deals with education institution	Specialization											
	Automotive		Industrial Automation		Air conditioning and Refrigeration		Production and Machinery		Communication		Total	
	Mean	D	Mean	D	Mean	D	Mean	D	Mean	D	Mean	D
Technical disciplines cover the market demand	3.56	H	3.80	H	3.67	H	4.00	H	3.76	H	3.71	H
Technical colleges are distributed in geographical way, whereas students can join it easily	3.28	M	3.32	M	3.37	M	3.13	M	3.62	H	3.39	M
The building are suitable for technical training	3.72	H	3.80	M	3.40	H	4.00	H	3.97	H	3.72	H
The technical collages follow its graduated	2.63	M	3.20	M	3.47	H	3.75	H	3.41	H	3.23	M
The technical collages try to solve student's issues through their study	3.28	M	3.44	H	3.56	H	3.88	H	3.81	H	3.56	H
There are modern equipment’s which faces the modern technology in the market	3.53	H	3.80	H	3.49	H	4.13	H	3.81	H	3.67	H
The available equipment’s give the student the demand skills	3.66	H	4.08	H	3.74	H	4.13	H	4.05	H	3.88	H

In addition, Tables (20, 21) show the issues which related to students. So these tables show some problems consensus by teachers and students views which are:

- Students do not care about the education.
- Students care about the marks more than the benefits and skills.

On the other hand these tables show some issues difference between teachers and students view which are:

1. Students do not participate during the lectures and technical experiments.
2. The frequently absents of students.
3. Students do not care about the public safety in the workshop.

Table (20): Means and descriptive of issues dealing with students from teachers perspectives:

Issues which deals with students	Specialization											
	Automotive		Industrial Automation		Air conditioning and Refrigeration		Production and Machinery		Communication		Total	
	Mean	D	Mean	D	Mean	D	Mean	D	Mean	D	Mean	D
Students do not care about the education	4.75	V.H	4.13	H	4.40	V.H	4.00	H	3.83	H	4.26	V.H
Students do not participate during the lectures and technical experiments	4.00	H	3.00	M	3.60	H	3.86	H	2.83	M	3.49	H
Students care about the marks more than the benefits and skills	4.63	V.H	3.38	M	4.40	V.H	3.71	H	3.50	H	3.97	H
The frequently absents of students	3.13	M	2.88	M	3.20	M	3.57	H	3.17	M	3.18	M
Students do not care about the public safety in the workshop	4.00	H	3.50	H	3.40	H	3.57	H	2.67	M	3.46	H
Student do not co-operate or work in team during experiments	3.63	H	3.00	M	3.20	M	3.29	M	2.67	M	3.18	M

Table (21): Means and descriptive of issues dealing with students from students perspectives:

issues which deals with students	Specialization											
	Automotive		Industrial Automation		Air conditioning and Refrigeration		Production and Machinery		Communication		Total	
	Mean	D	Mean	D	Mean	D	Mean	D	Mean	D	Mean	D
Students do not care about the education	4.09	H	3.60	H	3.74	H	3.38	M	3.92	H	3.82	H
Students do not participate during the lectures and technical experiments	3.41	H	3.16	M	3.30	M	3.13	M	3.59	H	3.37	M
Students care about the marks more than the benefits and skills	4.03	H	3.60	H	3.74	H	3.00	M	4.14	H	3.84	H
The frequently absents of students	3.56	H	3.40	H	3.37	M	3.13	M	3.57	H	3.46	H
Students do not care about the public safety in the workshop	3.34	M	2.84	M	3.49	H	3.00	M	3.41	H	3.30	M
Student do not co-operate or work in team during experiments	3.09	M	3.24	M	3.21	M	2.50	L	3.30	M	3.17	M

4.2 Required Skills for Graduated Student.

This part discussed the output skills for graduated students from teachers, students and employers perspective for the Automotive, Refrigeration, Production and Machinery, Communication and Industry Automation specializations. The tables in this section explain means and descriptions for graduated required skills from the three standpoints.

Table (22) shows that there is a small difference from teachers, students, and employers perspective for output skills of Automotive specialization, the priority for teachers, students, and employers. But there are clear differences in some skills between teachers, students, and employers like:

1. The ability to perform maintenance of the powertrain component's (gearbox, axles, drive shaft): the teachers view is high classification compare with students and employers classification.
2. The ability of assembly and disassembly engine components: the teachers and students view is high classification compare with employers classification.
3. The ability to perform maintenance of safety and comfort system: the teachers and students view is high classification compare with employers classification.

4. The ability to perform maintenance fuel diesel injection system: the teachers and students view is high classification compare with employers classification.
5. The ability to read, understand and analysis electric wire diagram: the teachers and students view is high classification compare with employers classification.

Table (22): Required skills for automotive specialization:

Skills for Automotive Specialization	Group					
	Teacher		Student		Employer	
	Mean	D	Mean	D	Mean	D
She/ He has the ability to diagnosis mechanical troubles	4.50	V.H	4.13	H	3.83	H
She/ He has the ability to diagnosis electrical troubles	4.13	H	3.94	H	3.50	H
She/ He has the ability to performing protective maintenance	4.38	V.H	4.00	H	4.58	V.H
She/ He has the ability to perform engine calibrations and adjustment	4.13	H	3.81	H	3.42	H
She/ He has the ability to perform maintenance of the powertrain component's (gearbox, axles, drive shaft)	3.88	H	3.31	M	3.25	M
She/ He has the ability to perform maintenance of front suspension	4.00	H	3.66	H	4.08	H
She/ He has the ability of assembly and disassembly engine component's	3.63	H	3.69	H	3.08	M
She/ He has the ability to utilizes advanced diagnostic devices	4.00	H	4.03	H	3.75	H
She/ He has the ability to utilize software data	4.13	H	4.09	H	3.67	H
She/ He has the ability to perform maintenance of safety and comfort system	4.13	H	3.68	H	2.92	M
She/ He has the ability to perform maintenance fuel diesel injection system	3.43	H	3.59	H	2.83	M
She/ He has the ability to read ,understand and analysis electric wire diagram	4.14	H	3.50	H	3.25	M
She/ Skills for Automotive specialization	3.94	H	3.86	H	3.51	H

Table (23) shows that there are no differences from view of the teachers, and students, but there is a small difference between teachers, and students in relation to employers for output skills of Industrial Automation specialization. And there are clear differences in some skills between teachers, students, and employers like:

1. The ability to design control systems schemes hydraulic and pneumatic Electro-Hydraulic and Elector- pneumatic: the teachers and students view is high classification compare with employers classification.
2. The ability to link between automation technology and production lines and difference applications through PLC programming: the teachers and students view is high classification compare with employers classification.
3. The ability to prepare technical reports required to follow the workflow: the teachers view is mid classification compare with students and employers classification.

Table (23): Required skills for industrial automation specialization:

Skills for Industrial Automation Specialization	Group					
	Teacher		Student		Employer	
	Mean	D	Mean	D	Mean	D
She/ He has the ability to connect the electrical wiring circuits household and industrial	4.50	V.H	4.20	V.H	4.17	H
She/ He has the ability to design industrial electrical panels	4.13	H	3.92	H	3.58	H
She/ He has the ability to design and implement plans for industrial control panels and difference capacity with the construction of a protection system	4.13	H	3.84	H	3.58	H
She/ He has the ability to design control systems schemes hydraulic and pneumatic Electro-Hydraulic and Elector- pneumatic	4.13	H	3.88	H	2.75	M
She/ He has the ability to link between automation technology and production lines and difference applications through PLC programming	4.00	H	4.12	H	3.33	M
She/ He has the ability to run difference types of electric motors and conduct the necessary maintenance	4.13	H	4.08	H	4.08	H
She/ He has the ability to operate and maintain machinery and industrial production lines	3.88	H	4.08	H	3.92	H
She/ He has the ability to prepare technical reports required to follow the workflow	3.25	M	4.16	H	3.75	H
She/ He has the ability to read the catalogs of equipment and machinery, electro-mechanical systems and hydraulic and pneumatic	3.88	H	4.00	H	3.58	H
Skills for Industrial Automation specialization	4.00	H	4.03	H	3.64	H

Table (24) shows that there are differences from the view of the teachers, and students in relation to employers for output skills of Refrigeration specialization. In general the teachers and the students view are high classification but employers view is mid classification, and there are clear differences in some skills between teachers, students, and employers like:

1. The ability to make maintenance for refrigerator and water coolers: the teachers and students view is high classification compare with employers classification.
2. The ability to apply drawing in the field of air condition using computer technology: the teachers and students view is high classification compare with employers classification.
3. The ability to determine troubleshooting in HVAC system: the teachers and students view is high classification compare with employers classification.
4. The ability to design and manufacture center air condition duct: the teachers and students view is high classification compare with employers classification.
5. The ability to make HVAC calculation: the teachers and students view is high classification compare with employers classification.
6. The ability to design and execute center heating systems and execute required maintenance: the teachers and students view is high classification compare with employers classification.

7. The ability to inspect and operate cooling tower and to select the suitable pump, and prepare time schedule for maintenance: the teachers and students view is high classification compare with employers classification.

Table (24): Required Skills for air conditioning and refrigeration specialization:

Skills for air- conditioning and Refrigeration specialization	Group					
	Teacher		Student		Employer	
	Mean	D	Mean	D	Mean	D
She/ He has the ability on the formulation copper pipes	4.40	V.H	4.21	V.H	3.82	H
She/ He has the ability to install and maintenance split unit air condition and cooling units	4.20	V.H	3.79	H	3.18	H
She/ He has the ability to make maintenance for refrigerator and water coolers	4.10	H	3.74	H	2.64	M
She/ He has the ability to apply drawing in the field of air condition using computer technology	3.90	H	3.53	H	2.36	L
She/ He has ability to determine troubleshooting in HVAC system	3.90	H	3.77	H	2.82	M
She/ He has the ability to design and manufacture center air condition duct	3.90	H	3.77	H	2.91	M
She/ He has the ability to review the technical drawings for water and air distribution	3.80	H	3.93	H	3.64	H
She/ He has ability to make HVAC calculation	4.00	H	3.63	H	2.64	M
She/ He have ability to design and execute center heating systems and execute required maintenance.	4.00	H	3.53	H	2.82	M
She/ He has the ability to inspect and operate cooling tower and to select the suitable pump, and prepare time schedule for maintenance	3.70	H	3.35	H	2.00	L
Skills for air conditioning and Refrigeration specialization	3.99	H	3.73	H	2.88	M

Table (25) shows that there are differences between the teachers, students, and employers view for output skills of Production and Machinery specialization. In general the teachers view is very high

classification, while the students view is high classification but employers view is mid classification. The most differences in these skills are:

1. The ability to using computer in design and drawing: the teachers and students view is high classification compare with employers classification.
2. The ability to understand and apply the institution role and safety requirements: the teachers view is very high classification while the students view is high classification but employers view is mid classification.
3. The ability to design and produce machinery in high standard and technique: the teachers view is high classification while the students view is very high classification but employers view is low classification.
4. The ability to build machinery operation system and production line: the teachers and students view is high classification compare with employers classification.
5. The ability to read out, analyze the drawing, the operation method, maintenance requirement, and the operation manuals: the teachers and students view is high classification compare with employers classification.

Table (25): Required skills for production and machinery specialization:

Skills for Production and Machinery Specialization	Group					
	Teacher		Student		Employer	
	Mean	D	Mean	D	Mean	D
She/ He has the ability to read out the mechanical drawing, understand symbols and apply them in real models in the production process	4.00	H	4.00	H	4.20	V.H
She/ He has the ability to operate lathing and milling machine , and has the proper skill's to formulate screw's and gear	4.14	H	4.25	V.H	3.70	H
She/ He has the ability to perform all measurements and accrue calibration of production, using the measure and calibrating tools	4.57	V.H	4.25	V.H	3.70	H
She/ He has the ability to understand the mechanical properties of the material's and selecting the best material for product pieces	4.43	V.H	4.13	H	3.40	H
She/ He has the ability to perform welding and connecting technique	4.43	V.H	4.13	H	3.60	H
She/ He have the ability to using computer in design and drawing.	4.14	H	4.13	H	3.30	M
She/ He has the ability to understand and apply the institution role and safety requirements	4.29	V.H	4.13	H	3.20	M
She/ He has the ability to design and produce machinery in high standard and technique	3.71	H	4.25	V.H	2.50	L
She/ He has the ability to build machinery operation system and production line	4.00	H	4.13	H	2.70	M
She/ He have the ability to control the production process and apply the requirement of quality control.	4.17	H	3.75	H	3.50	H
She/ He has the ability to read out, analyze the drawing , the operation method ,maintenance requirement , and the operation manuals	4.00	H	3.88	H	3.30	M
Skills for Production and Machinery specialization	4.20	V.H	4.09	H	3.37	M

In addition, Table (26) shows that there are small differences from view of the teachers, students, and employers for output skill of communication specialization, and there are clear differences in some skills between teachers, students, and employers like:

1. The ability to do maintenance work for various PBX: the teachers and students view is mid classification compare with employers classification.
2. The ability to relate the techniques of microwave and satellite communication: the teachers and employers view is mid classification compare with students classification.
3. The ability to relate mobile Communications systems and the GSM system in particular: the teachers and employers view is mid classification compare with students classification.
4. The ability to relate the digital circuit-switched technology and phone systems: the teachers view is mid classification compare with students and employers classification.

Table (26): Required skills for communication specialization:

Skills for Communication Specialization	Group					
	Teacher		Student		Employer	
	Mean	D	Mean	D	Mean	D
She/ He has the ability to related to the techniques of analogue and digital Communications technically	4.00	H	4.24	V.H	4.20	V.H
She/ He has the ability to use test equipment and measurement devices for Communications circuits	4.17	H	4.30	V.H	4.30	V.H
Has the ability to installation, operation and maintenance of transmission lines and fiber optic	3.50	H	3.95	H	4.10	H
Has the ability to do maintenance work for various PBX	3.00	M	3.78	H	4.00	H
Has the ability to participate in the control of various Communication networks	3.50	H	3.81	H	3.70	H
has specialized knowledge in terms of Communication technology	3.83	H	3.95	H	3.70	H
Has the ability to related to the techniques of microwave and satellite Communication	3.00	M	3.65	H	2.70	M
Has the ability to related to mobile Communications systems and the GSM system in particular	3.17	M	3.62	H	2.70	M
Has the ability to related to the digital circuit-switched technology and phone systems	3.17	M	3.89	H	3.50	H
Skills for Communication specialization	3.48	H	3.91	H	3.66	H

4.3 Skills and Employers Needs.

The final part contains a question determined if the required skills for each specialization meets the market needs or not, the result of this question shows that all the required skills for all specialization meet the market needs.

The table (27) shows that all the required skills for each specialization meet the market needs.

Table (27): Answer of the question (the required skills for each specialization meets the needs of the market or not):

specialization	Yes (percentage)
Automotive	100%
Industry Automation	100%
Refrigeration	100%
Production and Machinery	100%
Communication	100%

4.4 Hypothesis:

This study contains eight hypotheses related to sample for discuss the differences in the view of responders, and the researcher used three methods to analyze it which are; T-test, ANOVA, and Least Significant Difference (LSD) test. So the researcher used T-test when exists only two variables and used ANOVA test when exist more than two variable. On the

other hand, the researcher used LSD test when required more analysis than ANOVA test.

First hypothesis: There is no significant importance difference between the issues facing educational process referred to teacher education degree.

In order to clarify the validity of the first hypothesis the researcher analyzed problems facing educational process referred to teachers education degrees depends on the issues related to student, syllabus, educational institutions, and teachers as Table (28) shows.

Table (28): Descriptive of the issues facing educational process referred to teachers education degree.

		N	Mean	Std. Deviation
Issues related to teachers	Diploma	18	4.35	.561
	BA	16	3.87	.556
	Graduate Studies	5	3.80	.586
	Total	39	4.08	.602
Issues related to syllabus	Diploma	18	4.21	.544
	BA	16	3.82	.565
	Graduate Studies	5	3.86	.769
	Total	39	4.00	.598
Issues related to education institution	Diploma	18	3.95	.715
	BA	16	3.70	.841
	Graduate Studies	5	3.54	.538
	Total	39	3.79	.750
Issues related to students	Diploma	18	3.86	.652
	BA	16	3.50	.498
	Graduate Studies	5	2.90	.619
	Total	39	3.59	.655

To analyze the previous table the researcher used ANOVA test like Table (29) **.**

Table(29): ANOVA test for the issues facing educational process referred to teachers education degree.

		Sum of Squares	df	Mean Square	F	Sig.
Issues related to teachers	Between Groups	2.429	2	1.214	3.849	.031
	Within Groups	11.359	36	.316		
	Total	13.788	38			
Issues related to syllabus	Between Groups	1.378	2	.689	2.035	.146
	Within Groups	12.193	36	.339		
	Total	13.571	38			
Issues related to education institution	Between Groups	.919	2	.460	.809	.453
	Within Groups	20.460	36	.568		
	Total	21.379	38			
Issues related to students	Between Groups	3.833	2	1.917	5.523	.008
	Within Groups	12.492	36	.347		
	Total	16.325	38			

ANOVA test shows that the hypothesis "There is no significant importance difference between the issues facing educational process referred to teacher education degree." will be accepted because the significant importance more than 5%. On the other hand the hypothesis "there is signified importance difference between issues related to teachers and issues related to students refer to teachers education degree" will be rejected because the significant importance less than 5%. To more analyze must be used LSD test like table (30).

Table (30): LSD test for issues related to teachers and issues related to students refer to teachers education degree

Dependent Variable	(I) Qualification	(J) Qualification	Mean Difference (I-J)	Sig.
Issues related to teachers	Diploma	BA	.483*	.017
		Graduate Studies	.549	.061
	BA	Diploma	-.483*	.017
		Graduate Studies	.066	.820
	Graduate Studies	Diploma	-.549	.061
		BA	-.066	.820
Issues related to students	Diploma	BA	.361	.083
		Graduate Studies	.961*	.003
	BA	Diploma	-.361	.083
		Graduate Studies	.600	.054
	Graduate Studies	Diploma	-.961*	.003
		BA	-.600	.054

***: mean the significant important less than .05**

LSD test for issues related to teachers refer to teachers education degree shows:

- There is a difference between teachers who hold diploma and BA degree, so the teachers who hold BA view is better than the teachers who hold diploma view for the issues which related to teachers.
- There is no difference between teachers who hold diploma and graduate studies degree for the issues which related to teachers.
- There is no difference between teachers who hold BA and Graduate Studies degree for the issues which related to teachers.

LSD test for issues related to students refer to teachers education degree show:

- There is a difference between teachers who hold diploma and graduate studies degree, so the teacher who hold diploma say there are problem related to student more than the teacher who hold graduate studies.
- There is no difference between teachers who hold diploma and BA degree.
- There is no difference between teachers who hold BA and Graduate Studies degree.

Second hypothesis: There is no significant importance difference between the issues facing educational process referred to teacher specializations.

In order to clarify the validity of the second hypothesis the researcher analyzed issues facing educational process referred to teachers specializations depends on the issues related to student, syllabus, educational institutions, and teachers as Table (31) shows.

Table (31): Descriptive of the issues facing educational process referred to teachers specializations.

		N	Mean	Std. Deviation
Issues related to teachers	Automotive	8	4.54	.444
	Industrial Automation	8	3.98	.467
	Air conditioning and Refrigeration	10	3.71	.567
	Production and Machinery	7	4.24	.653
	Communications	6	4.02	.654
	Total	39	4.08	.602
Issues related to syllabus	Automotive	8	4.23	.418
	Industrial Automation	8	4.07	.720
	Air conditioning and Refrigeration	10	3.53	.481
	Production and Machinery	7	4.27	.455
	Communications	6	4.10	.656
	Total	39	4.00	.598
Issues related to education institution	Automotive	8	4.29	.171
	Industrial Automation	8	3.79	.643
	Air conditioning and Refrigeration	10	3.13	.812
	Production and Machinery	7	4.14	.606
	Communications	6	3.86	.761
	Total	39	3.79	.750
Issues related to students	Automotive	8	4.02	.538
	Industrial Automation	8	3.31	.559
	Air conditioning and Refrigeration	10	3.70	.489
	Production and Machinery	7	3.67	.707
	Communications	6	3.11	.814
	Total	39	3.59	.655

To analyze the previous table the researcher used ANOVA test like Table (32).

Table (32) ANOVA test of the issues facing educational process referred to teachers specializations.

		Sum of Squares	df	Mean Square	F	Sig.
Issues related to teachers	Between Groups	3.285	4	.821	2.658	.049
	Within Groups	10.503	34	.309		
	Total	13.788	38			
Issues related to syllabus	Between Groups	3.241	4	.810	2.667	.049
	Within Groups	10.330	34	.304		
	Total	13.571	38			
Issues related to education institution	Between Groups	7.239	4	1.810	4.351	.006
	Within Groups	14.141	34	.416		
	Total	21.379	38			
Issues related to students	Between Groups	3.639	4	.910	2.438	.066
	Within Groups	12.686	34	.373		
	Total	16.325	38			

ANOVA test shows that the hypothesis "there is no signified importance difference between issues related to students refer to teachers specializations" will be accepted because the significant importance more than 5%. On the other hand, the hypothesis "there is signified importance difference between issues related to teachers, syllabus, and education institution refer to teachers specializations" will be rejected because the significant importance less than 5%. To more analyze must be used LSD test like table (33).

Table (33): LSD test for the issues related to teachers, syllabus, and education institution refer to teachers specializations

Dependent Variable	(I) Specialization	(J) Specialization	Mean Difference (I-J)	Sig.
Issues related to teachers	Automotive	Industrial Automation	.554	.054
		Air conditioning and Refrigeration	.821*	.004
		Production and Machinery	.291	.319
		Communications	.512	.097
	Industrial Automation	Automotive	-.554	.054
		Air conditioning and Refrigeration	.268	.317
		Production and Machinery	-.263	.367
		Communications	-.042	.890
	Air conditioning and Refrigeration	Automotive	-.821*	.004
		Industrial Automation	-.268	.317
		Production and Machinery	-.531	.061
		Communications	-.310	.288
	Production and Machinery	Automotive	-.291	.319
		Industrial Automation	.263	.367
		Air conditioning and Refrigeration	.531	.061
		Communications	.221	.479
	Communications	Automotive	-.512	.097
		Industrial Automation	.042	.890
		Air conditioning and Refrigeration	.310	.288
		Production and Machinery	-.221	.479
Issues related to syllabus	Automotive	Industrial Automation	.161	.564
		Air conditioning and Refrigeration	.704*	.011
		Production and Machinery	-.033	.908
		Communications	.137	.649
	Industrial Automation	Automotive	-.161	.564
		Air conditioning and Refrigeration	.543*	.045
		Production and Machinery	-.194	.501
		Communications	-.024	.937

	Air conditioning and Refrigeration	Automotive	-.704*	.011
		Industrial Automation	-.543*	.045
		Production and Machinery	-.737*	.010
		Communications	-.567	.055
	Production and Machinery	Automotive	.033	.908
		Industrial Automation	.194	.501
		Air conditioning and Refrigeration	.737*	.010
		Communications	.170	.583
	Communications	Automotive	-.137	.649
		Industrial Automation	.024	.937
		Air conditioning and Refrigeration	.567	.055
		Production and Machinery	-.170	.583
Issues related to education institution	Automotive	Industrial Automation	.500	.130
		Air conditioning and Refrigeration	1.157*	.001
		Production and Machinery	.143	.671
		Communications	.429	.227
	Industrial Automation	Automotive	-.500	.130
		Air conditioning and Refrigeration	.657*	.039
		Production and Machinery	-.357	.292
		Communications	-.071	.839
	Air conditioning and Refrigeration	Automotive	-1.157*	.001
		Industrial Automation	-.657*	.039
		Production and Machinery	-1.014*	.003
		Communications	-.729*	.036
	Production and Machinery	Automotive	-.143	.671
		Industrial Automation	.357	.292
		Air conditioning and Refrigeration	1.014*	.003
		Communications	.286	.431
	Communications	Automotive	-.429	.227
		Industrial Automation	.071	.839
		Air conditioning and Refrigeration	.729*	.036
		Production and Machinery	-.286	.431

***: mean the significant important less than .05**

LSD test for issues related to teachers refer to teachers specializations shows:

- There is a difference between air Conditioning and refrigeration specialization and automotive specialization, so the teachers of automotive specialization say that the issues related to teachers less than the teachers of air conditioning and refrigeration specialization.
- There is a difference between air conditioning and refrigeration specialization and industrial automation specialization, so the teachers of industrial automation specialization say that the issues related to teachers less than the teachers of air conditioning and refrigeration specialization.
- There is a difference between air conditioning and refrigeration specialization and production and machinery specialization, so the teachers of production and machinery specialization say that the issues related to teachers less than the teachers of air conditioning and refrigeration specialization.
- There is a difference between air conditioning and refrigeration specialization and communications specialization, so the teachers of communications specialization say that the issues related to teachers less than the teachers of air conditioning and refrigeration specialization.

- There is no difference between automotive, industrial automation, production and machinery, and communications specializations in relation to the issues related to teachers.

LSD test for issues related to syllabus refer to teachers specializations shows:

- There is a difference between Air conditioning and Refrigeration specialization and Automotive specialization, so the teachers of Automotive specialization view better than the teachers of Air conditioning and Refrigeration specialization for the issues which related to syllabus.
- There is a difference between Air conditioning and Refrigeration specialization and Industrial Automation specialization, so the teachers of Industrial Automation specialization view better than the teachers of Air conditioning and Refrigeration specialization for the issues which related to syllabus.
- There is a difference between Air conditioning and Refrigeration specialization and Production and Machinery specialization, so the teachers of Production and Machinery specialization view better than the teachers of Air conditioning and Refrigeration specialization for the issues which related to syllabus.
- There is no difference between Air conditioning and Refrigeration specialization and Communications specialization in relation to the issues which related to syllabus.

- There is no difference between Automotive, Industrial Automation, Production and Machinery, and Communications specializations in relation to the issues which related to syllabus.

LSD test for issues related to education institutions refer to the teachers specializations shows:

- There is a difference between Air conditioning and Refrigeration specialization and Automotive specialization, so the teachers of Automotive specialization view better than the teachers of Air conditioning and Refrigeration specialization view for the issues which related to education institutions.
- There is a difference between Air conditioning and Refrigeration specialization and Industrial Automation specialization, so the teachers of Industrial Automation specialization view better than the teachers of Air conditioning and Refrigeration specialization view for the issues which related to education institutions.
- There is a difference between Air conditioning and Refrigeration specialization and Production and Machinery specialization, so the teachers of Production and Machinery specialization view better than the teachers of Air conditioning and Refrigeration specialization view for the issues which related to education institutions.
- There is a difference between Air conditioning and Refrigeration specialization and Communications specialization, so the teachers of Communications specialization view better than the teachers of Air

conditioning and Refrigeration specialization view for the issues which related to education institutions.

- There is no difference between Automotive, Industrial Automation, Production and Machinery, and Communications specializations in relation to the issues which related to education institutions.

Third hypothesis: There is no significant importance difference between the issues facing educational process referred to student specializations.

In order to clarify the validity of the third hypothesis the researcher analyzed problems facing educational process referred to students specializations depends on the issues related to student, syllabus, educational institutions, and teachers as Table (34) shows.

Table (34): Descriptive of the issues facing educational process referred to students specializations

		N	Mean	Std. Deviation
Issues related to teachers	Automotive	32	3.92	.514
	Industrial Automation	25	4.07	.505
	Air conditioning and Refrigeration	43	3.82	.785
	Production and Machinery	8	4.21	.265
	Communications	37	4.07	.477
	Total	145	3.97	.595
Issues related to syllabus	Automotive	32	3.49	.665
	Industrial Automation	25	3.79	.630
	Air conditioning and Refrigeration	43	3.55	.904
	Production and Machinery	8	3.86	.489
	Communications	37	3.87	.495
	Total	145	3.68	.706
Issues related to education institution	Automotive	32	3.38	.738
	Industrial Automation	25	3.63	.631
	Air conditioning and Refrigeration	43	3.53	.740
	Production and Machinery	8	3.86	.404
	Communications	37	3.78	.598
	Total	145	3.60	.682
Issues related to students	Automotive	32	3.59	.742
	Industrial Automation	25	3.31	.621
	Air conditioning and Refrigeration	43	3.48	.780
	Production and Machinery	8	3.02	.669
	Communications	37	3.65	.727
	Total	145	3.49	.736

To analyze the previous table the researcher used ANOVA test like table (35).

Table (35): ANOVA test for issues facing educational process referred to students specializations

		Sum of Squares	df	Mean Square	F	Sig.
Issues related to teachers	Between Groups	2.113	4	.528	1.512	.202
	Within Groups	48.919	140	.349		
	Total	51.033	144			
Issues related to syllabus	Between Groups	3.765	4	.941	1.936	.108
	Within Groups	68.062	140	.486		
	Total	71.828	144			
Issues related to education institution	Between Groups	3.480	4	.870	1.919	.111
	Within Groups	63.460	140	.453		
	Total	66.939	144			
Issues related to students	Between Groups	3.904	4	.976	1.846	.123
	Within Groups	74.003	140	.529		
	Total	77.907	144			

ANOVA test shows that the hypothesis "there is no signified importance difference between issues related to teachers, students, syllabus, and educational institution refer to students specializations" will be accepted because the significant importance more than 5% for each one.

Forth hypothesis: There is no significant importance difference between the issues facing educational process referred to teacher experiences.

In order to clarify the validity of the forth hypothesis the researcher analyzed problems facing educational process referred to teachers years of experience depends on the issues related to student, syllabus, educational institutions, and teachers as Table (36) shows.

Table (36): Descriptive of the issues facing educational process referred to teachers years of experience.

		N	Mean	Std. Deviation
Issues related to teachers	Less than two	5	4.20	.501
	2-5	6	4.38	.516
	6-10	7	4.35	.709
	more than 10	21	3.88	.568
	Total	39	4.08	.602
Issues related to syllabus	Less than two	5	4.20	.359
	2-5	6	3.95	.617
	6-10	7	4.18	.674
	more than 10	21	3.91	.625
	Total	39	4.00	.598
Issues related to education institution	Less than two	5	4.17	.519
	2-5	6	3.74	.708
	6-10	7	4.31	.334
	more than 10	21	3.55	.816
	Total	39	3.79	.750
Issues related to students	Less than two	5	4.13	.183
	2-5	6	3.72	.524
	6-10	7	3.90	.568
	more than 10	21	3.32	.673
	Total	39	3.59	.655

To analyze the previous table the researcher used ANOVA test like table (37):

Table (37): ANOVA test for issues facing educational process referred to teachers experiences.

		Sum of Squares	df	Mean Square	F	Sig.
Issues related to teachers	Between Groups	1.975	3	.658	1.951	.139
	Within Groups	11.813	35	.338		
	Total	13.788	38			
Issues related to syllabus	Between Groups	.613	3	.204	.552	.650
	Within Groups	12.957	35	.370		
	Total	13.571	38			
Issues related to education institution	Between Groups	3.807	3	1.269	2.527	.073
	Within Groups	17.573	35	.502		
	Total	21.379	38			
issues related to students	Between Groups	3.834	3	1.278	3.581	.023
	Within Groups	12.490	35	.357		
	Total	16.325	38			

ANOVA test shows that the hypothesis "there is no signified importance difference between the issues which related to teachers, syllabus, and education institutions refer to teachers experiences." will be accepted because the significant importance more than 5%, on the other hand the hypothesis "there is signified importance difference between issues which related to students refer to teachers experiences " will be rejected because the significant importance less than 5%. To more analyze must be used LSD test like table (38).

Table (38): LSD test for the issues related to students refer to teachers experiences.

Dependent Variable	(I) Teaching experience (Years)	(J) Teaching experience (Years)	Mean Difference (I-J)	Sig.
Issues related to students	Less than two	2-5	.411	.263
		6-10	.229	.518
		more than 10	*.816	.009
	2-5	Less than two	-.411	.263
		6-10	-.183	.586
		more than 10	.405	.152
	6-10	Less than two	-.229	.518
		2-5	.183	.586
		more than 10	*.587	.031
	more than 10	Less than two	*-.816	.009
		2-5	-.405	.152
		6-10	*-.587	.031

***: mean the significant important less than .05**

LSD test for issues related to students refer to teachers experiences shows:

- There is a difference between teachers who have more than ten year experience and the teachers who have Less than two year experience, so the teachers who have Less than two year experience say that there are issues related to students more than the teachers who have more than ten year experience.
- There is a difference between teachers who have more than ten year experience and the teachers who have six to ten year experience, so the teachers who have six to ten year experience say there are issues

related to student more than the teachers who have more than ten year experience .

- There is no difference between teachers who have more than ten year experience and the teachers who have two to five year experience.

Fifth hypothesis: There is no significant importance difference between the issues facing educational process referred to teacher job title.

In order to clarify the validity of the fifth hypothesis the researcher analyzed problems facing educational process referred to teachers job's title depends on the issues related to student, syllabus, educational institutions, and teachers as Table (39) shows.

Table (39) Descriptive of the issues facing educational process referred to teachers jobs title.

	Job Title	N	Mean	Std. Deviation
Issues related to teachers	Teacher	27	4.17	.573
	Laboratory Technician	12	3.88	.644
Issues related to syllabus	Teacher	27	4.04	.553
	Laboratory Technician	12	3.93	.709
Issues related to education institution	Teacher	27	3.91	.712
	Laboratory Technician	12	3.54	.799
Issues related to students	Teacher	27	3.52	.656
	Laboratory Technician	12	3.74	.657

To analyze the previous table the researcher used T-test like table (40):

Table (40): T- test for the issues related to educational process refer to teachers job's title.

	t-test for Equality of Means		
	t	**df**	**Sig. (2-tailed)**
Issues related to teachers	1.397	37	.171
Issues related to syllabus	.518	37	.607
Issues related to education institution	1.460	37	.153
Issues related to students	-.928	37	.359

T-test table show that there is no difference for the issues related to educational process refer to teachers job's title.

Sixth hypothesis: There is no significant importance difference between the issues facing educational process referred to teacher institution.

In order to clarify the validity of the sixth hypothesis the researcher analyzed problems facing educational process referred to teachers institution depends on the issues related to student, syllabus, educational institutions, and teachers as Table (41) shows.

Table (41): Descriptive of the issues facing educational process referred to teachers institution.

		N	Mean	Std. Deviation
Issues related to teachers	Hisham Hijjawi College of Technology	17	3.98	.606
	Palestine Technical College	9	3.68	.462
	Applied Professions College	13	4.48	.458
	Total	39	4.08	.602
Issues related to syllabus	Hisham Hijjawi College of Technology	17	4.10	.630
	Palestine Technical College	9	3.73	.527
	Applied Professions College	13	4.07	.585
	Total	39	4.00	.598
Issues related to education institution	Hisham Hijjawi College of Technology	17	4.13	.491
	Palestine Technical College	9	3.37	.423
	Applied Professions College	13	3.65	1.008
	Total	39	3.79	.750
Issues related to students	Hisham Hijjawi College of Technology	17	3.33	.780
	Palestine Technical College	9	3.63	.423
	Applied Professions College	13	3.90	.484
	Total	39	3.59	.655

To analyze the previous table the researcher used ANOVA test like table (42).

Table (42): ANOVA test for issues facing educational process referred to teachers institution.

		Sum of Squares	df	Mean Square	F	Sig.
Issues related to teachers	Between Groups	3.698	2	1.849	6.597	.004
	Within Groups	10.090	36	.280		
	Total	13.788	38			
Issues related to syllabus	Between Groups	.884	2	.442	1.254	.297
	Within Groups	12.687	36	.352		
	Total	13.571	38			
Issues related to education institution	Between Groups	3.902	2	1.951	4.019	.027
	Within Groups	17.477	36	.485		
	Total	21.379	38			
issues related to students	Between Groups	2.363	2	1.181	3.046	.060
	Within Groups	13.962	36	.388		
	Total	16.325	38			

ANOVA test shows that the hypothesis "there is no signified importance difference between issues which related to syllabus and students refer to teachers institution." will be accepted because the significant importance more than 5%. On the other hand the hypothesis "there is signified importance difference between issues which related to teachers and education institution refer to teachers institution" will be rejected because the significant importance less than 5%. To more analyze must be used LSD test like table (43).

Table (43): LSD test for issues facing teachers and students referred to teachers institution.

Dependent Variable	(I) The institution that you work on it	(J) The institution that you work on it	Mean Difference (I-J)	Sig.
Issues related to teachers	Hisham Hijjawi College of Technology	Palestine Technical College	.301	.177
		Applied Professions College	*-.500	.015
	Palestine Technical College	Hisham Hijjawi College of Technology	-.301	.177
		Applied Professions College	*-.801	.001
	Applied Professions College	Hisham Hijjawi College of Technology	*.500	.015
		Palestine Technical College	*.801	.001
Issues related to education institution	Hisham Hijjawi College of Technology	Palestine Technical College	*.769	.011
		Applied Professions College	.486	.066
	Palestine Technical College	Hisham Hijjawi College of Technology	-.769	.011
		Applied Professions College	-.283	.355
	Applied Professions College	Hisham Hijjawi College of Technology	-.486	.066
		Palestine Technical College	.283	.355

***: mean the significant important less than .05**

LSD test for issues related to teachers refer to teachers institution shows:

- There is a difference between teachers who worked in Hisham Hijjawi College of Technology and the teachers who worked in Applied Professions College, so the teacher worked in Applied Professions College view better than the teachers who worked in Hisham Hijjawi College of Technology view for the issues which related to the teachers.
- There is a difference between teachers who worked in Palestine Technical College and the teachers who worked in Applied Professions College, so the teacher who worked in Applied Professions College view better than the teachers who worked in Palestine Technical College view for the issues which related to teachers.

LSD test for issues which related to education institutions refer to teachers institution shows:

- There is difference a between teachers who worked in Palestine Technical College and the teachers who worked in Hisham Hijjawi College of Technology , so the teacher worked in Hisham Hijjawi College of Technology view better than the teachers who worked in Palestine Technical College view for the issues which related to education institutions.

- There is no difference between teachers who worked in Applied Professions College and the teachers who worked in Palestine Technical College, nor the teachers who worked in Hisham Hijjawi College of Technology for the issues related to education institutions.

Seventh hypothesis: There is no significant importance difference between the issues facing educational process referred to student institution.

In order to clarify the validity of the forth hypothesis the researcher analyzed problems facing educational process referred to students institution depends on the issues related to student, syllabus, educational institutions, and teachers as Table (44) shows.

Table (44): Descriptive of the issues facing educational process referred to students institution.

		N	Mean	Std. Deviation
Issues related to teachers	Hisham Hijjawi College of Technology	74	4.04	.575
	Palestine Technical College	46	3.71	.621
	Applied Professions College	25	4.25	.418
	Total	145	3.97	.595
Issues related to syllabus	Hisham Hijjawi College of Technology	74	3.72	.675
	Palestine Technical College	46	3.51	.780
	Applied Professions College	25	3.87	.607
	Total	145	3.68	.706
Issues related to education institution	Hisham Hijjawi College of Technology	74	3.58	.699
	Palestine Technical College	46	3.59	.700
	Applied Professions College	25	3.66	.617
	Total	145	3.60	.682
Issues related to students	Hisham Hijjawi College of Technology	74	3.54	.714
	Palestine Technical College	46	3.48	.786
	Applied Professions College	25	3.39	.721
	Total	145	3.49	.736

To analyze the previous table the researcher used ANOVA test like table (45).

Table (45): ANOVA test for the issues facing educational process referred to students institution.

		Sum of Squares	df	Mean Square	F	Sig.
Issues related to teachers	Between Groups	5.370	2	2.685	8.349	.000
	Within Groups	45.663	142	.322		
	Total	51.033	144			
Issues related to syllabus	Between Groups	2.380	2	1.190	2.433	.091
	Within Groups	69.448	142	.489		
	Total	71.828	144			
Issues related to education institution	Between Groups	.121	2	.061	.129	.879
	Within Groups	66.818	142	.471		
	Total	66.939	144			
Issues related to students	Between Groups	.430	2	.215	.394	.675
	Within Groups	77.478	142	.546		
	Total	77.907	144			

AVOVA test shows that the hypothesis "there is no signified importance difference between issues which related to students, syllabus, and education institution refer to students institution." will be accepted because the significant importance more than 5%. On the other hand the hypothesis "there is signified importance difference between issues related to teachers refer to students institution" will be rejected because the significant importance less than 5%. To more analyze must be used LSD test like table (46).

Table (46): LSD test for the issues facing teachers referred to students institution.

Dependent Variable	(I) The institution that you work on it	(J) The institution that you work on it	Mean Difference (I-J)	Sig.
Issues related to teachers	Hisham Hijjawi College of Technology	Palestine Technical College	*.331	.002
		Applied Professions College	-.203	.124
	Palestine Technical College	Hisham Hijjawi College of Technology	*-.331	.002
		Applied Professions College	*-.535	.000
	Applied Professions College	Hisham Hijjawi College of Technology	.203	.124
		Palestine Technical College	*.535	.000

***: mean the significant important less than .05**

LSD test for issues which related to teachers refer to students institution shows:

- There is a difference between students who studied in Palestine Technical College and the students who studied in Hisham Hijjawi College of Technology, so the students who studied in Hisham Hijjawi College of Technology view better than the students who studied in Palestine Technical College view for the issues which related to teachers.
- There is a difference between students who studied in Palestine Technical College and the students who studied in Applied

Professions College, so the students who studied in Applied Professions College view better than the students who studied in Palestine Technical College view for the issues which related to teachers.

- There is no difference between the students who studied in Hisham Hijjawi College of Technology and the students who studied in Applied Professions College from students view.

Eighth hypothesis: There is no significant importance difference between required skills for each specialization referred to teachers, students, and employers.

Table (47) shows the mean and stranded deviation for automotive specialization skills form teachers, students and employers perspective.

Table (47): Descriptive for Automotive specialization skills.

	N	**Mean**	**Std. Deviation**
Teacher	7	3.94	.506
Student	31	3.86	.556
Employer	12	3.51	.321
Total	50	3.79	.518

To analyze the previous table the researcher used ANOVA test like table (48).

Tables (48) show there is no big difference between teachers, students and employers in relation to Automotive specialization Skills.

Table (48): ANOVA test for Automotive specialization skills.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.214	2	.607	2.387	.103
Within Groups	11.955	47	.254		
Total	13.169	49			

Table (49) shows the mean and stranded deviation for industrial automation specialization skills form teachers, students and employers perspective.

Table (49): Descriptive for automation specialization skills.

	N	Mean	Std. Deviation
Teacher	8	4.00	.626
Student	25	4.03	.666
Employer	12	3.64	.555
Total	45	3.92	.641

To analyze the previous table the researcher used ANOVA test like table (50).

The table (50) shows that there is no big difference between teachers, students and employers in relation to automation specialization Skills.

Table (50): ANOVA test for automation specialization skills.

	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	1.308	2	.654	1.637	.207
Within Groups	16.781	42	.400		
Total	18.089	44			

In addition, Table (51) shows the mean and stranded deviation for conditioning and Refrigeration specialization skills form teachers, students and employers perspective.

Table (51): Descriptive for conditioning and Refrigeration specialization skills.

	N	Mean	Std. Deviation
Teacher	10	3.99	.511
Student	43	3.73	.628
Employer	11	2.88	.558
Total	64	3.62	.688

To analyze the previous table the researcher used ANOVA test like table (52).

Table (52): ANOVA test for conditioning and Refrigeration specialization skills.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	7.842	2	3.921	10.869	.000
Within Groups	22.007	61	.361		
Total	29.849	63			

The tables above shows that there is a difference between teachers, students and employers in relation to conditioning and Refrigeration specialization Skills, LSD table (53) shows this difference.

Table (53): LSD test for conditioning and Refrigeration specialization skills.

(I) Group	(J) Group	Mean Difference (I-J)	Sig.
Teacher	Student	.264	.215
	Employer	1.108*	.000
Student	Teacher	-.264	.215
	Employer	.844*	.000
Employer	Teacher	-1.108*	.000
	Student	-.844*	.000

***: mean the significant important less than .05**

LSD table shows:

- There is a difference between teachers and employers view, so the teachers view better than employers views in relation to conditioning and Refrigeration specialization skills.
- There is a difference between students and employers view, so the students view better than employers views in relation to conditioning and Refrigeration specialization skills.

- There is no difference between teachers and students view in relation to conditioning and Refrigeration specialization skills.

Table (54) shows the mean and stranded deviation for Production and Machinery specialization skills form teachers, students and employers perspective.

Table (54): Descriptive for Production and Machinery specialization skills.

	N	Mean	Std. Deviation
Teacher	6	4.20	.654
Student	8	4.09	.279
Employer	10	3.37	.319
Total	24	3.82	.553

To analyze the previous table the researcher used ANOVA test like table (55).

Table (55): ANOVA test for Production and Machinery specialization skills.

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	3.440	2	1.720	10.031	.001
Within Groups	3.601	21	.171		
Total	7.041	23			

Table (55) above shows that there is a difference between teachers, student and employers in relation to Production and Machinery specialization Skills, LSD table (56) shows this difference.

Table (56): LSD test for Production and Machiner specialization skills.

(I) Group	(J) Group	Mean Difference (I-J)	Sig.
Teacher	Student	.106	.640
	Employer	.824*	.001
Student	Teacher	-.106	.640
	Employer	.718*	.001
Employer	Teacher	-.824*	.001
	Student	-.718*	.001

***: mean the significant important less than .05**

LSD table shows:

- There is a difference between teachers and employers view, so the teachers view better than employers views in relation to Production and Machinery specialization skills.
- There is a difference between students and employers view, so the students view better than employers views in relation to Production and Machinery specialization skills.
- There is no difference between teachers and students view in relation to Production and Machinery specialization skills.

Table (57) shows the mean and stranded deviation Communication specialization skills form teachers, students and employers perspective.

Table (57): Descriptive Communication specialization skills.

	N	**Mean**	**Std. Deviation**
Teacher	6	3.48	.743
Student	37	3.91	.530
Employer	10	3.66	.307
Total	53	3.81	.536

To analyze the previous table the researcher used ANOVA test like table (58).

Table (58): ANOVA test for Communication specialization skills.

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	1.255	2	.627	2.289	.112
Within Groups	13.703	50	.274		
Total	14.957	52			

Table (58) above shows that there is no big difference between teachers, students and employers in relation to Automotive specialization Skills.

ANOVA test shows the hypothesis "there is no signified importance difference between required skills for Automotive, industrial automation, and Communication specialization referred to teachers, students, and employers." will be accepted because the significant importance more than 5%. On the other hand the hypothesis "there is signified importance difference between required skills for conditioning and Refrigeration and Production and Machinery specialization referred to teachers, students, and employers" will be rejected because the significant importance less than 5%.

4.5 Discussion:

This study shows clear variation in required skills based on teachers, students and employers. Figure 1 illustrates that teachers and students perspective is equally but the employers less than them.

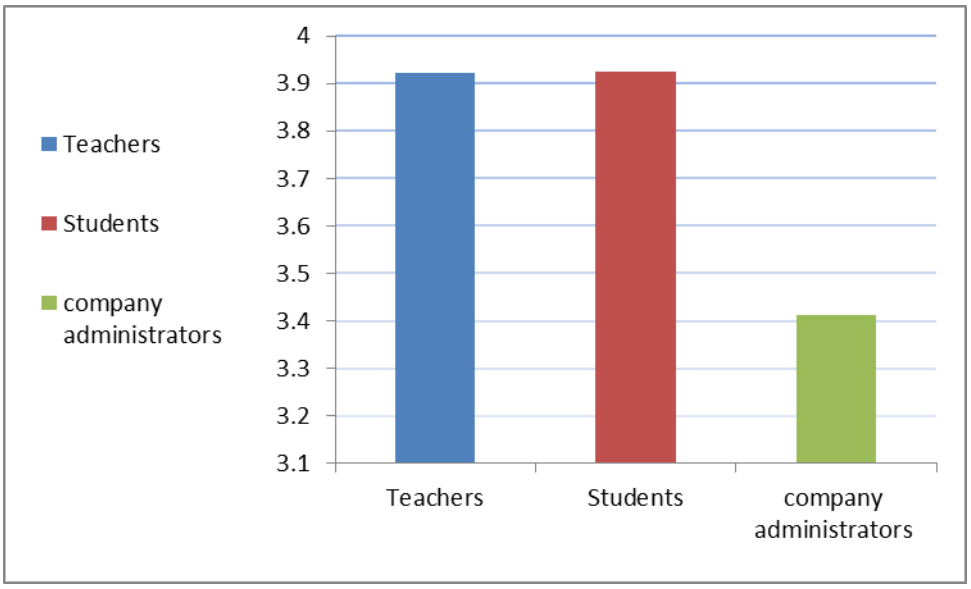

Figure (1): Required skills based on teachers, students and employers Perspective

Based on this study these variation refer to several issues, some of these issues approved by all specializations like problems which are related to students as the following:

1. Students do not care about the education process.
2. Students care about the marks more than the benefits and skills.
3. Students do not participate during the lectures and technical experiments.
4. Students do not care about the public safety in the workshop.

On the other hand there have been special problems in specializations like:

- First problem: The available equipment is not enough for the academic demand.

This problem appeared in the following specializations:

1. Automotive: from the students perspective.
2. Refrigeration: from the teachers perspective.
3. Production and Machinery: from the students perspective.

- Second problem: Technical colleges are not distributed enough in geographical way, whereas students cannot join it easily.

This problem appeared in the following specializations:

1. Automotive: from the students perspective.
2. Industrial Automation: from the students perspective.
3. Refrigeration: from the students perspective.
4. Production and Machinery: from the students perspective.

- Third problem: The technical colleges follow its graduated but that's not enough.

This problem appeared in following specializations:

1. Automotive: from the students perspective.
2. Refrigeration: from the teachers perspective.
3. Communication: from the teachers perspective.

- ❖ Forth problem: The buildings are not suitable enough for technical training.

This problem appeared in following specializations:

1. Industrial Automation: from the teachers perspective.
2. Refrigeration: from the teachers perspective.

- ❖ Fifth problem: The technical education doesn't focus on the practical side more than the academic side. This problem appeared only in Automotive specialization from the students perspective.

Also this study shows special problems only for Refrigeration specialty from teachers perspective which are:

1. The updating of syllabus in order to keep up with the market is weakness.
2. Technical disciplines don't cover enough of the market demand.
3. The modern equipment which faces the modern technology in the market is not enough.
4. The available equipment is not enough to give the students the demand skills.

The researcher believed that these problems are the main factors that effect on the output skills for the students, whereas the study showed a set of skills that it lacks for students from Employer perspective based on specializations, which are:

❖ **Automotive:**

- The ability to perform maintenance of the powertrain component's (gearbox, axles, drive shaft).
- The ability of assembly and disassembly engine components.
- The ability to perform maintenance of safety and comfort system.
- The ability to perform maintenance fuel diesel injection system.
- The ability to read, understand and analysis electric wire diagram.

❖ **Industrial Automation:**

- The ability to design control systems schemes hydraulic and pneumatic Electro-Hydraulic and Elector- pneumatic.
- The ability to link between automation technology and production lines and different applications through PLC programming.
- The ability to prepare technical reports required to follow the workflow.

❖ **Refrigeration:**

- The ability to make maintenance for refrigerator and water coolers
- The ability to apply drawing in the field of air condition using computer technology.
- Ability to determine troubleshooting in HVAC system.
- The ability to design and manufacture center air condition duct.
- The ability to make HVAC calculation.

- The ability to design and execute center heating systems and execute required maintenance.
- The ability to inspect and operate cooling tower and to select the suitable pump, and prepare time schedule for maintenance.

❖ **Production and Machinery:**

- The ability to use computer in design and drawing.
- The ability to understand and apply the institution role and safety requirements.
- The ability to design and produce machinery in high standard and technique.
- The ability to build machinery operation system.
- The ability to read out; analyze the drawing, the operation method, maintenance requirement, and the operation manuals.

❖ **Communication:**

- The ability to deal with the techniques of microwave and satellite communication.
- The ability to deal with mobile communications systems and the GSM system in particular.

So, this study shows that there is a strong correlation between the missing skills and problems relating to each specialization, so it shows that

the refrigeration is the worst specialization between engineering professions, but the communication is the best one.

On the other hand, this study showed that there are differences between colleges related to lectures issues based on hypothesis six.

Conclusions and Recommendation

This chapter presented the conclusion of the research results and explores the recommendations that are based on the research findings in order to develop the education in the technical colleges in Palestine.

5.1 Conclusion

Because of the important of technical education and its role in providing the market with a group of multiple skills and competencies, this study aimed to clarify the reality of this education sector and discover of the most important issues that hinder its development and prosperity.

This research focus on the issues facing education process which include teachers, syllabus, education institutions and students to identify how each education process affected the technical education. On the other hand, the research determines the required skills for the graduated student and how much it meet market needs. Also, determine employers required needs to encourage technical colleges to graduated students able to work and creative.

From these results, many problems appear in technical education, some of these problems related to student such as: students do not care about the education process, students care about the marks more than the benefits and skills, students do not participate during the lectures and technical experiments, and students do not care about the public safety in the workshop. On the other hand, there are some problems that have

emerged in some specializations, which relate to technical education focused on the academic side more than the practical side, the available equipment is not enough for the academic demand, and the technical colleges are not distributed enough in geographical way, whereas students cannot join it easily. In addition, some problem related to college buildings which are not suitable enough for technical training, and the technical colleges don’t follow its graduated.

Results indicate that the first hypothesis which related to syllabus with teacher education degree accepted, but which related to teacher and student with teacher education degree rejected. Also, second hypothesis which related to students with to teachers specializations accepted, but which related to teachers, syllabus, and education institution with teachers specializations rejected.

In addition, the results indicate that the third hypothesis which related to teachers, students, syllabus, and educational institution with students specializations accepted. Also, the fourth hypothesis which related to teachers, syllabus, and education institutions with teachers experiences accepted, but which related to students with teachers experiences rejected.

Hypothesis five which related to educational process with teacher jobs title accepted. While the sixth hypothesis which related to syllabus and students with teachers institution accepted, but which related to teachers and education institution with teachers institution rejected.

On the other hand, the results of seventh hypothesis which related to students, syllabus, and education institution with students institution accepted, but which related to teachers with students institution rejected. Also the eighth hypothesis which related to skills for each specialization with teachers, students, and employers accepted in automotive, industrial automation and communication specialization, but rejected in refrigeration and production and machinery specialization.

5.2 Recommendation

Based on the conclusion above, the researcher suggested a set of recommendation which designed to improve technical education and increase the effectiveness of technical colleges to become more suitable with the development of the market by highlighting the weaknesses in these colleges and try to change the perception about technical education to achieve the desired results which focus on graduate high capacity and efficiency students.

Depends on the results of this research, the researcher find many issues related to teaching methods. So, the researcher suggests replacing the teaching methods with more suitable methods for technical education like: cycle group, case study, and research methods. The new methods encourage student to be more active and able to facing market needs, the movement from traditional to more practical methods will increase the educational process value by graduating many capable and effective students. On the other hand, to accept the new teaching methods the college

members must build a culture of entrepreneurial spirit among students through awareness lectures.

In addition to teaching methods, the syllabus and educational materials affected the education processes. So, update and develop the syllabus should have a role in the development of technical education because it enters new information and skills to students. Based on this research refrigeration specialty is more specialization suffers from problems in the syllabus, so it is necessary to develop a mechanism for educational materials development to become suitable with of the market needs.

From what has been stated above, it’s important to divide the internship time into multiple periods, and identify the skills required of each period, then evaluate the trainees according to the needed skills for each period by the employers through the survey attached with the trainees in order to avoid any lack of required skills for students

In addition, the researcher focuses on the problems facing the students through the education process by Student Affairs division in technical colleges. The researcher clarified the importance of workshops need to show the risks arising in the event of non-compliance with the rules of occupational safety. So, the technical colleges should develop many workshops to assist the students and organize meeting between the teachers and employers in order to identify the problems which face the graduated students in the market and try to solve it. In addition, frequently arrange

for workshops and meeting between technical teachers of different colleges for each specialization to exchange the experiences will help the student and encourage them.

Researcher discovered by the results that technical education facing a lack of planning, so prepare strategic plan to redistribute the technical colleges in order to make students able to attend will play significant role in the development of technical colleges. The new strategic plan must reorganize some lesson plans in order to concern on the practical side more the theoretical side.

The important of education in general is not only in the graduation of the students who are able to work but also includes helping them to find suitable jobs. So, follow-up the graduated from special department in the technical colleges through alumni survey or other methods, and try to provide jobs opportunities for them will increase the effectiveness of technical colleges.

Based on this research technical college administrators must be care about:

1. Study the geographic areas, which must contain the technical colleges to help students to join them in distributed areas and not concentrated in one area. This will help the student to join it from different cities and facilitate the transportation.

2. Focusing on the syllabus, teaching methods, and workshops in order to develop student skills and exchange experiences and improve the reputation of technical education.
3. Cooperation between the various technical colleges to develop strategic plan for the advancement of technical education and to opening new specialties to meet the local and regional market needs of graduates students with different skill and competences.

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Appendices
Appendix A: Figures

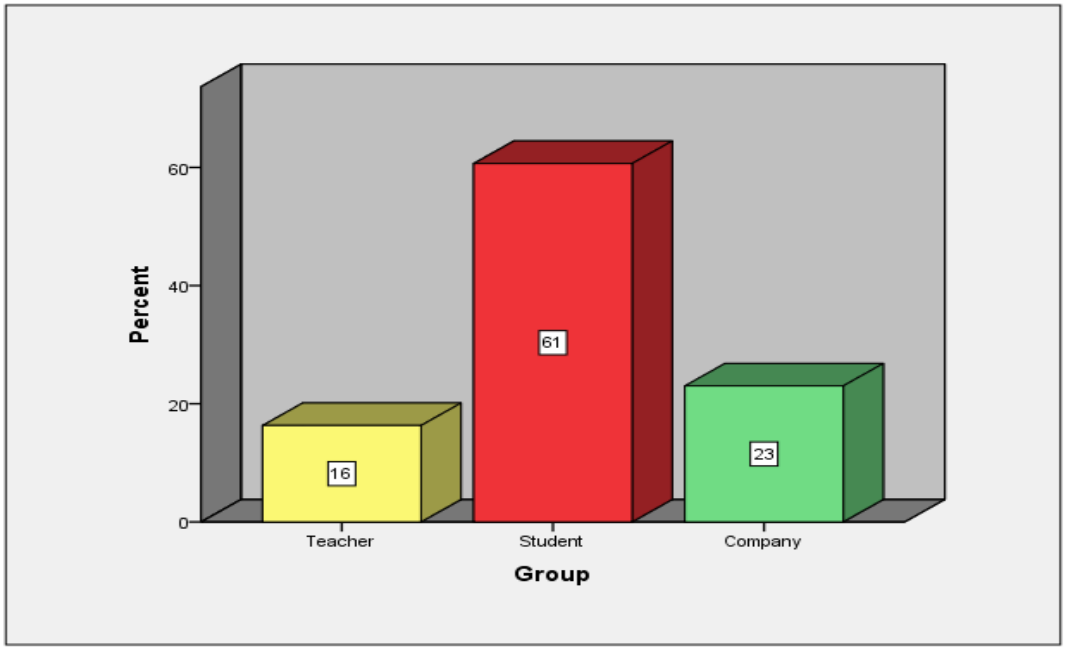

Figure (2): Percentage of group distribution

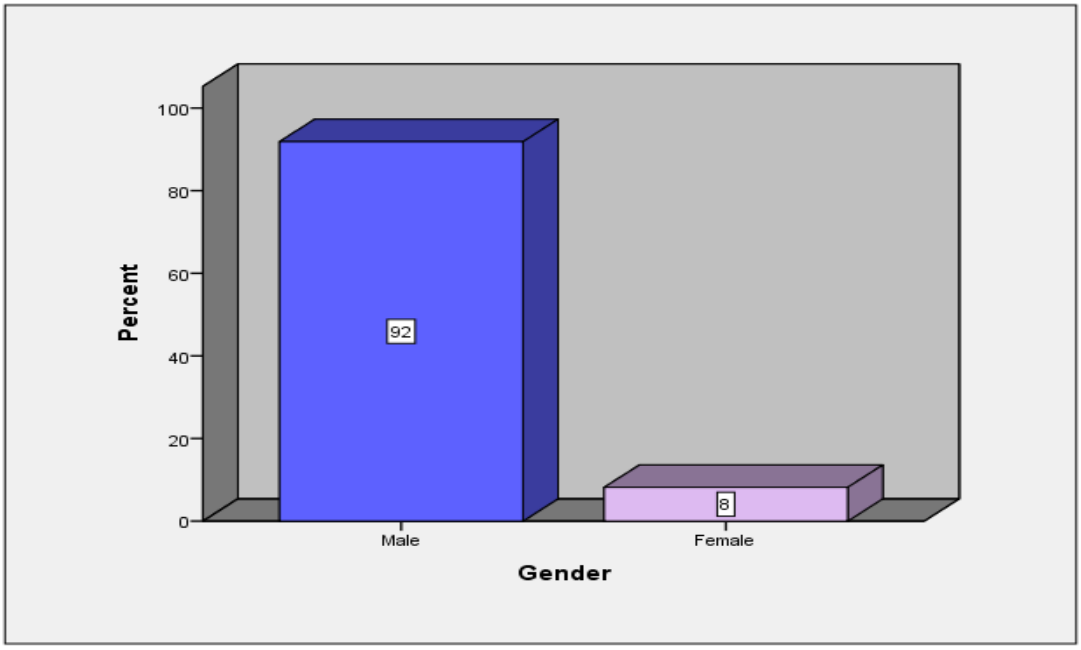

Figure (3): Gender percentage among teachers and student

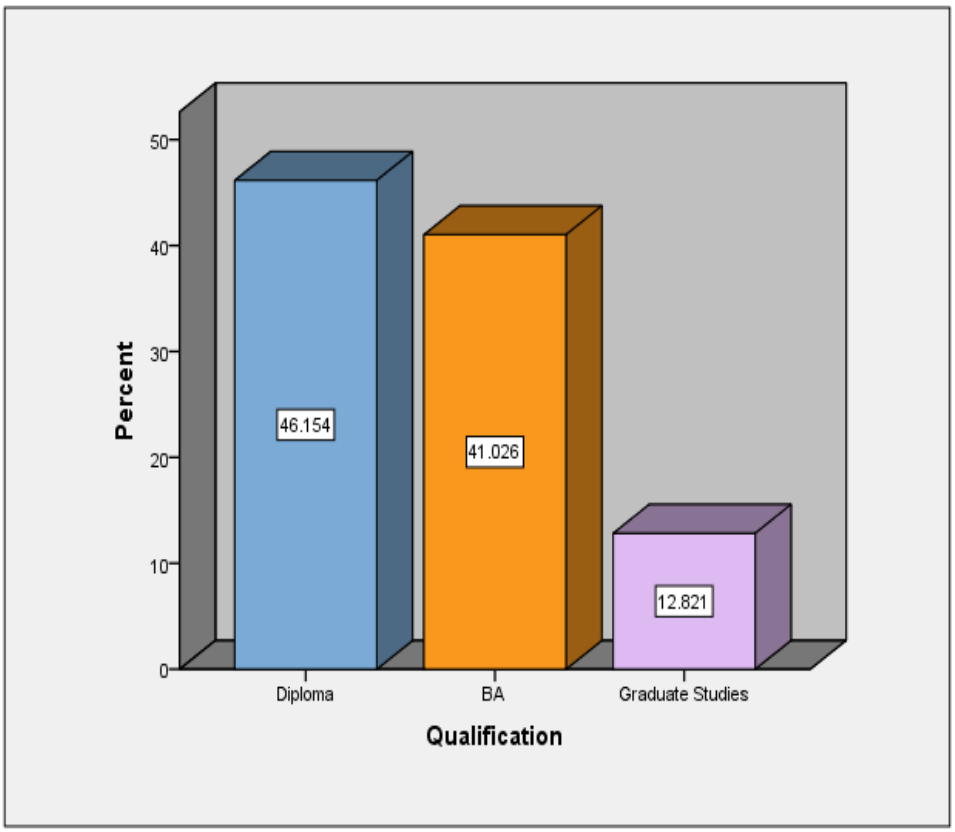

Figure (4): Qualification percentage among teachers

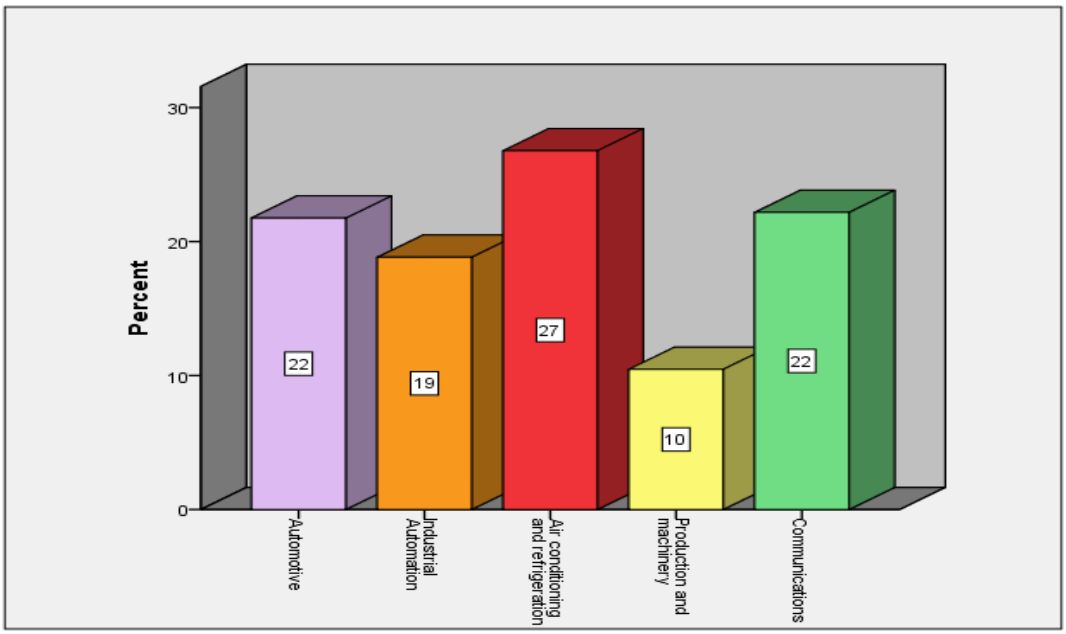

Figure (5): Specializations percentage among teachers, students and employers

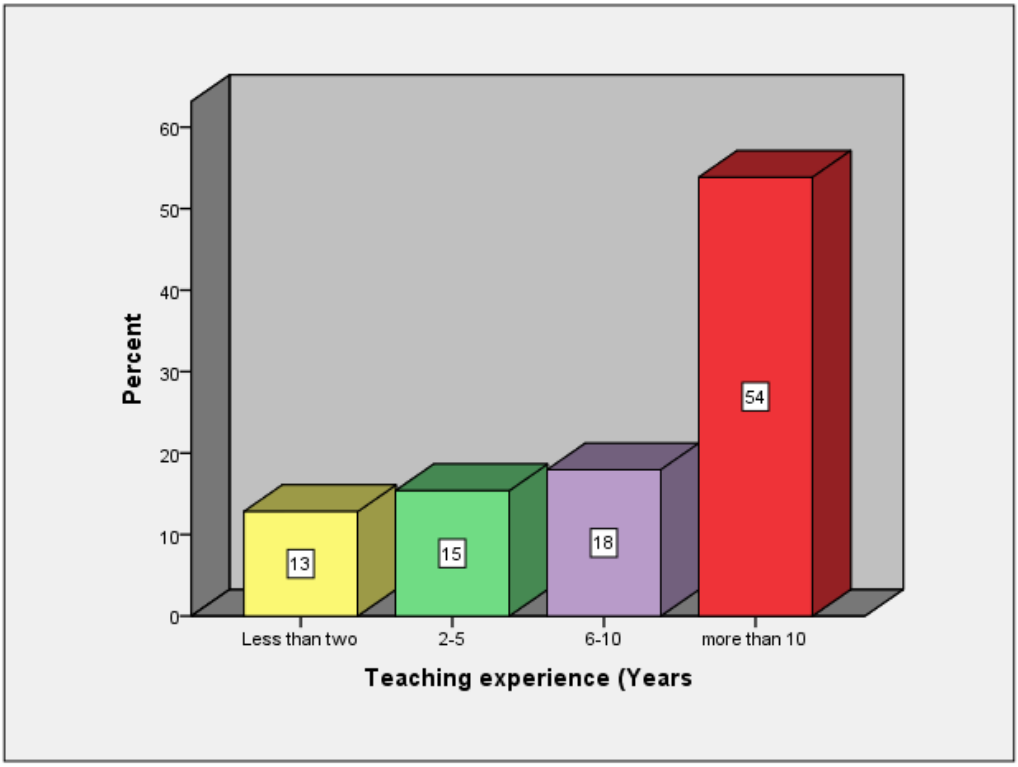

Figure (6): Percentage of teaching experience among teachers

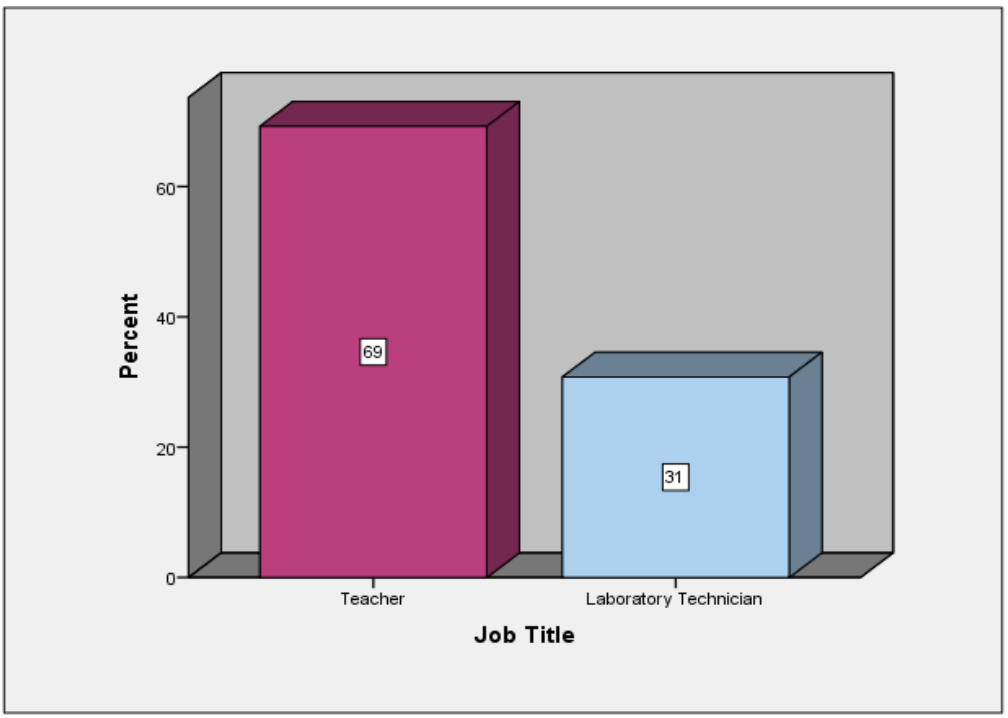

Figure (7): Percentage of job title for teachers

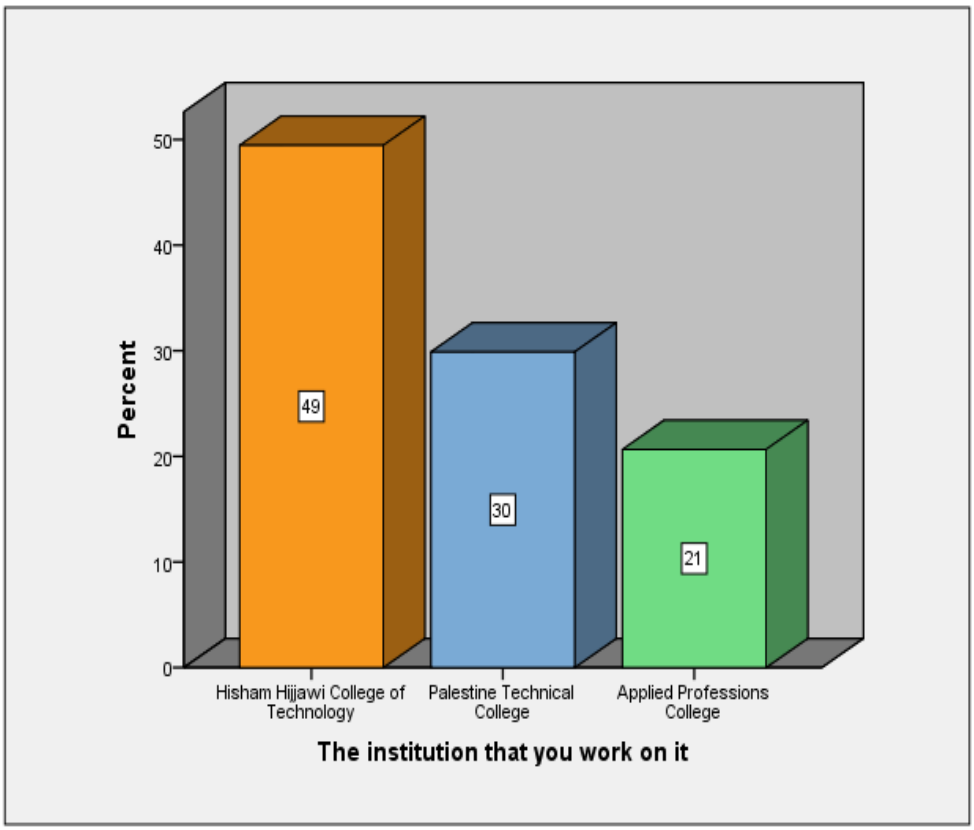

Figure (8): Teachers and students institution percentage

Appendix B: Questionnaire

Questionnaire of

Engineering career diploma reality in the west bank technical college

For Employers

An-Najah National University

Faculty of Graduate Studies

Dear Employers,

The researcher is making a research under the title of " engineering career diploma reality in the west bank technical college", so the research makes this questioner which contains two sections, the first section include the information for the company employer, the second section shows the extent to which technical colleges graduates can meet the market needs, So according to your perspective please answer these questions in objective and accurate way and be sure that the purpose of this questioner is a scientific research only.

Thank you

First Section: Information for the Company.

Company Name:

Your Job Title:

The Company Field:	Automotive	( )
	Air conditioning and refrigeration	( )
	Production and machinery	( )
	Industrial Automation	( )
	Communications	( )
Number of employees	Less than 5 employees	( )
who hold diploma:	From 5 to 10 employees	( )
	More than 10 employees	( )

Second Section: Information for the Company

Do the following skills available in the company's staffs who graduate from technical colleges? Answer the items according to your specialty, please**.**

Skills required for each specialty. **Please in this suction obligation for your company field only**						
No.	**Skills required**	**Strongly Agree**	**Agree**	**Neutral**	**Opposed**	**Strongly opposed**
Skills for automotive specialty						
1	He has the ability to diagnosis mechanical troubles					
2	He has the ability to diagnosis electrical troubles					
3	He has the ability to performing protective maintenance					
4	He has the ability to perform engine ' calibrations and adjustment '					
5	He has the ability to perform maintenance of the powertrain component's (gearbox , axles , drive shaft)					
6	He has the ability to perform maintenance of front suspension					
7	He has the ability of assembly and disassembly engine component's					
8	He has the ability to utilizes advanced diagnostic devices					
9	He has the ability to utilize software data					
10	He has the ability to perform maintenance of safety and comfort system					
11	He has the ability to perform maintenance fuel diesel injection system					
12	He has the ability to read , understand and analysis electric wire diagram					

Skills for air conditioning and refrigeration specialty						
No.	**Skills required**	**Strongly Agree**	**Agree**	**Neutral**	**Opposed**	**Strongly opposed**
1	He has the ability on the formulation copper pipes					
2	He has the ability to install and maintenance split unit air condition and cooling units					
3	He has the ability to make maintenance for refrigerator and water coolers					
4	He has the ability to apply drawing in the field of air condition using computer technology					
5	He has ability to determine troubleshooting in HVAC system					
6	He has the ability to design and manufacture center air condition duct					
7	He has the ability to review the technical drawings for water and air distribution					
8	He has ability to make HVAC calculation					
9	He has ability to design and execute center heating systems and execute required maintenance.					
10	He has the ability to inspect and operate cooling tower and to select the suitable pump, and prepare time schedule for maintenance					

Skills for Production and machinery specialty						
No.	**Skills required**	**Strongly Agree**	**Agree**	**Neutral**	**Opposed**	**Strongly opposed**
1	He has the ability to read out the mechanical drawing, understand symbols and apply them in real models in the production process					
2	He has the ability to operate lathing and milling machine , and has the proper skill's to formulate screw's and gear					
No.	**Skills required**	**Strongly Agree**	**Agree**	**Neutral**	**Opposed**	**Strongly opposed**

3	He has the ability to perform all measurements and accrue calibration of production, using the measure and calibrating tools					
4	He has the ability to understand the mechanical properties of the material's and selecting the best material for product pieces					
5	He has the ability to perform welding and connecting technique					
6	He has the ability to using computer in design and drawing.					
7	He has the ability to understand and apply the institution role and safety requirements					
8	He has the ability to design and produce machinery in high standard and technique					
9	He has the ability to build machinery operation system and production line					
10	He has the ability to control the production process and apply the requirement of quality control.					
11	He has the ability to read out, analyze the drawing , the operation method ,maintenance requirement , and the operation manuals.					

Skills for communication specialty						
No.	**Skills required**	**Strongly Agree**	**Agree**	**Neutral**	**Opposed**	**Strongly opposed**
1	Has the ability to deal with the techniques of analogue and digital communications technically					
2	Has the ability to use test equipment and measurement devices for circuits					
3	Has the ability to installation, operation and maintenance of transmission lines and fiber optic					
No.	**Skills required**	**Strongly Agree**	**Agree**	**Neutral**	**Opposed**	**Strongly opposed**
4	Has the ability to do maintenance					

	work for various PBX					
5	Has the ability to participate in the control of various communication networks					
6	has specialized knowledge in terms of communication technology					
7	Has the ability to deal with the techniques of microwave and satellite communication					
8	Has the ability to deal with mobile communications systems And the GSM system in particular					
9	Has the ability to deal with the digital circuit-switched technology and phone systems					

Skills for industrial automation specialty						
No.	**Skills required**	**Strongly Agree**	**Agree**	**Neutral**	**Opposed**	**Strongly opposed**
1	Has the ability to connect the electrical wiring circuits household and industrial					
2	Has the ability to design industrial electrical panels					
3	Has the ability to design and implement plans for industrial control panels and different capacity with the construction of a protection system					
4	Has the ability to design control systems schemes hydraulic and pneumatic Electro-Hydraulic and Elector- pneumatic					
5	Has the ability to link between automation technology and production lines and different applications through PLC					
No.	**Skills required**	**Strongly Agree**	**Agree**	**Neutral**	**Opposed**	**Strongly opposed**
6	Has the ability to run different types of electric motors and conduct the necessary maintenance					

7	Has the ability to operate and maintain machinery and industrial production lines					
8	Has the ability to prepare technical reports required to follow the workflow					
9	Has the ability to read the catalogs of equipment and machinery, electro-mechanical systems and hydraulic and pneumatic					

Third Section: Answer the Following Question:

- Are the skills mentioned in the previous question meets the needs of the market?
  Yes ( ) No ( )

- If the answer is NO, What can meets market requirements?

  _____

  _____

  _____

Thank you

Questionnaire of

Engineering career diploma reality in the west bank technical college

For Students

An-Najah National University

Faculty of Graduate Studies

Dear students,

The researcher is making a research under the title of " engineering career diploma reality in the west bank technical college", so the research makes this questioner which contains three sections, the first section include the personal information for the students, the second section include the problems which face the education and training process, and the third section include the skills which acquired from technical colleges. So according to your perspective please answer these questions in objective and accurate way and be sure that the purpose of this questioner is a scientific research only.

Thank you

First Section: Personal Information:

Please check (x) in the right place

Gender:

Male ( ) Female ( )

Specialty:

1. Automotive ( ) 2. Communications ( ) 3. Production and machinery ( )

4. Industrial Automation ( ) 5. Air conditioning and refrigeration ( )

The institution that you work on it:

1.Hisham Hijjawi College of Technology( ) 2. Palestine Technical College ( )

3. Applied Professions College ( )

Second Section: The Problem Which Face the Education Process.						
No.	**Skills required**	**Strongly Agree**	**Agree**	**Neutral**	**Opposed**	**Strongly opposed**
Problems deal with lecturers						
1	Lecturers are experiences in performance					
2	Lecturers are related with market					
3	Lecturers use modern tools in lecture training					
4	Lecturers connect the theoretical aspect with technical aspect					
5	Lecturers are able to give student the needed skills in each course					
6	Lecturers give training in verity ways					
7	Lecturers improve the way of training continuously					
Problems deal with syllabus						
8	there is a text book for each technical course					
9	students get up a lot of technical skills in each course					
10	wanted skills connect with the modern technology					
11	technical education concerns on practical side more than academic side					
12	updating the syllabus in order to keep up with the market					
13	the course is organized, whereas students can understand the content					
14	the available equipment are enough for the academic demand					
Problems deal with education institution						
15	Technical disciplines cover the market demand					
16	technical colleges are distributed in geographical way, whereas students can join it easily					
No.	**Skills required**	**Strongly Agree**	**Agree**	**Neutral**	**Opposed**	**Strongly opposed**

17	the building are suitable for technical training					
18	the technical colleges follow its graduated					
19	the technical colleges try to solve student's problems through their study					
20	there are modern equipment which faces the modern technology in the market					
21	the available equipment give the student the demand skills					
Problems deal with students						
22	students do not care about the education					
23	students do not participate during the lectures and technical experiments					
24	students care about the marks more than the benefits and skills					
25	the frequently absents of students					
26	students do not care about the public safety in the workshop					
27	student do not co-operate or work in team during experiments					

Third Section: Skills required for each specialty.
Please in this suction obligation for your specialization only.

No.	Skills required	Strongly Agree	Agree	Neutral	Opposed	Strongly opposed
Skills for automotive specialty						
28	He has the ability to diagnosis mechanical troubles					
29	He has the ability to diagnosis electrical troubles					
30	He has the ability to performing protective maintenance					
31	He has the ability to perform engine calibrations and adjustment					
No.	**Skills required**	**Strongly Agree**	**Agree**	**Neutral**	**Opposed**	**Strongly opposed**
32	He has the ability to perform maintenance of the powertrain					

	component's (gearbox ,drive shaft)					
33	He has the ability to perform maintenance of front suspension					
34	He has the ability of assembly and disassembly engine component's					
35	He has the ability to utilizes advanced diagnostic devices					
36	He has the ability to utilize software data					
37	He has the ability to perform maintenance of safety and comfort system					
38	He has the ability to perform maintenance fuel diesel injection system					
39	He has the ability to read , understand and analysis electric wire diagram					

Skills for air conditioning and refrigeration specialty						
28	He has the ability on the formulation copper pipes					
29	He has the ability to install and maintenance split unit air condition and cooling units					
30	He has the ability to make maintenance for refrigerator and water coolers					
31	He has the ability to apply drawing in the field of air condition using computer technology					
32	He has ability to determine troubleshooting in HVAC system					
33	He has the ability to design and manufacture center air condition duct					
34	He has the ability to review the technical drawings for water and air distribution					
No.	**Skills required**	**Strongly Agree**	**Agree**	**Neutral**	**Opposed**	**Strongly opposed**
35	He has ability to design and execute center heating systems and execute required maintenance.					

36	He has the ability to inspect and operate cooling tower and to select the suitable pump, and prepare time schedule for maintenance					
37	He has ability to make HVAC calculation					

Skills for Production and machinery specialty						
28	He has the ability to read out the mechanical drawing, understand symbols and apply them in real models in the production process					
29	He has the ability to operate lathing and milling machine , and has the proper skill's to formulate screw's and gear					
30	He has the ability to perform all measurements and accrue calibration of production, using the measure and calibrating tools					
31	He has the ability to understand the mechanical properties of the material's and selecting the best material for product pieces					
32	He has the ability to perform welding and connecting technique					
33	He has the ability to using computer in design and drawing.					
34	He has the ability to understand and apply the institution role and safety requirements					
35	He has the ability to design and produce machinery in high standard and technique					
36	He has the ability to build machinery operation system and production line					
No.	**Skills required**	**Strongly Agree**	**Agree**	**Neutral**	**Opposed**	**Strongly opposed**
37	He has the ability to read out, analyze the drawing, the operation method, maintenance requirement, and the operation manuals.					
38	He has the ability to control the					

	production process and apply the requirement of quality control.					

Skills for communication specialty						
28	Has the ability to deal with the techniques of analogue and digital communications technically					
29	Has the ability to use test equipment and measurement devices for communications circuits					
30	Has the ability to installation, operation and maintenance of transmission lines and fiber optic					
31	Has the ability to do maintenance work for various PBX					
32	Has the ability to participate in the control of various communication networks					
33	has specialized knowledge in terms of communication technology					
34	Has the ability to deal with the techniques of microwave and satellite communication					
35	Has the ability to deal with mobile communications systems And the GSM system in particular					
36	Has the ability to deal with the digital circuit-switched technology and phone systems					

Skills for industrial automation specialty						
28	Has the ability to connect the electrical wiring circuits household and industrial					
No.	**Skills required**	**Strongly Agree**	**Agree**	**Neutral**	**Opposed**	**Strongly opposed**
29	Has the ability to design industrial electrical panels					
30	Has the ability to design and implement plans for industrial control panels and different capacity with the construction of a protection system					

31	Has the ability to design control systems schemes hydraulic and pneumatic Electro-Hydraulic and Elector- pneumatic					
32	Has the ability to link between automation technology and production lines and different applications through PLC programming					
33	Has the ability to run different types of electric motors and conduct the necessary maintenance					
34	Has the ability to operate and maintain machinery and industrial production lines					
35	Has the ability to prepare technical reports required to follow the workflow					
36	Has the ability to read the catalogs of equipment and machinery, electro-mechanical systems and hydraulic and pneumatic					

Thank you

Questionnaire of
Engineering career diploma reality in the west bank technical college
For lecturers

An-Najah National University
Faculty of Graduate Studies

Dear lecturers,

The researcher is making a research under the title of " engineering career diploma reality in the west bank technical college", so the research makes this questioner which contains three sections, the first section includes the personal information for the lecturers staff, the second section includes the problems which face the education and training process, and the third section includes the skills which acquired from technical colleges. So according to your perspective please answer these questions in objective and accurate way and be sure that the purpose of this questioner is a scientific research only.

Thank you

First Section: Personal information, teachers and laboratory technician

Please check (x) in the right place

Gender:

Male ( ) Female ( )

Qualification:

Diploma ( ) BA ( ) Graduate Studies ( )

Specialty:

1. Automotive ( ) 2.Communications ( ) 3. Production and machinery ( )
4. Industrial Automation ( ) 5.Air conditioning and refrigeration ( )

Teaching experience (Years):

1. Less than two( ) 2. 2-5 ( ) 3. 6-10 ( ) 4.more than 10( ) 5.part time ( )

Job Title:

Teacher ( ) Laboratory Technician ( )

The Institution that you Work on it:

Hisham Hijjawi College of Technology ( ) Palestine Technical College ( )
Applied Professions College ( )

Second Section : The problem which face the education process						
No.	**Skills required**	**Strongly Agree**	**Agree**	**Neutral**	**Opposed**	**Strongly opposed**
Problems deal with lecturers						
1	Lecturers are experiences in performance					
2	Lecturers are related with market					
3	Lecturers use modern tools in lecture training					
4	Lecturers connect the theoretical aspect with technical aspect					
5	Lecturers are able to give student the needed skills in each course					
6	Lecturers give training in verity ways					
7	Lecturers improve the way of training continuously					
Problems deal with syllabus						
8	There is a text book for each technical course					
9	Students get up a lot of technical skills in each course					
10	Wanted skills connect with the modern technology					
11	Technical education concerns on practical side more than academic side					
12	Updating the syllabus in order to keep up with the market					
13	The course is organized, whereas students can understand the content					
No.	**Skills required**	**Strongly Agree**	**Agree**	**Neutral**	**Opposed**	**Strongly opposed**
Problems deal with education institution						
14	The available equipment are enough for the academic demand					
15	Technical disciplines cover the market demand					
16	Technical colleges are distributed in geographical way, whereas students can join it easily					
17	The building are suitable for technical training					

18	The technical colleges follow its graduated					
19	The technical colleges try to solve student's problems through their study					
20	There are modern equipment which faces the modern technology in the market					
21	The available equipment give the student the demand skills					
Problems deal with students						
22	Students do not care about the education					
23	Students do not participate during the lectures and technical experiments					
24	Students care about the marks more than the benefits and skills					
25	The frequently absents of students					
26	Students do not care about the public safety in the workshop					
27	Student do not co-operate or work in team during experiments					

Third Section: Skills required for each specialty. **Please in this section obligation for your specialization only.**						
No.	**Skills required**	**Strongly Agree**	**Agree**	**Neutral**	**Opposed**	**Strongly opposed**
Skills for automotive specialty						
28	He has the ability to diagnosis mechanical troubles					
29	He has the ability to diagnosis electrical troubles					
30	He has the ability to performing protective maintenance					
31	He has the ability to perform engine ' calibrations and adjustment '					
32	He has the ability to perform maintenance of the powertrain component's (gearbox , axles , drive shaft)					
33	He has the ability to perform maintenance of front suspension					

34	He has the ability of assembly and disassembly engine component's					
35	He has the ability to utilizes advanced diagnostic devices					
36	He has the ability to utilize software data					
37	He has the ability to perform maintenance of safety and comfort system					
38	He has the ability to perform maintenance fuel diesel injection system					
39	He has the ability to read , understand and analysis electric wire diagram					

Skills for air conditioning and refrigeration specialty						
28	He has the ability on the formulation copper pipes					
29	He has the ability to install and maintenance split unit air condition and cooling units					
No.	**Skills required**	**Strongly Agree**	**Agree**	**Neutral**	**Opposed**	**Strongly opposed**
30	He has the ability to make maintenance for refrigerator and water coolers					
31	He has the ability to apply drawing in the field of air condition using computer technology					
32	He has ability to determine troubleshooting in HVAC system					
33	He has the ability to design and manufacture center air condition duct					
34	He has the ability to review the technical drawings for water and air distribution					
35	He has ability to make HVAC calculation					
36	He has ability to design and execute center heating systems and execute required maintenance.					

37	He has the ability to inspect and operate cooling tower and to select the suitable pump, and prepare time schedule for maintenance					

Skills for Production and machinery specialty						
28	He has the ability to read out the mechanical drawing, understand symbols and apply them in real models in the production process					
29	He has the ability to operate lathing and milling machine , and has the proper skill's to formulate screw's and gear					
30	He has the ability to perform all measurements and accrue calibration of production, using the measure and calibrating tools					
31	He has the ability to understand the mechanical properties of the material's and selecting the best material for product pieces					
No.	**Skills required**	**Strongly Agree**	**Agree**	**Neutral**	**Opposed**	**Strongly opposed**
32	He has the ability to perform welding and connecting technique					
33	He has the ability to using computer in design and drawing.					
34	He has the ability to understand and apply the institution role and safety requirements					
35	He has the ability to design and produce machinery in high standard and technique					
36	He has the ability to build machinery operation system and production line					
37	He has the ability to control the production process and apply the requirement of quality control.					
38	He has the ability to read out, analyze the drawing, the operation method, maintenance requirement, and the operation manuals.					

Skills for communication specialty						
28	Has the ability to deal with the techniques of analogue and digital communications technically					
29	Has the ability to use test equipment and measurement devices for communications circuits					
30	Has the ability to installation, operation and maintenance of transmission lines and fiber optic					
31	Has the ability to do maintenance work for various PBX					
32	Has the ability to participate in the control of various communication networks					
33	has specialized knowledge in terms of communication technology					
34	Has the ability to deal with the techniques of microwave and satellite communication					
No.	**Skills required**	**Strongly Agree**	**Agree**	**Neutral**	**Opposed**	**Strongly opposed**
35	Has the ability to deal with mobile communications systems And the GSM system in particular					
36	Has the ability to deal with the digital circuit-switched technology and phone systems					

Skills for industrial automation specialty						
28	Has the ability to connect the electrical wiring circuits household and industrial					
29	Has the ability to design industrial electrical panels					
30	Has the ability to design and implement plans for industrial control panels and different capacity with the construction of a protection system					
31	Has the ability to design control systems schemes hydraulic and pneumatic Electro-Hydraulic and Elector- pneumatic					

32	Has the ability to link between automation technology and production lines and different applications through PLC programming					
33	Has the ability to run different types of electric motors and conduct the necessary maintenance					
34	Has the ability to operate and maintain machinery and industrial production lines					
35	Has the ability to prepare technical reports required to follow the workflow					
36	Has the ability to read the catalogs of equipment and machinery, electro-mechanical systems and hydraulic and pneumatic					

جامعة النجاح الوطنية

كلية الدراسات العليا

الاستبانة الخاصة بمسؤولي الشركات

السادة مسؤولي الشركات:

تحية طيبة وبعد,,,

يقوم الباحث بإعداد دراسة بعنوان (واقع دبلوم المهن الهندسية في الكليات التقنية في الضفة الغربية), ولهذا الغرض صمم الباحث استمارة تتكون من عدة اسئلة لدراسة مدى ارتباط خريجي طلبة المهن الهندسية في الكليات التقنية بسوق العمل , الرجاء من حضرتكم الإجابة على الفقرات التالية بكل دقة وموضوعية وذلك حسب رؤيتك للواقع الذي تعاملت معه, مع العلم بان الغرض من هذه الاستبانه هو البحث العلمي فقط .

شاكرا لكم حسن تعاملكم

القسم الاول: المعلومات الخاصة بالشركة.

الاسم:

المسمى الوظيفي:

اسم الشركة:

مجال عمل الشركة: 1.( ) سيارات 2.( ) تكييف وتبريد 3.( ) اتمتة صناعية
4.( ) اتصالات 5.( ) انتاج والات

عدد الموظفين من حملة 1.( ) اقل من 5 موظفين 2.( )من 5-10 موظفين
شهادة الدبلوم التقني 3.( ) اكثر من 10 موظفين

القسم الثاني: يرجى اختيار الدرجة التى تتناسب مع تصوراتك.

هل المهارات التالية متوفرة في الموظفين لدى شركتكم و المتخرجين من الكليات التقنية ؟

الرجاء وضع علامة (x) في المكان المناسب (يرجى اختيار التخصص المناسب)

تخصص الأتمته الصناعية : المهارات الفنية الخاصة بالطلبة المتخرجين من الكليات التقنية						
	المهارات المطلوبة من كل تخصص	موافق بشدة	موافق	محايد	معارض	معارض بشدة
1	لديه القدرة على توصيل دوائر التمديدات الكهربائية المنزلية والصناعية					
2	لديه القدرة على تصميم اللوحات الكهربائية الصناعية					
3	لديه القدرة على تصميم وتنفيذ مخططات لوحات التحكم الصناعي والقدرة المختلفة مع بناء نظام الحماية لها					
4	لديه القدرة على تصميم مخططات أنظمة التحكم الهيدروليكية					

	والنيوماتيكية والكهروهيدروليكية والكهرونيوماتيكية					
	المهارات المطلوبة من كل تخصص	موافق بشدة	موافق	محايد	معارض	معارض بشدة
5	لديه القدرة على الربط بين تكنولوجيا الأتمتة وخطوط الانتاج والتطبيقات المختلفة من خلال برمجة جهاز PLC					
6	لديه القدرة على تشغيل محركات الكهربائية بانواعها المختلفة وبشكل امن, واجراء الصيانة اللازمة لها					
7	لديه القدرة على تشغيل وصيانة الماكنات وخطوط الانتاج الصناعية .					
8	لديه القدرة على اعداد التقارير الفنية اللازمة لمتابعة سير العمل					
9	لديه القدرة على قراءة الكتالوجات الخاصة بالأجهزة والآلات والنظم الكهروميكانيكية والهيدروليكية والنيوماتيكية					

تخصص الاتصالات : المهارات الفنية الخاصة بالطلبة المتخرجين من الكليات التقنية						
	المهارات المطلوبة من كل تخصص	موافق بشدة	موافق	محايد	معارض	معارض بشدة
1	لديه القدرة على التعامل مع تقنيات الاتصالات التماثلية و الرقمية من الناحية الفنية.					
2	لديه القدره على استخدام أجهزة الفحص و القياس لدوائر الاتصالات.					
3	لديه القدرة على تركيب و تشغيل و صيانة خطوط النقل و الالياف البصرية					
4	لديه القدرة على القيام بأعمال الصيانة لمقاسم الاتصالات المختلفة					
5	لديه القدرة على المشاركة في مراقبة شبكات الاتصالات المختلفة					
6	يمتلك المعرفة في المصطلحات التخصصية المرتبطة بتقنية الاتصالات.					
7	لديه القدرة على التعامل مع تقنيات الميكروويف و الاتصالات عبر الأقمار الصناعية					
8	لديه القدرة على التعامل مع أنظمة الاتصالات المتنقلة و نظام GSM بشكل خاص و شبكاتها و طرق الإرسال الخاصة بها.					
9	لديه القدرة على التعامل مع تقنيات المقاسم الرقمية و أنظمة الهاتف.					

تخصص مكانيك سيارات: المهارات الفنية الخاصة بالطلبة المتخرجين من الكليات التقنية						
	المهارات المطلوبة من كل تخصص	موافق بشدة	موافق	محايد	معارض	معارض بشدة
1	لديه القدرة على تشخيص الأعطال الميكانيكية بالمركبة					
2	لديه القدرة على تشخيص الأعطال الكهربائية بالمركبة					
3	لديه القدرة على إجراء عمليات الصيانة الوقائية للمركبة					
4	لديه القدرة على إجراء عمليات المعايرة الخاصة بالمحرك					
	المهارات المطلوبة من كل تخصص	موافق بشدة	موافق	محايد	معارض	معارض بشدة
5	لديه القدرة على صيانة أجزاء نقل الحركة (الجير, الاكسات, عمود الإدارة)					
6	لديه القدرة على صيانة الهيئة الأمامية للمركبة					
7	لديه القدرة على فك وتركيب المحرك بكافة أجزائه					
8	لديه القدرة على استخدام أجهزة الفحص الحديثة					
9	لديه القدرة على استخدام برنامج (auto data) بشكل جيد					
10	لديه القدرة على صيانة أنظمة الأمان والاضافات في المركبة					
11	لديه القدرة على صيانة أنظمة الحقن في محركات الديزل					
12	لديه القدرة على قراءة المخططات الكهربائية للمركبة					
تخصص الانتاج والالات : المهارات الفنية الخاصة بالطلبة المتخرجين من الكليات التقنية						
	المهارات المطلوبة من كل تخصص	موافق بشدة	موافق	محايد	معارض	معارض بشدة
1	لديه القدرة على قراءة وتنفيذ الرسوم الفنية والهندسية وفهم رموزها ومدلولاتها بما يخص القطع الميكانيكية وإنتاجها					
2	لديه القدرة على إجراء عمليات التشغيل بالقطع التقليدية كالخراطة والتفريز وكل ما تتضمنه من مهارات كتشكيل وقطع اللوالب والتروس					
3	لديه القدرة على إجراء كل عمليات القياس والضبط الدقيق للمشغولات من خلال أجهزة القياس المختلفة					
4	لديه القدرة على فهم الخواص الميكانيكية المختلفة للمواد الهندسية واختيار الأنسب منها لتصنيع القطع المنتجة					
5	لديه القدرة على تنفيذ عمليات الوصل واللحام اليدوي بتقنياته المختلفة					
6	لديه القدرة على استخدام الحاسوب في الرسم والتصميم كأساس لعمليات التشغيل المحوسب					
7	لديه القدرة على فهم طبيعة العلاقات الإدارية والإنسانية للمنشآت الصناعية ومواقع الإنتاج ومتطلبات السلامة					
8	لديه القدرة على تصنيع وتصميم الماكنات بتقنيات عالية الدقة					

9	لديه القدرة على بناء الأنظمة الحديثة في تشغيل الماكنات والآلات وخطوط الانتاج					
10	لديه القدرة على ضبط العمليات الانتاجية وتحقيق أسس الجودة ومتطلباتها					
11	لديه القدرة على قراءة وتحليل رسوم الآلات ونظرية عملها ومتطلبات الصيانة و التشغيل الخاصة بها من خلال قراءة وفهم كتيبات البيانات الخاصة بها					

تخصص التكييف والتبريد: المهارات الفنية الخاصة بالطلبة المتخرجين من الكليات التقنية						
	المهارات المطلوبة من كل تخصص	موافق بشدة	موافق	محايد	معارض	معارض بشدة
1	لديه القدرة على تشكيل الانابيب النحاسية					
2	لديه القدرة على تركيب وصيانة المكيفات المنفصة ووحدات التبريد					
3	لديه القدرة على صيانة الثلاجات المنزلية وبرادات المياه					
4	لديه القدرة على الرسم باستخدام الحاسب الالي في مجال التبريد وتكييف الهواء					
5	لديه القدرة على تحديد الاعطال الكهربائية والالكترونية لوحدات التبريد وتكييف الهواء					
6	لديه القدرة على تصميم وتصنيع مجاري الهواء للتكييف المركزي					
7	لديه القدرة على مراجعة المخططات الخاصة بنظم توزيع الماء والهواء					
8	لديه القدرة على اجراء الحسابات الخاصة بتصميم أنظمة التكييف والتبريد والتدفئة					
9	لديه القدرة على تصميم وتنفيذ أنظمة التدفئة المركزية واجراء الصيانة اللازمة لها					
10	لديه القدرة على فحص وتشغيل لابراج التبريد, واختيار المضخات المناسبة لها. واعداد جداول زمنية لصيانة مكونات ابراج التبريد					

القسم الثالث: يرجى الإجابة عن السؤال التالي:

هل المهارات المذكورة في القسم الثاني تلبي احتياجات السوق ؟

( ) نعم ( ) لا

اذا كان الجواب (لا) فماذا يمكن ان يلبي احتاجات السوق ؟

شكرا لتعاونكم ...

جامعة النجاح الوطنية

كلية الدراسات العليا

الاستبانة الخاصة بالطلاب

اخي الطالب/ اختي الطالبة

تحية طيبة وبعد,,,

يقوم الباحث بإعداد دراسة بعنوان (واقع دبلوم المهن الهندسية في الكليات التقنية في الضفة الغربية), ولهذا الغرض صمم الباحث استمارة تتكون من ثلاث أقسام , القسم الأول خاص بالمعلومات الشخصية للطلبة المتخرجين في المهن الهندسية في الكليات التقنية, والقسم الثاني خاص بالمشاكل التي تواجه العملية التعليمية , أما القسم الثالث خاص بالمارات التي يكتسبها الخريج من المهن الهندسية في الكليات التقنية, الرجاء من حضرتكم الإجابة على الفقرات التالية بكل دقة وموضوعية وذلك حسب رؤيتك للواقع الذي تعاملت معه, مع العلم بان الغرض من هذه الاستبانه هو البحث العلمي فقط .

شاكرا لكم حسن تعاونكم

القسم الاول : المعلومات الشخصية , خاص بالطلبة

يرجى وضع علامة (x) في المكان المناسب

الجنس:

ذكر ( ) انثى ( )

التخصص:

مكانيك سيارات (تكييف وتبريد (الإنتاج والآلات (

))) اتصالات ( ) اتمتة صناعية ( )

المؤسسة التي تعمل بها:

كلية هشام حجاوي التكنولوجية ( ) كلية فلسطين التقنية ( ) كلية المهن التطبيقية ( )

القسم الثاني: يرجى اختيار النسبة التى تتناسب مع تصوراتك (يرجى اختيار التخصص المناسب)

تخصص الاتصالات المشاكل التي تتعلق بالعملية التعليمية						
الرقم	الفقرة	موافق بشدة	موافق	محايد	معارض	معارض بشدة
مشاكل تتعلق بالمعلمين						
1	يمتاز المعلمون بكفاءة عالية في الادء					
الرقم	الفقرة	موافق بشدة	موافق	محايد	معارض	معارض بشدة
2	يرتبط المعلمون بشكل جيد في سوق العمل					
3	يستخدم المعلمون الوسائل الحديثه في عملية التدريب					
4	يربط المعلمون الناحية النظرية بالناحية التطبيقية					
5	يستطيع المعلمون اكساب الطالب المهارات المطلوبة في كل مساق					
6	ينوع المعلمون من طرق التدريس في التعليم التقني					
7	يقوم المدرسون بتحسين طرق التدريس بشكل مستمر					
مشاكل تتعلق بالمنهاج						
8	يتوفر مقرر واضح لكل مساق تقني					
9	تساعد المادة التعليمية على اكساب الطالب المهارة المطلوبة لكل مساق					
10	ترتبط المهارات المطلوبة من كل مقرر بتكنولوجيا العصر					
11	يركز التعليم التقني على الجانب العملي اكثر من الجانب النظري					
12	يتم تحديث دوري للمنهاج بما يتناسب مع متطلبات السوق					
13	تمتاز المادة التعليمية بتسلسل الافكار مما يساعد الطلبة على فهم المحتوى					
14	التجهيزات و المعدات المتوفره في المشاغل العمليه تلبي متطلبات المنهاج النظري					
مشاكل تتعلق بالمؤسسة التعليمية						
15	التخصصات التقنية المتوفرة تغطي حاجة السوق					
16	تتوزع مؤسسات التعليم التقني جغرافيا مما يساعد الطلبة بالالتحاق بهذه المؤسسات					
17	مبنى مؤسسة التعليم التقني ملائم للتعليم و التدريب التقني					

18	تتابع المؤسسة التعليمية طلابها بعد التخرج					
19	اهتمت المؤسسة التعليمية بمشاكل الطلبة وحلها اثناء الدراسة					
20	تتوفر معدات وتجهيزات متطورة تواكب التطور التكنولوجي في سوق العمل					
21	تساعد المعدات والتجهيزات الموجودة في الكلية في إكساب الطلبة المهارة المطلوبة					
مشاكل تتعلق بالطلاب						
22	يعاني الطلبة من مشكلة عدم الاهتمام بالعملية التعليمية					
23	الطلاب غير متفاعلين اثناء المحاضرات والتجارب العملية					
الرقم	الفقرة	موافق بشدة	موافق	محايد	معارض	معارض بشدة
24	يهتم الطلبة بعلامة المساق اكثر من الفائدة والمهارة المطلوبة للمساق					
25	يتكرر غياب الطلبة عن المحاضرات					
26	يوجد عدم الاهتمام بقواعد السلامة العامة داخل المشاغل من قبل الطلبة					
27	يوجد عدم التعاون والعمل ضمن فريق اثناء التجارب العملية من قبل الطلبة					
المهارات الفنية الخاصة بالطلبة المتخرجين من الكليات التقنية						
المهارات المطلوبة من كل تخصص		موافق بشدة	موافق	محايد	معارض	معارض بشدة
28	لديه القدرة على التعامل مع تقنيات الاتصالات التماثلية و الرقمية من الناحية الفنية.					
29	لديه القدره على استخدام أجهزة الفحص و القياس لدوائر الاتصالات.					
30	لديه القدرة على تركيب و تشغيل و صيانة خطوط النقل و الالياف البصرية					
31	لديه القدرة على القيام بأعمال الصيانة لمقاسم الاتصالات المختلفة					
32	لديه القدرة على المشاركة في مراقبة شبكات الاتصالات المختلفة					
33	يمتلك المعرفة في المصطلحات التخصصية المرتبطة بتقنية الاتصالات.					

34	لديه القدرة على التعامل مع تقنيات الميكروويف و الاتصالات عبر الأقمار الصناعية					
35	لديه القدرة على التعامل مع أنظمة الاتصالات المتنقلة و نظام GSM بشكل خاص و شبكاتها و طرق الإرسال الخاصة بها.					
36	لديه القدرة على التعامل مع تقنيات المقاسم الرقمية و أنظمة الهاتف.					

قسم الاتمته الصناعية المشاكل التي تتعلق بالعملية التعليمية						
الرقم	الفقرة	موافق بشدة	موافق	محايد	معارض	معارض بشدة
مشاكل تتعلق بالمعلمين						
1	يمتاز المعلمون بكفاءة عالية في الادء					
الرقم	الفقرة	موافق بشدة	موافق	محايد	معارض	معارض بشدة
2	يرتبط المعلمون بشكل جيد في سوق العمل					
3	يستخدم المعلمون الوسائل الحديثه في عملية التدريب					
4	يربط المعلمون الناحية النظرية بالناحية التطبيقية					
5	يستطيع المعلمون اكساب الطالب المهارات المطلوبة في كل مساق					
6	ينوع المعلمون من طرق التدريس في التعليم التقني					
7	يقوم المدرسون بتحسين طرق التدريس بشكل مستمر					
مشاكل تتعلق بالمنهاج						
8	يتوفر مقرر واضح لكل مساق تقني					
9	تساعد المادة التعليمية على اكساب الطالب المهارة المطلوبة لكل مساق					
10	ترتبط المهارات المطلوبة من كل مقرر بتكنولوجيا العصر					
11	يركز التعليم التقني على الجانب العملي اكثر من الجانب النظري					
12	يتم تحديث دوري للمنهاج بما يتناسب مع متطلبات السوق					
13	تمتاز المادة التعليمية بتسلسل الافكار مما يساعد الطلبة على فهم المحتوى					
14	التجهيزات و المعدات المتوفره في المشاغل العمليه					

	تلبي متطلبات المنهاج النظري					
مشاكل تتعلق بالمؤسسة التعليمية						
15	التخصصات التقنية المتوفرة تغطي حاجة السوق					
16	تتوزع مؤسسات التعليم التقني جغرافيا مما يساعد الطلبة بالالتحاق بهذه المؤسسات					
17	مبنى مؤسسة التعليم التقني ملائم للتعليم و التدريب التقني					
18	تتابع المؤسسة التعليمية طلابها بعد التخرج					
19	اهتمت المؤسسة التعليمية بمشاكل الطلبة وحلها اثناء الدراسة					
20	تتوفر معدات وتجهيزات متطورة تواكب التطور التكنولوجي في سوق العمل					
21	تساعد المعدات والتجهيزات الموجودة في الكلية في إكساب الطلبة المهارة المطلوبة					
مشاكل تتعلق بالطلاب						
22	يعاني الطلبة من مشكلة عدم الاهتمام بالعملية التعليمية					
23	الطلاب غير متفاعلين اثناء المحاضرات والتجارب العملية					
الرقم	الفقرة	موافق بشدة	موافق	محايد	معارض	معارض بشدة
24	يهتم الطلبة بعلامة المساق اكثر من الفائدة والمهارة المطلوبة للمساق					
25	يتكرر غياب الطلبة عن المحاضرات					
26	يوجد عدم الاهتمام بقواعد السلامة العامة داخل المشاغل من قبل الطلبة					
27	يوجد عدم التعاون والعمل ضمن فريق اثناء التجارب العملية من قبل الطلبة					

المهارات الفنية الخاصة بالطلبة المتخرجين من الكليات التقنية						
	المهارات المطلوبة من كل تخصص	موافق بشدة	موافق	محايد	معارض	معارض بشدة
28	لديه القدرة على توصيل دوائر التمديدات الكهربائية المنزلية والصناعية					
29	لديه القدرة على تصميم اللوحات الكهربائية الصناعية					
30	لديه القدرة على تصميم وتنفيذ مخططات لوحات التحكم					

	الصناعي والقدرة المختلفة مع بناء نظام الحماية لها					
31	لديه القدرة على تصميم مخططات أنظمة التحكم الهيدروليكية والنيوماتيكية والكهروهيدروليكية والكهرونيوماتيكية					
32	لديه القدرة على الربط بين تكنولوجيا الأتمتة وخطوط الانتاج والتطبيقات المختلفة من خلال برمجة جهاز PLC					
33	لديه القدرة على تشغيل محركات الكهربائية بانواعها المختلفة وبشكل امن, واجراء الصيانة اللازمة لها					
34	لديه القدرة على تشغيل وصيانة الماكنات وخطوط الانتاج الصناعية .					
35	لديه القدرة على اعداد التقارير الفنية اللازمة لمتابعة سير العمل					
36	لديه القدرة على قراءة الكتالوجات الخاصة بالأجهزة والآلات والنظم الكهروميكانيكية والهيدروليكية والنيوماتيكية					

قسم الانتاج والالات المشاكل التي تتعلق بالعملية التعليمية						
الرقم	الفقرة	موافق بشدة	موافق	محايد	معارض	معارض بشدة
مشاكل تتعلق بالمعلمين						
1	يمتاز المعلمون بكفاءة عالية في الادء					
2	يرتبط المعلمون بشكل جيد في سوق العمل					
3	يستخدم المعلمون الوسائل الحديثه في عملية التدريب					
4	يربط المعلمون الناحية النظرية بالناحية التطبيقية					
5	يستطيع المعلمون اكساب الطالب المهارات المطلوبة في كل مساق					
6	ينوع المعلمون من طرق التدريس في التعليم التقني					
7	يقوم المدرسون بتحسين طرق التدريس بشكل مستمر					
مشاكل تتعلق بالمنهاج						
8	يتوفر مقرر واضح لكل مساق تقني					
9	تساعد المادة التعليمية على اكساب الطالب المهارة المطلوبة لكل مساق					
10	ترتبط المهارات المطلوبة من كل مقرر بتكنولوجيا					

	العصر					
11	يركز التعليم التقني على الجانب العملي اكثر من الجانب النظري					
12	يتم تحديث دوري للمنهاج بما يتناسب مع متطلبات السوق					
13	تمتاز المادة التعليمية بتسلسل الافكار مما يساعد الطلبة على فهم المحتوى					
14	التجهيزات و المعدات المتوفره في المشاغل العمليه تلبي متطلبات المنهاج النظري					
مشاكل تتعلق بالمؤسسة التعليمية						
15	التخصصات التقنية المتوفرة تغطي حاجة السوق					
16	تتوزع مؤسسات التعليم التقني جغراقيا مما يساعد الطلبة بالالتحاق بهذه المؤسسات					
17	مبنى مؤسسة التعليم التقني ملائم للتعليم و التدريب التقني					
18	تتابع المؤسسة التعليمية طلابها بعد التخرج					
19	اهتمت المؤسسة التعليمية بمشاكل الطلبة وحلها اثناء الدراسة					
20	تتوفر معدات وتجهيزات متطورة تواكب التطور التكنولوجي في سوق العمل					
الرقم	الفقرة	موافق بشدة	موافق	محايد	معارض	معارض بشدة
21	تساعد المعدات والتجهيزات الموجودة في الكلية في إكساب الطلبة المهارة المطلوبة					
مشاكل تتعلق بالطلاب						
22	يعاني الطلبة من مشكلة عدم الاهتمام بالعملية التعليمية					
23	الطلاب غير متفاعلين اثناء المحاضرات والتجارب العملية					
24	يهتم الطلبة بعلامة المساق اكثر من الفائدة والمهارة المطلوبة للمساق					
25	يتكرر غياب الطلبة عن المحاضرات					
26	يوجد عدم الاهتمام بقواعد السلامة العامة داخل المشاغل من قبل الطلبة					
27	يوجد عدم التعاون والعمل ضمن فريق اثناء التجارب العملية من قبل الطلبة					

المهارات الفنية الخاصة بالطلبة المتخرجين من الكليات التقنية						
	المهارات المطلوبة من كل تخصص	موافق بشدة	موافق	محايد	معارض	معارض بشدة
28	لديه القدرة على قراءة وتنفيذ الرسوم الفنية والهندسية وفهم رموزها ومدلولاتها بما يخص القطع الميكانيكية وإنتاجها					
29	لديه القدرة على إجراء عمليات التشغيل بالقطع التقليدية كالخراطة والتفريز وكل ما تتضمنه من مهارات كتشكيل وقطع اللوالب والتروس					
30	لديه القدرة على إجراء كل عمليات القياس والضبط الدقيق للمشغولات من خلال أجهزة القياس المختلفة					
31	لديه القدرة على فهم الخواص الميكانيكية المختلفة للمواد الهندسية واختيار الأنسب منها لتصنيع القطع المنتجة					
32	لديه القدرة على تنفيذ عمليات الوصل واللحام اليدوي بتقنياته المختلفة					
33	لديه القدرة على استخدام الحاسوب في الرسم والتصميم كأساس لعمليات التشغيل المحوسب					
34	لديه القدرة على فهم طبيعة العلاقات الإدارية والإنسانية للمنشآت الصناعية ومواقع الإنتاج ومتطلبات السلامة المهنية والعامة					
35	لديه القدرة على تصنيع وتصميم الماكنات بتقنيات عالية الدقة					
36	لديه القدرة على بناء الأنظمة الحديثة في تشغيل الماكنات والآلات وخطوط الانتاج					
الرقم	الفقرة	موافق بشدة	موافق	محايد	معارض	معارض بشدة
37	لديه القدرة على ضبط العمليات الانتاجية وتحقيق أسس الجودة ومتطلباتها					
37	لديه القدرة على قراءة وتحليل رسوم الآلات ونظرية عملها ومتطلبات الصيانة و التشغيل الخاصة بها من خلال قراءة وفهم كتيبات البيانات الخاصة بها					

قسم التكيف والتبريد المشاكل التي تتعلق بالعملية التعليمية						
الرقم	الفقرة	موافق بشدة	موافق	محايد	معارض	معارض بشدة
مشاكل تتعلق بالمعلمين						
1	يمتاز المعلمون بكفاءة عالية في الادء					
2	يرتبط المعلمون بشكل جيد في سوق العمل					
3	يستخدم المعلمون الوسائل الحديثه في عملية التدريب					
4	يربط المعلمون الناحية النظرية بالناحية التطبيقية					
5	يستطيع المعلمون اكساب الطالب المهارات المطلوبة في كل مساق					
6	ينوع المعلمون من طرق التدريس في التعليم التقني					
7	يقوم المدرسون بتحسين طرق التدريس بشكل مستمر					
مشاكل تتعلق بالمنهاج						
8	يتوفر مقرر واضح لكل مساق تقني					
9	تساعد المادة التعليمية على اكساب الطالب المهارة المطلوبة لكل مساق					
10	ترتبط المهارات المطلوبة من كل مقرر بتكنولوجيا العصر					
11	يركز التعليم التقني على الجانب العملي اكثر من الجانب النظري					
12	يتم تحديث دوري للمنهاج بما يتناسب مع متطلبات السوق					
13	تمتاز المادة التعليمية بتسلسل الافكار مما يساعد الطلبة على فهم المحتوى					
14	التجهيزات و المعدات المتوفره في المشاغل العمليه تلبي متطلبات المنهاج النظري					
مشاكل تتعلق بالمؤسسة التعليمية						
15	التخصصات التقنية المتوفرة تغطي حاجة السوق					
الرقم	الفقرة	موافق بشدة	موافق	محايد	معارض	معارض بشدة
16	تتوزع مؤسسات التعليم التقني جغرافيا مما يساعد الطلبة بالالتحاق بهذه المؤسسات					
17	مبنى مؤسسة التعليم التقني ملائم للتعليم و التدريب التقني					

18	تتابع المؤسسة التعليمية طلابها بعد التخرج					
19	اهتمت المؤسسة التعليمية بمشاكل الطلبة وحلها اثناء الدراسة					
20	تتوفر معدات وتجهيزات متطورة تواكب التطور التكنولوجي في سوق العمل					
21	تساعد المعدات والتجهيزات الموجودة في الكلية في إكساب الطلبة المهارة المطلوبة					
	مشاكل تتعلق بالطلاب					
22	يعاني الطلبة من مشكلة عدم الاهتمام بالعملية التعليمية					
23	الطلاب غير متفاعلين اثناء المحاضرات والتجارب العملية					
24	يهتم الطلبة بعلامة المساق اكثر من الفائدة والمهارة المطلوبة للمساق					
25	يتكرر غياب الطلبة عن المحاضرات					
26	يوجد عدم الاهتمام بقواعد السلامة العامة داخل المشاغل من قبل الطلبة					
27	يوجد عدم التعاون والعمل ضمن فريق اثناء التجارب العملية من قبل الطلبة					

المهارات الفنية الخاصة بالطلبة المتخرجين من الكليات التقنية						
المهارات المطلوبة من كل تخصص		موافق بشدة	موافق	محايد	معارض	معارض بشدة
28	لديه القدرة على تشكيل الانابيب النحاسية					
29	لديه القدرة على تركيب وصيانة المكيفات المنفصلة ووحدات التبريد					
30	لديه القدرة على صيانة الثلاجات المنزلية وبرادات المياه					
31	لديه القدرة على الرسم باستخدام الحاسب الالي في مجال التبريد وتكييف الهواء					
32	لديه القدرة على تحديد الاعطال الكهربائية والالكترونية لوحدات التبريد وتكييف الهواء					
33	لديه القدرة على تصميم وتصنيع مجاري الهواء للتكييف المركزي					
الرقم	الفقرة	موافق بشدة	موافق	محايد	معارض	معارض بشدة

34	لديه القدرة على مراجعة المخططات الخاصة بنظم توزيع الماء والهواء					
35	لديه القدرة على اجراء الحسابات الخاصة بتصميم أنظمة التكييف والتبريد والتدفئة					
36	لديه القدرة على تصميم وتنفيذ أنظمة التدفئة المركزية واجراء الصيانة اللازمة لها					
37	لديه القدرة على فحص وتشغيل لابراج التبريد, واختيار المضخات المناسبة لها. واعداد جداول زمنية لصيانة مكونات ابراج التبريد					

قسم مكانيك سيارات

القسم الثاني: المشاكل التي تتعلق بالعملية التعليمية

الرقم	الفقرة	موافق بشدة	موافق	محايد	معارض	معارض بشدة
	مشاكل تتعلق بالمعلمين					
1	يمتاز المعلمون بكفاءة عالية في الادء					
2	يرتبط المعلمون بشكل جيد في سوق العمل					
3	يستخدم المعلمون الوسائل الحديثه في عملية التدريب					
4	يربط المعلمون الناحية النظرية بالناحية التطبيقية					
5	يستطيع المعلمون اكساب الطالب المهارات المطلوبة في كل مساق					
6	ينوع المعلمون من طرق التدريس في التعليم التقني					
7	يقوم المدرسون بتحسين طرق التدريس بشكل مستمر					
	مشاكل تتعلق بالمنهاج					
8	يتوفر مقرر واضح لكل مساق تقني					
9	تساعد المادة التعليمية على اكساب الطالب المهارة المطلوبة لكل مساق					
10	ترتبط المهارات المطلوبة من كل مقرر بتكنولوجيا العصر					
11	يركز التعليم التقني على الجانب العملي اكثر من الجانب النظري					
12	يتم تحديث دوري للمنهاج بما يتناسب مع متطلبات السوق					
13	تمتاز المادة التعليمية بتسلسل الافكار مما يساعد الطلبة على فهم المحتوى					
الرقم	الفقرة	موافق	موافق	محايد	معارض	معارض

		بشدة				بشدة
14	التجهيزات و المعدات المتوفره في المشاغل العمليه تلبي متطلبات المنهاج النظري					
	مشاكل تتعلق بالمؤسسة التعليمية					
15	التخصصات التقنية المتوفرة تغطي حاجة السوق					
16	تتوزع مؤسسات التعليم التقني جغرافيا مما يساعد الطلبة بالالتحاق بهذه المؤسسات					
17	مبنى مؤسسة التعليم التقني ملائم للتعليم و التدريب التقني					
18	تتابع المؤسسة التعليمية طلابها بعد التخرج					
19	اهتمت المؤسسة التعليمية بمشاكل الطلبة وحلها اثناء الدراسة					
20	تتوفر معدات وتجهيزات متطورة تواكب التطور التكنولوجي في سوق العمل					
21	تساعد المعدات والتجهيزات الموجودة في الكلية في إكساب الطلبة المهارة المطلوبة					
	مشاكل تتعلق بالطلاب					
22	يعاني الطلبة من مشكلة عدم الاهتمام بالعملية التعليمية					
23	الطلاب غير متفاعلين اثناء المحاضرات والتجارب العملية					
24	يهتم الطلبة بعلامة المساق اكثر من الفائدة والمهارة المطلوبة للمساق					
25	يتكرر غياب الطلبة عن المحاضرات					
26	يوجد عدم الاهتمام بقواعد السلامة العامة داخل المشاغل من قبل الطلبة					
27	يوجد عدم التعاون والعمل ضمن فريق اثناء التجارب العملية من قبل الطلبة					

المهارات الفنية الخاصة بالطلبة المتخرجين من الكليات التقنية						
	المهارات المطلوبة من كل تخصص	موافق بشدة	موافق	محايد	معارض	معارض بشدة
28	لديه القدرة على تشخيص الأعطال الميكانيكية بالمركبة					
29	لديه القدرة على تشخيص الأعطال الكهربائية بالمركبة					
30	لديه القدرة على إجراء عمليات الصيانة الوقائية للمركبة					

31	لديه القدرة على إجراء عمليات المعايرة الخاصة بالمحرك					
32	لديه القدرة على صيانة أجزاء نقل الحركة (الجير, الاكسات, عمود الإدارة)					
الرقم	الفقرة	موافق بشدة	موافق	محايد	معارض	معارض بشدة
33	لديه القدرة على صيانة الهيئة الأمامية للمركبة					
34	لديه القدرة على فك وتركيب المحرك بكافة أجزائه					
35	لديه القدرة على استخدام أجهزة الفحص الحديثة					
36	لديه القدرة على استخدام برنامج (auto data) بشكل جيد					
37	لديه القدرة على صيانة أنظمة الأمان والاضافات في المركبة					
38	لديه القدرة على صيانة أنظمة الحقن في محركات الديزل					
39	لديه القدرة على قراءة المخططات الكهربائية للمركبة					

شكرا لتعاونكم...

جامعة النجاح الوطنية

كلية الدراسات العليا

الاستبانة الخاصة بالمعلمين

إخواني أعضاء الهيئة التدريسية المحترمين

تحية طيبة وبعد,,,

يقوم الباحث بإعداد دراسة بعنوان (واقع دبلوم المهن الهندسية في الكليات التقنية في الضفة الغربية), ولهذا الغرض صمم الباحث استمارة تتكون من ثلاث أقسام , القسم الأول خاص بالمعلومات الشخصية للهيئة التدريسية في المهن الهندسية , والقسم الثاني خاص بالمشاكل التي تواجه العملية التعليمية , أما القسم الثالث خاص بالمارات التي يكتسبها الخريج من المهن الهندسية في الكليات التقنية, الرجاء من حضرتكم الإجابة على الفقرات التالية بكل دقة وموضوعية وذلك حسب رؤيتك للواقع الذي تعاملت معه, مع العلم بان الغرض من هذه الاستبانه هو البحث العلمي فقط .

شاكرا لكم حسن تعاونكم

القسم الأول: المعلومات الشخصية , خاص بالمعلمين وفني المختبرات

يرجى وضع علامة (x) في المكان المناسب

الجنس:

ذكر ( ) انثى ( )

المؤهل العلمي:

دراسات عليا (

دبلوم ( ) بكالوريس ( ))

التخصص:

مكانيك سيارات (أتمتة صناعية (تكييف وتبريد (

))) الإنتاج والآلات ( ) اتصالات ( )

سنوات الخبرة التدريسية:

اقل من سنتان (اكثر من 10 ( ) دوام جزئي ( )

) 5—2 ( ) 10—6 ( ) سنوات

المسمى الوظيفي:

مدرس ( ) فني مختبر ( )

المؤسسة التي تعمل بها:

كلية هشام حجاوي التكنولوجية كلية فلسطين التقنية ( ) كلية المهن التطبيقية ( )

قسم الاتصالات المشاكل التي تتعلق بالعملية التعليمية						
الرقم	الفقرة	موافق بشدة	موافق	محايد	معارض	معارض بشدة
مشاكل تتعلق بالمعلمين						
1	يمتاز المعلمون بكفاءة عالية في الادء					
2	يرتبط المعلمون بشكل جيد في سوق العمل					
3	يستخدم المعلمون الوسائل الحديثه في عملية التدريب					
4	يربط المعلمون الناحية النظرية بالناحية التطبيقية					
5	يستطيع المعلمون اكساب الطالب المهارات المطلوبة في كل مساق					
6	ينوع المعلمون من طرق التدريس في التعليم التقني					
7	يقوم المدرسون بتحسين طرق التدريس بشكل مستمر					
مشاكل تتعلق بالمنهاج						
8	يتوفر مقرر واضح لكل مساق تقني					
9	تساعد المادة التعليمية على اكساب الطالب المهارة المطلوبة لكل مساق					
10	ترتبط المهارات المطلوبة من كل مقرر بتكنولوجيا العصر					
11	يركز التعليم التقني على الجانب العملي اكثر من الجانب النظري					
12	يتم تحديث دوري للمنهاج بما يتناسب مع متطلبات السوق					
13	تمتاز المادة التعليمية بتسلسل الافكار مما يساعد الطلبة على فهم المحتوى					
14	التجهيزات و المعدات المتوفره في المشاغل العمليه تلبي متطلبات المنهاج النظري					
مشاكل تتعلق بالمؤسسة التعليمية						
15	التخصصات التقنية المتوفرة تغطي حاجة السوق					
16	تتوزع مؤسسات التعليم التقني جغرافيا مما يساعد الطلبة بالالتحاق بهذه المؤسسات					
17	مبنى مؤسسة التعليم التقني ملائم للتعليم و التدريب التقني					
18	تتابع المؤسسة التعليمية طلابها بعد التخرج					
19	اهتمت المؤسسة التعليمية بمشاكل الطلبة وحلها اثناء الدراسة					
20	تتوفر معدات وتجهيزات متطورة تواكب التطور التكنولوجي في سوق العمل					

21	تساعد المعدات والتجهيزات الموجودة في الكلية في إكساب الطلبة المهارة المطلوبة					
مشاكل تتعلق بالطلاب						
22	يعاني الطلبة من مشكلة عدم الاهتمام بالعملية التعليمية					
23	الطلاب غير متفاعلين اثناء المحاضرات والتجارب العملية					
24	يهتم الطلبة بعلامة المساق اكثر من الفائدة والمهارة المطلوبة للمساق					
25	يتكرر غياب الطلبة عن المحاضرات					
26	يوجد عدم الاهتمام بقواعد السلامة العامة داخل المشاغل من قبل الطلبة					
27	يوجد عدم التعاون والعمل ضمن فريق اثناء التجارب العملية من قبل الطلبة					
المهارات الفنية الخاصة بالطلبة المتخرجين من الكليات التقنية						
الرقم	الفقرة	الفقرة	موافق بشدة	موافق	محايد	معارض
28	لديه القدرة على التعامل مع تقنيات الاتصالات التماثلية و الرقمية من الناحية الفنية.					
29	لديه القدره على استخدام أجهزة الفحص و القياس لدوائر الاتصالات.					
30	لديه القدرة على تركيب و تشغيل و صيانة خطوط النقل و الالياف البصرية					
31	لديه القدرة على القيام بأعمال الصيانة لمقاسم الاتصالات المختلفة					
32	لديه القدرة على المشاركة في مراقبة شبكات الاتصالات المختلفة					
33	يمتلك المعرفة في المصطلحات التخصصية المرتبطة بتقنية الاتصالات.					
34	لديه القدرة على التعامل مع تقنيات الميكروويف و الاتصالات عبر الأقمار الصناعية					
35	لديه القدرة على التعامل مع أنظمة الاتصالات المتنقلة و نظام GSM بشكل خاص و شبكاتها و طرق الإرسال الخاصة بها.					
36	لديه القدرة على التعامل مع تقنيات المقاسم الرقمية و أنظمة الهاتف.					

قسم الاتمته الصناعية المشاكل التي تتعلق بالعملية التعليمية						
الرقم	الفقرة	موافق بشدة	موافق	محايد	معارض	معارض بشدة
مشاكل تتعلق بالمعلمين						
1	يمتاز المعلمون بكفاءة عالية في الادء					
الرقم	الفقرة	موافق بشدة	موافق	محايد	معارض	معارض بشدة
2	يرتبط المعلمون بشكل جيد في سوق العمل					
3	يستخدم المعلمون الوسائل الحديثه في عملية التدريب					
4	يربط المعلمون الناحية النظرية بالناحية التطبيقية					
5	يستطيع المعلمون اكساب الطالب المهارات المطلوبة في كل مساق					
6	ينوع المعلمون من طرق التدريس في التعليم التقني					
7	يقوم المدرسون بتحسين طرق التدريس بشكل مستمر					
مشاكل تتعلق بالمنهاج						
8	يتوفر مقرر واضح لكل مساق تقني					
9	تساعد المادة التعليمية على اكساب الطالب المهارة المطلوبة لكل مساق					
10	ترتبط المهارات المطلوبة من كل مقرر بتكنولوجيا العصر					
11	يركز التعليم التقني على الجانب العملي اكثر من الجانب النظري					
12	يتم تحديث دوري للمنهاج بما يتناسب مع متطلبات السوق					
13	تمتاز المادة التعليمية بتسلسل الافكار مما يساعد الطلبة على فهم المحتوى					
14	التجهيزات و المعدات المتوفره في المشاغل العمليه تلبي متطلبات المنهاج النظري					
مشاكل تتعلق بالمؤسسة التعليمية						
15	التخصصات التقنية المتوفرة تغطي حاجة السوق					
16	تتوزع مؤسسات التعليم التقني جغرافيا مما يساعد الطلبة بالالتحاق بهذه المؤسسات					
17	مبنى مؤسسة التعليم التقني ملائم للتعليم و التدريب التقني					
18	تتابع المؤسسة التعليمية طلابها بعد التخرج					
19	اهتمت المؤسسة التعليمية بمشاكل الطلبة وحلها اثناء الدراسة					
20	تتوفر معدات وتجهيزات متطورة تواكب التطور التكنولوجي					

	في سوق العمل					
21	تساعد المعدات والتجهيزات الموجودة في الكلية في إكساب الطلبة المهارة المطلوبة					
مشاكل تتعلق بالطلاب						
22	يعاني الطلبة من مشكلة عدم الاهتمام بالعملية التعليمية					
23	الطلاب غير متفاعلين اثناء المحاضرات والتجارب العملية					
24	يهتم الطلبة بعلامة المساق اكثر من الفائدة والمهارة المطلوبة للمساق					
25	يتكرر غياب الطلبة عن المحاضرات					
الرقم	الفقرة	موافق بشدة	موافق	محايد	معارض	معارض بشدة
26	يوجد عدم الاهتمام بقواعد السلامة العامة داخل المشاغل من قبل الطلبة					
27	يوجد عدم التعاون والعمل ضمن فريق اثناء التجارب العملية من قبل الطلبة					
المهارات الفنية الخاصة بالطلبة المتخرجين من الكليات التقنية						
	المهارات المطلوبة من كل تخصص	موافق بشدة	موافق	محايد	معارض	معارض بشدة
28	لديه القدرة على توصيل دوائر التمديدات الكهربائية المنزلية والصناعية					
29	لديه القدرة على تصميم اللوحات الكهربائية الصناعية					
30	لديه القدرة على تصميم وتنفيذ مخططات لوحات التحكم الصناعي والقدرة المختلفة مع بناء نظام الحماية لها					
31	لديه القدرة على تصميم مخططات أنظمة التحكم الهيدروليكية والنيوماتيكية والكهروهيدروليكية والكهرونيوماتيكية					
32	لديه القدرة على الربط بين تكنولوجيا الأتمتة وخطوط الانتاج والتطبيقات المختلفة من خلال برمجة جهاز PLC					
33	لديه القدرة على تشغيل محركات الكهربائية بانواعها المختلفة وبشكل امن, واجراء الصيانة اللازمة لها					
34	لديه القدرة على تشغيل وصيانة الماكنات وخطوط الانتاج الصناعية					
35	لديه القدرة على اعداد التقارير الفنية اللازمة لمتابعة سير العمل					
36	لديه القدرة على قراءة الكتالوجات الخاصة بالأجهزة والآلات والنظم الكهروميكانيكية والهيدروليكية والنيوماتيكية					

قسم الانتاج والالات المشاكل التي تتعلق بالعملية التعليمية						
الرقم	الفقرة	موافق بشدة	موافق	محايد	معارض	معارض بشدة
مشاكل تتعلق بالمعلمين						
1	يمتاز المعلمون بكفاءة عالية في الادء					
2	يرتبط المعلمون بشكل جيد في سوق العمل					
3	يستخدم المعلمون الوسائل الحديثه في عملية التدريب					
الرقم	الفقرة	موافق بشدة	موافق	محايد	معارض	معارض بشدة
4	يربط المعلمون الناحية النظرية بالناحية التطبيقية					
5	يستطيع المعلمون اكساب الطالب المهارات المطلوبة في كل مساق					
6	ينوع المعلمون من طرق التدريس في التعليم التقني					
7	يقوم المدرسون بتحسين طرق التدريس بشكل مستمر					
مشاكل تتعلق بالمنهاج						
8	يتوفر مقرر واضح لكل مساق تقني					
9	تساعد المادة التعليمية على اكساب الطالب المهارة المطلوبة لكل مساق					
10	ترتبط المهارات المطلوبة من كل مقرر بتكنولوجيا العصر					
11	يركز التعليم التقني على الجانب العملي اكثر من الجانب النظري					
12	يتم تحديث دوري للمنهاج بما يتناسب مع متطلبات السوق					
13	تمتاز المادة التعليمية بتسلسل الافكار مما يساعد الطلبة على فهم المحتوى					
14	التجهيزات و المعدات المتوفره في المشاغل العمليه تلبي متطلبات المنهاج النظري					
مشاكل تتعلق بالمؤسسة التعليمية						
15	التخصصات التقنية المتوفرة تغطي حاجة السوق					
16	تتوزع مؤسسات التعليم التقني جغراقيا مما يساعد الطلبة بالالتحاق بهذه المؤسسات					
17	مبنى مؤسسة التعليم التقني ملائم للتعليم و التدريب التقني					
18	تتابع المؤسسة التعليمية طلابها بعد التخرج					
19	اهتمت المؤسسة التعليمية بمشاكل الطلبة وحلها اثناء الدراسة					

20	تتوفر معدات وتجهيزات متطورة تواكب التطور التكنولوجي في سوق العمل					
21	تساعد المعدات والتجهيزات الموجودة في الكلية في إكساب الطلبة المهارة المطلوبة					
	مشاكل تتعلق بالطلاب					
22	يعاني الطلبة من مشكلة عدم الاهتمام بالعملية التعليمية					
23	الطلاب غير متفاعلين اثناء المحاضرات والتجارب العملية					
24	يهتم الطلبة بعلامة المساق اكثر من الفائدة والمهارة المطلوبة للمساق					
25	يتكرر غياب الطلبة عن المحاضرات					
26	يوجد عدم الاهتمام بقواعد السلامة العامة داخل المشاغل من قبل الطلبة					
الرقم	الفقرة	موافق بشدة	موافق	محايد	معارض	معارض بشدة
27	يوجد عدم التعاون والعمل ضمن فريق اثناء التجارب العملية من قبل الطلبة					

المهارات الفنية الخاصة بالطلبة المتخرجين من الكليات التقنية						
	المهارات المطلوبة من كل تخصص	موافق بشدة	موافق	محايد	معارض	معارض بشدة
28	لديه القدرة على قراءة وتنفيذ الرسوم الفنية والهندسية وفهم رموزها ومدلولاتها بما يخص القطع الميكانيكية وإنتاجها					
29	لديه القدرة على إجراء عمليات التشغيل بالقطع التقليدية كالخراطة والتفريز وكل ما تتضمنه من مهارات كتشكيل وقطع اللوالب والتروس					
30	لديه القدرة على إجراء كل عمليات القياس والضبط الدقيق للمشغولات من خلال أجهزة القياس المختلفة					
31	لديه القدرة على فهم الخواص الميكانيكية المختلفة للمواد الهندسية واختيار الأنسب منها لتصنيع القطع المنتجة					
32	لديه القدرة على تنفيذ عمليات الوصل واللحام اليدوي بتقنياته المختلفة					
33	لديه القدرة على استخدام الحاسوب في الرسم والتصميم كأساس لعمليات التشغيل المحوسب					
34	لديه القدرة على فهم طبيعة العلاقات الإدارية والإنسانية للمنشآت الصناعية ومواقع الإنتاج ومتطلبات السلامة المهنية والعامة					

35	لديه القدرة على تصنيع وتصميم الماكنات بتقنيات عالية الدقة					
36	لديه القدرة على بناء الأنظمة الحديثة في تشغيل الماكنات والآلات وخطوط الانتاج					
37	لديه القدرة على ضبط العمليات الانتاجية وتحقيق أسس الجودة ومتطلباتها					
37	لديه القدرة على قراءة وتحليل رسوم الآلات ونظرية عملها ومتطلبات الصيانة و التشغيل الخاصة بها من خلال قراءة وفهم كتيبات البيانات الخاصة بها					

قسم التكيف والتبريد المشاكل التي تتعلق بالعملية التعليمية						
الرقم	الفقرة	موافق بشدة	موافق	محايد	معارض	معارض بشدة
مشاكل تتعلق بالمعلمين						
1	يمتاز المعلمون بكفاءة عالية في الادء					
2	يرتبط المعلمون بشكل جيد في سوق العمل					
3	يستخدم المعلمون الوسائل الحديثه في عملية التدريب					
4	يربط المعلمون الناحية النظرية بالناحية التطبيقية					
5	يستطيع المعلمون اكساب الطالب المهارات المطلوبة في كل مساق					
6	ينوع المعلمون من طرق التدريس في التعليم التقني					
7	يقوم المدرسون بتحسين طرق التدريس بشكل مستمر					
مشاكل تتعلق بالمنهاج						
8	يتوفر مقرر واضح لكل مساق تقني					
9	تساعد المادة التعليمية على اكساب الطالب المهارة المطلوبة لكل مساق					
10	ترتبط المهارات المطلوبة من كل مقرر بتكنولوجيا العصر					
11	يركز التعليم التقني على الجانب العملي اكثر من الجانب النظري					
12	يتم تحديث دوري للمنهاج بما يتناسب مع متطلبات					

	السوق					
13	تمتاز المادة التعليمية بتسلسل الافكار مما يساعد الطلبة على فهم المحتوى					
14	التجهيزات و المعدات المتوفره في المشاغل العمليه تلبي متطلبات المنهاج النظري					
مشاكل تتعلق بالمؤسسة التعليمية						
15	التخصصات التقنية المتوفرة تغطي حاجة السوق					
16	تتوزع مؤسسات التعليم التقني جغرافيا مما يساعد الطلبة بالالتحاق بهذه المؤسسات					
17	مبنى مؤسسة التعليم التقني ملائم للتعليم و التدريب التقني					
18	تتابع المؤسسة التعليمية طلابها بعد التخرج					
19	اهتمت المؤسسة التعليمية بمشاكل الطلبة وحلها اثناء الدراسة					
20	تتوفر معدات وتجهيزات متطورة تواكب التطور التكنولوجي في سوق العمل					
21	تساعد المعدات والتجهيزات الموجودة في الكلية في إكساب الطلبة المهارة المطلوبة					
مشاكل تتعلق بالطلاب						
الرقم	الفقرة	موافق بشدة	موافق	محايد	معارض	معارض بشدة
22	يعاني الطلبة من مشكلة عدم الاهتمام بالعملية التعليمية					
23	الطلاب غير متفاعلين اثناء المحاضرات والتجارب العملية					
24	يهتم الطلبة بعلامة المساق اكثر من الفائدة والمهارة المطلوبة للمساق					
25	يتكرر غياب الطلبة عن المحاضرات					
26	يوجد عدم الاهتمام بقواعد السلامة العامة داخل المشاغل من قبل الطلبة					
27	يوجد عدم التعاون والعمل ضمن فريق اثناء التجارب العملية من قبل الطلبة					

المهارات الفنية الخاصة بالطلبة المتخرجين من الكليات التقنية						
	المهارات المطلوبة من كل تخصص	موافق بشدة	موافق	محايد	معارض	معارض بشدة
28	لديه القدرة على تشكيل الانابيب النحاسية					
29	لديه القدرة على تركيب وصيانة المكيفات المنفصة ووحدات التبريد					
30	لديه القدرة على صيانة الثلاجات المنزلية وبرادات المياه					
31	لديه القدرة على الرسم باستخدام الحاسب الالي في مجال التبريد وتكييف الهواء					
32	لديه القدرة على تحديد الاعطال الكهربائية والالكترونية لوحدات التبريد وتكييف الهواء					
33	لديه القدرة على تصميم وتصنيع مجاري الهواء للتكييف المركزي					
34	لديه القدرة على مراجعة المخططات الخاصة بنظم توزيع الماء والهواء					
35	لديه القدرة على اجراء الحسابات الخاصة بتصميم أنظمة التكييف والتبريد والتدفئة					
36	لديه القدرة على تصميم وتنفيذ أنظمة التدفئة المركزية واجراء الصيانة اللازمة لها					
37	لديه القدرة على فحص وتشغيل لابراج التبريد, واختيار المضخات المناسبة لها. واعداد جداول زمنية لصيانة مكونات ابراج التبريد					

قسم مكانيك سيارات المشاكل التي تتعلق بالعملية التعليمية						
الرقم	الفقرة	موافق بشدة	موافق	محايد	معارض	معارض بشدة
مشاكل تتعلق بالمعلمين						
1	يمتاز المعلمون بكفاءة عالية في الادء					
2	يرتبط المعلمون بشكل جيد في سوق العمل					

3	يستخدم المعلمون الوسائل الحديثه في عملية التدريب					
4	يربط المعلمون الناحية النظرية بالناحية التطبيقية					
5	يستطيع المعلمون اكساب الطالب المهارات المطلوبة في كل مساق					
6	ينوع المعلمون من طرق التدريس في التعليم التقني					
7	يقوم المدرسون بتحسين طرق التدريس بشكل مستمر					
	مشاكل تتعلق بالمنهاج					
8	يتوفر مقرر واضح لكل مساق تقني					
9	تساعد المادة التعليمية على اكساب الطالب المهارة المطلوبة لكل مساق					
10	ترتبط المهارات المطلوبة من كل مقرر بتكنولوجيا العصر					
11	يركز التعليم التقني على الجانب العملي اكثر من الجانب النظري					
12	يتم تحديث دوري للمنهاج بما يتناسب مع متطلبات السوق					
13	تمتاز المادة التعليمية بتسلسل الافكار مما يساعد الطلبة على فهم المحتوى					
14	التجهيزات و المعدات المتوفره في المشاغل العمليه تلبي متطلبات المنهاج النظري					
	مشاكل تتعلق بالمؤسسة التعليمية					
15	التخصصات التقنية المتوفرة تغطي حاجة السوق					
16	تتوزع مؤسسات التعليم التقني جغراقيا مما يساعد الطلبة بالالتحاق بهذه المؤسسات					
17	مبنى مؤسسة التعليم التقني ملائم للتعليم و التدريب التقني					
18	تتابع المؤسسة التعليمية طلابها بعد التخرج					
19	اهتمت المؤسسة التعليمية بمشاكل الطلبة وحلها اثناء الدراسة					
20	تتوفر معدات وتجهيزات متطورة تواكب التطور التكنولوجي في سوق العمل					
21	تساعد المعدات والتجهيزات الموجودة في الكلية في إكساب الطلبة المهارة المطلوبة					
	مشاكل تتعلق بالطلاب					
الرقم	الفقرة	موافق بشدة	موافق	محايد	معارض	معارض بشدة
22	يعاني الطلبة من مشكلة عدم الاهتمام بالعملية التعليمية					

23	الطلاب غير متفاعلين اثناء المحاضرات والتجارب العملية					
24	يهتم الطلبة بعلامة المساق اكثر من الفائدة والمهارة المطلوبة للمساق					
25	يتكرر غياب الطلبة عن المحاضرات					
26	يوجد عدم الاهتمام بقواعد السلامة العامة داخل المشاغل من قبل الطلبة					
27	يوجد عدم التعاون والعمل ضمن فريق اثناء التجارب العملية من قبل الطلبة					

المهارات الفنية الخاصة بالطلبة المتخرجين من الكليات التقنية						
	المهارات المطلوبة من كل تخصص	موافق بشدة	موافق	محايد	معارض	معارض بشدة
28	لديه القدرة على تشخيص الأعطال الميكانيكية بالمركبة					
29	لديه القدرة على تشخيص الأعطال الكهربائية بالمركبة					
30	لديه القدرة على إجراء عمليات الصيانة الوقائية للمركبة					
31	لديه القدرة على إجراء عمليات المعايرة الخاصة بالمحرك					
32	لديه القدرة على صيانة أجزاء نقل الحركة (الجير, الاكسات, عمود الإدارة)					
33	لديه القدرة على صيانة الهيئة الأمامية للمركبة					
34	لديه القدرة على فك وتركيب المحرك بكافة أجزائه					
35	لديه القدرة على استخدام أجهزة الفحص الحديثة					
36	لديه القدرة على استخدام برنامج (auto data) بشكل جيد					
37	لديه القدرة على صيانة أنظمة الأمان والاضافات في المركبة					
38	لديه القدرة على صيانة أنظمة الحقن في محركات الديزل					
39	لديه القدرة على قراءة المخططات الكهربائية للمركبة					

شكرا لتعاونكم...

جامعة النجاح الوطنية

كلية الدراسات العليا

واقع دبلوم المهن الهندسية في الكليات التقنية في الضفة الغربية

إعداد

فارس احمد حنتولي

إشراف

د. سامر ميالة

قدمت هذه الأطروحة استكمالا لمتطلبات درجة الماجستير في الإدارة الهندسية بكلية الدراسات العليا في جامعة النجاح الوطنية في نابلس، فلسطين.

2014

واقع دبلوم المهن الهندسية في الكليات التقنية في الضفة الغربية

اعداد

فارس احمد حنتولي

اشراف

د. سامر ميالة

الملخص

هدفت الدراسة إلى تحديد واقع المهن الهندسية في الكليات التقنية في الضفة الغربية، من خلال التعرف على المشكلات التي تواجه العملية التعليمية بعناصرها الأربعة: المعلم، الطالب، المؤسسة، والمنهاج ، وكذلك التعرف على مخرجات الكلية من خلال تحديد المهارات المكتسبة للخريج من كل تخصص وتقييمها من قبل المدرسين والطلاب والسوق العمل، حيث شملت الدراسة على خمسة تخصصات هندسية في ثلاث كليات تقنية تابعة لوزارة التربية والتعليم الفلسطينية، بالإضافة ل 55 شركة موزعات في الضفة الغربية .

من اجل ذلك فقد صمم الباحث ثلاث استمارات لكل من المعلم والطالب والسوق العمل، وتم توزيع هذه الاستمارات على جميع المدرسين في الكليات التقنية وتم الاستجابة من 39 مدرس من أصل 42 مدرس، وكذلك جميع الطلبة المتخرجين عام 2013 والبالغ عددهم 151 طالب وقد تم الاستجابة من قبل 145 طالب، وقد قام الباحث بتوزيع 55 استمارة للشركات ذات العلاقة حيث تمت الاستجابة من جميع هذه الشركات. ولقد استخدم الباحث برنامج SPSS لتحليل البيانات.

وقد بينت الدراسة مجموعة من المشكلات الخاصة بالعملية التعليمية التي تواجه المهن الهندسية في الكليات التقنية مثل : نقص بالأجهزة الحديثة التي تواكب سوق العمل في بعض التخصصات، قلة اهتمام المؤسسة بمشاكل الطلبة وحلها، عدم توزيع الكليات التقنية جغرافيا بالضفة الغربية مما يؤدي إلى عائق أمام الطلبة للالتحاق بمثل هذه الكليات، عدم اهتمام الطلبة

بالعملية التعليمية، هذا وقد بينت الدراسة إلى اختلاف بوجهات النظر من حيث المهارات المكتسبة للخريج، حيث كانت وجهة نظر المدرسين والطلبة أفضل من وجهة نظر سوق العمل.

وبناءً على هذه النتائج فقد أوصى الباحث بالعديد من التوصيات أهمها :

- إعداد خطة إستراتيجية لإعادة توزيع الكليات التقنية بحيث تساعد الطلبة بالالتحاق بها بكل سهولة .
- الاهتمام بمشاكل الطلبة ومحاولة حلها من قبل المؤسسة التعليمية.
- تقسيم الفترة التدريبية للطالب إلى فترات متعددة بحيث يتم تحديد مهارات معينة لكل فترة من هذه الفترات، ومن ثم تقييم السوق للطلبة المتدربين تبعا للمهارات التي اكتسبها بحيث يتم إرسال استمارة تحتوي على المهارات التي يجب ان يتقنها المتدرب للمشرف بسوق العمل، وذلك للعمل على تحسين أي نقص بالمهارات المكتسبة للطالب من قبل المؤسسة التعليمية .
- تعزيز الشراكة بين المؤسسة التعليمية وسوق العمل من خلال ندوات و ورشات عمل وغيرها.
- عقد ورشات عمل بين المدرسين في الكليات التقنية المختلفة وذلك لتبادل الخبرات بينهم.