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Assessment and Viability for an IT Concentration Expansion at AUK

Lumbardh Sokoli

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“Assessment and Viability for an IT Concentration Expansion at AUK”

A Honors Society Project

By Lumbardh Sokoli

Academic Faculty Advisors

Committee Signatures

Dr. David K. Wetzel (Supervisor)

_____

Daniel Cosentino, MFA (Advisor)

_____

Dr. Brian H. Bowen (Advisor)

_____

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Presented to

The Academic Faculty

By

Lumbardh Sokoli

In Partial Fulfillment

of the Requirements for Membership in the

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Abbreviations

IT – Information Technology

ICT – Information Communication Technology

AUK – American University in Kosovo

UBT – University for Business and Technology

SEEU – South Easter European University

RIT – Rochester Institute of Technology

TDI – Training and Development Institute

CSE – Computer Science and Engineering

FYROM – Former Yugoslavian Republic of Macedonia

CST – Computer Science and Technology

AUT – American University in Tirana

IST – Information Sciences and Technologies Department

Executive Summary

The research on the topic "Assessment and Viability of IT Concentration Extension at AUK" has been conducted in order to produce a full report on IT concentration by analyzing it from different perspectives. The report assesses the strength and weaknesses of the current IT concentration at AUK and analyzes the enrollment trend over the past years since the concentration initiation. The end purpose of the report is to provide recommendations and guidelines for effective and successful extension of the current IT concentration at AUK but also provide valuable insights in this concentration.

AUK is the only higher institution in Kosovo that offers IT as a university program. Other universities offer IT-related programs but none of them offers the same program as AUK does. Nevertheless, the IT concentration at AUK has not experienced an increase in the number of the enrollment and the number of students enrolled has remained to the minimum level which is a threat for the entire concentration to be terminated.

Hence, there are 730 students studying IT in private universities in Kosovo, but AUK has been able to absorb only 30 of them. Although the satisfaction of these students at AUK is relatively good, there is still a lot improvement. The major causes for such a low number of students include:

- Low number of professors
- Lack of general courses in IT
- Not enough advertising and promotion

Based on both primary and secondary research conducted to gain more insights in IT concentration in terms of both inside and outside perspective, the report presents several recommendations:

- Increasing the number of professors in IT
- Increasing cooperation between AUK and TDI and IT and web design companies
- Using positive feedback of alumni to encourage enrollment in IT concentration
- Focusing in one or two of five pillars of IT
- Organizing seminars and public lectures in cooperation with IT Club
- Changing the name of the concentration and selecting the courses to be offered

Besides the recommendations, the report also elaborates on how these recommendations can be implemented from a marketing and organizational perspective. The solution designing section of the report discusses the following solutions

- Senior Project in IT
- Changing the name of the concentration and selecting the courses to be offered
- Offering IT-related courses as part of general education
- Hiring more professors
- More focused advertising campaign
- Increasing cooperation between AUK and TDI and IT and Web Design Companies

Essentially, the discussion of these solutions tries to answer the question of "How can we market our IT to be worth 6300 Euros?" However, the finances of implementation are outside the focus of this report.

Chapter 1 – Methodology

The analysis and recommendations provided in this report are based on primary and secondary research. On one hand, the primary data are obtained by conducting more than twenty interviews with subjects directly or indirectly involved with IT and by conducting a survey with one hundred participants consisting of high school senior students. On the other hand, the secondary data are obtained from extensive on-line research and from the Office of Student Services at AUK.

The majority of the interviews were conducted via e-mail; the reason being only the practicality and time-saving for the interviewees. However, that has not shown any limitations to the effectiveness of the interviews. The remaining interviews were conducted in person and this was possible for the interviews with current IT students at AUK and IT alumni. The format of interviews followed a similar pattern while the questions of the interviews were formulated in line with the overall strategy of the research report.

It is important to note that the interviews conducted with current IT students and IT alumni at AUK also have quantitative questions which made possible the compilation of graphs in order to have a general visual sense of the analysis that follows the results. Since, the sample of the subjects interviewed is quite large relative to the entire population of IT students and IT alumni; it can be claimed to be representative of the current IT students and IT alumni.

In addition to interviews, a survey with high school senior students was conducted too. Most of the participants of the survey were from Prishtine and Viti, but there was a small percentage from Gjilan and Ferizaj. Around 70% of the survey was conducted online but it was offered only to high school senior students not to other levels of high schools while 30% of the survey was distributed in classrooms for high school seniors to fill it then the answers were processed in Excel. Thus, the stratification of the samples was done based on the year level in high school the rationale being that the seniors are in the verge of making the decision where to continue their studies; therefore, they can provide more relevant answers. An attempt to include more participants in the survey was done but that was practically difficult and prohibitively expensive. Nevertheless, a sample size of 100 participants offers general approximations on the population, just what it is needed for the relatively broad analysis that follows from the survey.

Unlike the primary research, the secondary research included on line research and also maintaining regular contacts with the Office for Student Services at AUK regarding different statistics and information related to AUK students. The online research was focused on the literature behind IT and finding out where IT stands in terms of an academic degree. It was used to build the background of the project. The information obtained from the Office of Student Services at AUK mostly had technical and statistical nature.

The analysis of the report follows a marketing approach in order to be in line with the end goal of the project. The analysis aims to produce sound hypothesis for the low number of students in the IT concentration while simultaneously working on recommendations and designing technically and financially feasible solutions for extending the IT concentration at AUK.

Chapter 2 – Introduction

2.1 Life and Information Technology

Although not at today's levels, technology has been part of human life since ancient times when the first tools and machines began to be used. Ever since, humans have struggled to develop the newest technologies to meet their ever increasing demands. As a consequence, the technology has arrived at the level it is now and the pinnacle is the extremely high development of information technology (IT) which has become vastly integrated in our daily professional and personal lives. IT is used everywhere and its applicability ranges from a general purpose to a specific one. For example, IT is used extensively in many different professional fields, for example: in business, it is used in almost all business activities of a company; in scientific applications IT is used to assist in accuracy and timeliness; in health care, it is used to assist doctors in diagnosing diseases through different suggestions which come based on historically built patterns; in education, it is used for a whole range of purposes from assisting in teaching to preparing automated and personalized reports for each student's performance; in entertainment it is used to used for games, movies, music and many other applications (Lochan 38). In other words, IT is part of our daily life, but sometimes it is so invisible and hidden behind the millions of applications that we are not aware of its existence; nevertheless, it is the application of IT that makes working with technology so user-friendly and fun.

2.2 What does IT specifically deal with?

IT has developed at a fast pace in the end of last century when both the economy and society were shifting the focus from the industrialism to the information along with the development of world wide web and the many website start-ups. As a consequence there was a very high demand for specialists in the field to make things work and meet the market demand as a result the field of IT was born (Launt et al. 14). Soon it was obvious that the existing undergraduate programs were not giving graduates with the necessary skills to be employed in the organizations that needed expertise in their computer systems. Thus, IT as a university degree was initiated in several universities ("Information Technology" 2).

Although IT as a term might sound a fairly specific, in reality it is a relatively broad field. Nevertheless, everything that has to do with IT rests on five pillars which are also interrelated to each other. Those five pillars are:

- Programming and application development
- Web and multimedia development
- Database
- Hardware and Networking
- User-Centered Design and Deployment

On one hand, IT is almost everything behind the computers, it serves the needs of organizations and individuals "through the selection, creation, application, integration and administration of computing technologies" (16). The vast use of computers in organizations requires so much IT expertise to help maintain and develop appropriate systems to meet the organizational needs. That is why IT has evolved as a separate department in almost all middle and large organizations.

On the other hand, information technology, in academia refers to university degree programs in the undergraduate level "that prepare students to meet the computer technology needs of business, government, healthcare, schools, and other kinds of organizations" (16). This undergraduate program was born as a result of a immense need for IT specialists to facilitate organizations in the verge of the global trends where employers desperately were looking for people who can solve their computer-related issues in different organizational departments (Shackelford et al. 13). Ever since, IT programs are found in many universities around the world and the aim of this undergraduate program is to prepare IT graduates both academically and practically ready to begin assisting in organizational computer systems and also individual ones (14).

As specialists in the field, IT graduates should be able to assists organizations by assuming responsibility for "selecting hardware and software products appropriate for an organization, integrating those products with organizational needs and infrastructure, and installing, customizing, and maintaining those applications for the organization's computer users" (17). In other words, IT people are meant to satisfy the needs of individuals and

organizations that come from their interaction with computers. Therefore, IT people must be prepared to create digital content, manage with it, and maintain it with the end goal of meeting the organization's needs ("Information Technology" 5).

2.3 IT in Academia

Because IT is considered a relatively new field which has evolved greatly in recent years, many people question whether it is so significant that to deserve an academic program dedicated to it. This doubt mainly comes because of the highly technical focus of IT (5). However, the proponents of IT defend their position through citing the widespread importance of IT throughout each level of society, so, "to the extent that organizations rely on computer technology, the IT discipline has a key role to play." (5). Moreover, dealing with IT in many organizations is a very complex duty where both the technical experience and the academic background are needed to fully capture the nature of problems and solving them based on the organizational needs (5). For example, computer problems arising from software and hardware systems related to reliability, security, and efficiency require careful diagnosis and the IT specialists must be very informed and knowledgeable about the way to handle those problems in terms of organizational structure (5).

Being a relatively new discipline, IT also faces the problem of acceptance in the community of other already established computer fields. This comes mainly because IT touches tangentially almost over all other fields related to computers and opponents claim that it does not have anything new to offer. Hence, the broadest concern of IT as a field is to establish itself as a discipline of study where students are able to study its core and be assured of the skills and knowledge they will obtain studying it (Yanis and Treacy 10). The challenges toward the fulfillment of this goal are the integration of IT concentration among many other concentrations where the curriculum is set and where the straight accreditation guidelines exist that are in conformity with global standards (13).

2.4 Introduction of IT sector in Kosovo

IT sector in general opens opportunities both vertically and horizontally. Vertically, it means that it is a fast-increasing sector where jobs within the sector are constantly increasing. Whereas, horizontally it means that it also has the potential to increase growth rates across other

sectors of the economy ("*ICT Country Profile"* 1). According to a report compiled by USAID on Kosovo's IT sector, the growth in this sector is over 20% annually which contributes to a significant number of job vacancies in the market and with salaries competing with the regional countries (3). As a result, the number of jobs has increased by 4% annually and the good thing about this expansion is that most companies focus their investments and growth inside Kosovo rather than in foreign countries (2).

In addition, many IT companies in Kosovo have been created to take care of the market needs in the IT sector, but several of them are more widely known to be as more professional and prepared to serve the market such as IPKO, Cacttus, Pronet, Rrota, Kujtesa, BOTEK, MIK Agency, Ati-Kos, etc. At the same time, these companies are the major employers of IT specialists in Kosovo.

Furthermore, there is a significant interest shown in modern technology by Kosovo youngsters which is combined with the increase in demand for IT specialist in Kosovo and the result is a number of higher education offering courses in computer technologies and some of them focus highly in ICT such as Faculty of Electrical and Computer Engineering of the University of Pristina, University for Business and Technology, the American University in Kosovo, Iliria University, and University of Prizren (15). The largest number of graduates from ICT concentrations comes from the University of Prishtina, but only American University in Kosovo has an undergraduate concentration dedicated fully to IT, the rest is more focused on computer sciences.

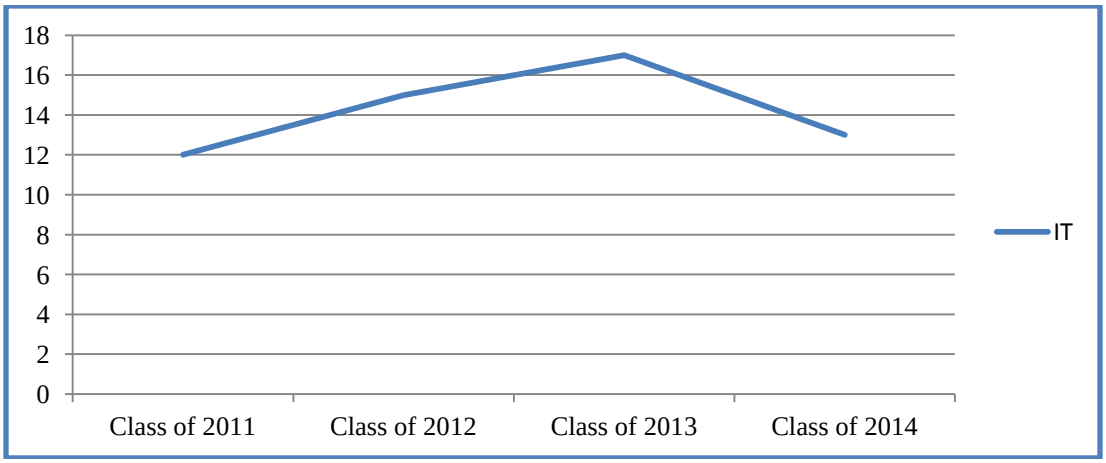
Moreover, Kosovo has a very young population which is very tech-savvy and is part of a growing economy and the IT sector is contributing part of that growth. Thus, the number of students majoring in concentrations related to information technology is increasing every year ("*Pasqyrë e Arsimit të Lartë Privat në në Kosovë"* 7). The institute for advanced studies, GAP, has estimated that of the total number of students enrolled in private universities in Kosovo, around 730 students are studying IT or similar computer sciences and this number is increasing from year to year (8).

Chapter 3 – IT at AUK

AUK is only university in Kosovo that offers IT as a concentration. The IT concentration at AUK currently has around 30 students who also simultaneously have another concentration such as Public Policy, Economics, or Management. In addition, there is also a concentration in Media and Graphic Communications which has around 50 students. According to the AUK website, students decide to study the IT program AUK in order to prepare for technical aspects of IT or to prepare for something broader dealing with IT in order to hunt for jobs requiring general IT skills (aukonline.org).

To begin with, the IT concentration at AUK started with a very low number of students but the expectations were that it would increase as explained by Mr. Boyd in the interview conducted with him. The line chart below, *Figure 1*, presents the trend of enrollment in this concentration for the four consecutive classes since its beginning; however, this cannot be considered a very accurate trend since it is based only on a very short period of years but it gives a fairly good picture of the current situation in this concentration. The graph shows the number of students in IT as per their expected graduation year.

Figure 1 - Enrollment in IT at AUK since its initiation



Source: AUK Student Services

One part of the focus this research report will be to try to examine this trend as close possible through the conduct of interviews with current students and alumni as well as with the people who initiated this concentration in order to see if there is actually a problem with this

concentration or things are going as were planned. The second part of the focus of the report will be presented in the next section.

To have more insights on the IT at AUK we should look it both from the inside but also in the context of the place and society in which it exists and where it is marketed. From inside, we need to look at what is the history behind the starting of an IT concentration at AUK, what the expectations were, how were they planned to be achieved, and how much has been worked in this aspect. In order to be able to know these questions, the former AUK Dean for Academic Affairs, Mr. Peter Boyd was contacted and interviewed via e-mail on the history of IT at AUK, goals, expectations, and the overall process towards its formation.

3.1 Interview with Mr. Peter Boyd

The first interview conducted for this matter was that with Mr. Peter Boyd, director of academic affairs at AUK during the period of IT concentration initiation. According to Mr. Boyd, IT at AUK started for several reasons/goals which are closely related to each other. First, it was a desire to make AUK part of a growing sector in both Kosovo and regional economies. Second, it was also a desire to take advantage of the fact that RIT is a market leader in IT programs. Third, the initiation of IT concentration was meant to meet donor interests in developing research and further capacities at AUK. Fourth, it was a desire to meet student interests. Fifth, it was meant to offer to students of management and media concentration a useful complement in order for them to have the option of expanding their education in the relevant fields. Sixth, this concentration was meant to prepare students for jobs with strong IT focus – special focus was to be placed in the basics of coding and information systems, the web, but also in networking and system administration as well security. The whole idea as Mr. Boyd explains was to create a program that was general enough to accommodate any short-term trends in the job market for IT professionals and not be very specific so that students cannot be accommodated to overnight changes in the IT trends (Boyd).

In addition, Mr. Boyd was also asked regarding the expectations in terms of enrollment in IT concentration when it was initiated. He explained that the initiators of the program were willing to start the program with only 15 students because the program was created late in the year and the sophomores did not have much time to think whether they want to enroll in it or not.

However, as Mr. Boyd explains, they were willing to let the program start with that small number and then see how it grows.

Nevertheless, the IT program, according to Mr. Boyd, would be shut down or merged with the media program if it had not attracted more than 25 students in a matter of few years. Another alternative if that number of students was not reached was to redesign the whole concentration with greater inputs from the external AUK Academic Advisory Board.

As for the expectations, he explains that the initiators of the program realized that the enrollment in this concentration is tied to the general enrollment in AUK and is also dependent on the market of IT sector in Kosovo. In addition to that, TDI was already doing a pretty good job in almost the same area thus there were not very high expectations in terms of enrollment and growth in the IT concentration but it was expected that the concentration would modestly grow over time and that was a risk that the initiators were willing to undertake.

As you will be able to see later in this report, most of the IT students mentioned the low number of professors as a problem of IT concentration at AUK. Mr. Peter Boyd explained that the initiators of the program only looked for one or two faculty members to cover the concentration in the beginning because the number of enrollment was expected to be low and the nature of the courses was meant to be introductory so there would not be too much load for the faculty. However, the expectations were that by the second year around three to five full time faculty members would be needed to keep the concentration running successfully as the number of students in this concentration would grow. However, having only one professor in the concentration was both the cause and the effect of low enrollment in this concentration as will be discussed later in the report.

Regarding the way how courses to be taught in this concentration were selected, Mr. Boyd explains that all the approvals for the courses had to come from the college of computing within RIT and Jeffrey Lasky was the head of that department. In collaboration with him, AUK selected all the courses that are now offered in the IT concentration. The main driving force behind the course selection was the desire to create a concentration that would prepare students in the undergraduate level by giving them an overview of the IT field and give them the basis so that they can study IT in details in their graduate levels. Another thing that was looked when designing the courses was to avoid having prerequisites and co-requisites for the courses in order

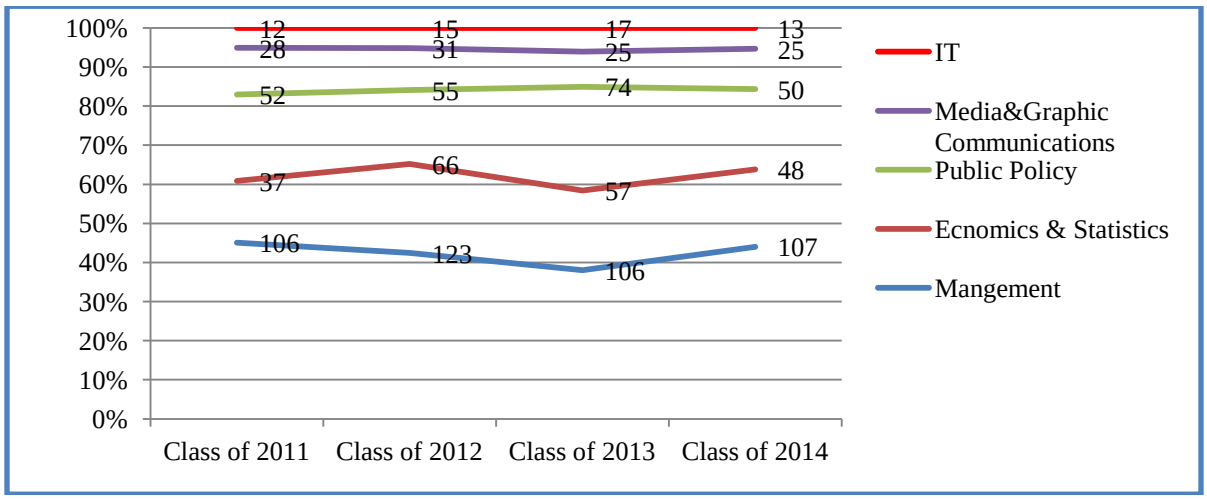
to avoid having extra specialized math courses be taught at AUK. In addition, the courses were selected based on the fact that students at AUK have to select to concentration and the initiators believed that students would most likely pair IT concentration with either Media concentration or Management concentration so the courses were designed to match as effectively as possible these concentration so that students can relate and understand better different concepts. Lastly, the cost to implement the courses was also taken in consideration according to Mr. Boyd since specialized hardware and software and specialized faculty members were needed to implement certain courses (Boyd).

Chapter 4 – Defining the Problem

Nevertheless, two years after the initiation of IT program at AUK the number of enrollment in the IT sector does not seem to have caught up with the current trends in this sector in Kosovo. So, from the 730 IT students studying in private universities (Student no in Kosovo universities 7), AUK has been able to absorb only 30 of them and the trend is more or less flat since that number is not increasing what immediately makes us believe that the expectations of the initiators of the IT concentration at AUK that the number of students would grow eventually, as revealed by Mr. Boyd were not met. So there is an enrollment problem with the concentration. This turns us back to the point where Mr. Boyd said that the plan was that if the number of students in IT would not grow the whole concentration would be terminated or merged to another concentration. Therefore, this project will evaluate the possibilities for improving and extending the current IT concentration so that the decision of terminating or merging it with another concentration would be avoided.

Decisions for expanding the IT concentration in terms of professors and courses offered depend on the number of students interested to enroll in this concentration, but also in the case of AUK it is important to realize whether the IT concentration pertains to overall strategic mission of AUK. However, a decision for the further extension of IT at AUK can only be made if the number of students interested to enroll in this concentration increases. Similarly, students interested to enroll in IT at AUK want see the same attention being dedicated to the IT as it is dedicated to other concentrations. Two years after the initiation of the IT concentration the number of students in this concentration has remained about the same despite the change in the overall number of students in AUK. However, other concentrations have experienced changes in the number of enrollment. The graph below is a summary the enrollment trends in each of the concentrations starting from the class of 2011 up to the class of 2014. This graph includes students that have declared their concentrations.

Figure 2 - Comparison of Enrollment in the Various Concentrations at AUK



Source: AUK Student Services

The first part of the focus of the report could be seen in Chapter 2, the other part of the focus of this report is to determine the cause of such a low enrollment and suggest potential solutions to this problem by looking at the problem from different managerial and marketing perspectives. The aim of the project is to present the requirements needed to be fulfilled for increasing the number enrollment and attracting new students in IT concentration at AUK by performing applied research for AUK Honor's Project to assess the viability for an IT undergraduate program extension at AUK to meet the demands of Kosovo's market in the IT sector.

As mentioned previously, the report is based on getting insights from various people and areas related to IT with the end goal of delivering a clear image where the IT at AUK stands and offering viable recommendations towards its extension and improvement. The success of this concentration cannot only be measured based on the number of students it has attracted, it should also be analyzed whether the program goals in terms of delivering the necessary knowledge and skills to students were met. In order to come up with such an analysis, interviews with a good number of current IT students and IT alumni were conducted. In addition to interviews with AUK staff, which provided good insights on what they think of this concentration, and what their suggestions were in terms of improving it. Thus, in the next section the results of the interviews with current IT students and IT alumni will be presented and discussed to get vivid insights on this concentration.

Chapter 5 – Insights on IT at AUK from Students and Alumni

The IT students at AUK have very different backgrounds and the reasons why they choose to study IT at AUK differ significantly. Some of the students had some experience with IT before coming to AUK, others did not have any interactions with IT before coming to AUK but they wanted to find out what the IT is about.

5.1 Interviews and Methodology

So, far we have looked the IT concentration at AUK only from the perspective of the initiators, now we will also look it from the perspective of the current students and alumni to see how they consider their studies in this concentration and see how much the IT concentration has matched their career goals. Currently, there are 30 students studying IT at AUK, 17 students belong to Class of 2013 and 13 to Class of 2014. This is around 5% of the total number of students at AUK. *Table 1* summarizes the number of students in all concentrations.

Table 1 - Number of AUK Students According to Classes

Class	Management	Economics & Statistics	P. Policy	Media & G. Comm.	IT
Class of 2011	106	37	52	28	12
Class of 2012	123	66	55	31	15
Class of 2013	106	57	74	25	17
Class of 2014	107	48	50	25	13
Total Current Students that have declared concentrations (2013 & 2014)	**213**	**105**	**124**	**50**	**30**

Source: Office of Academic Affairs at AUK

For the sake of getting more insightful answers personal interviews via e-mail and in person were conducted with ten current students and ten alumni of IT concentration. The names of the interviewees are provided in the section of the bibliography under the relevant citations. The reason why interviews were conducted instead of online surveys is that interviews allow the participants to express themselves better and at the same time the interviews offer both quantitative and qualitative results what makes the analysis more insightful. Considering that there are less than 30 alumni and only 30 current IT students a sample size of 10 is 1/3 of the

total population and as such was considered sufficient in making inferences about the general population of IT students. An attempt to interview to interview all of the IT students was made but many of them refused to do so with an excuse of limited time they had. Nevertheless, each of the interviewees was asked a number of questions. The questions that they were asked are presented in tables in Appendix 1. The interviews will also serve as a survey in terms of the quantitative data that was obtained from them.

In addition to these core questions the interviewees were also asked what their other concentration was and whether the family owned an IT business. These questions were the same for both alumni and current IT students and the aim of these additional questions was to see whether they decided to study IT because they had a secure job in the family business or they hoped that IT at AUK would help them find a better job after graduation. In addition, those additional questions were meant to reveal the concentration combination of the students that had IT.

5.2 Interview Results

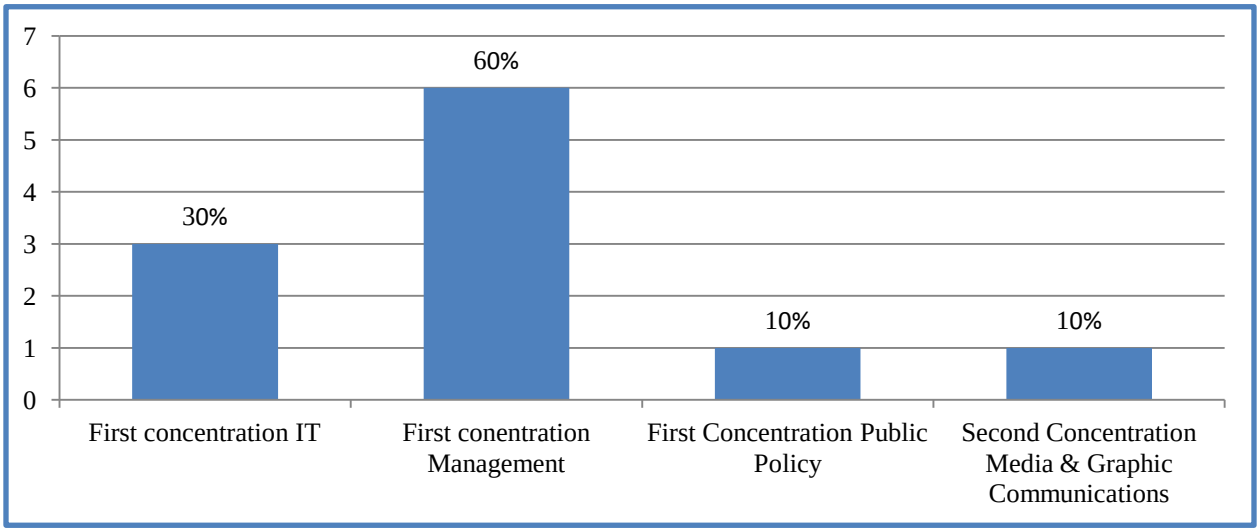
The interviews not only served to obtain important qualitative information directly from current students and alumni, but they also served as the basis for the compilation of various important statistics related to this concentration considering that the sample size of 10 current students and 10 alumni is reasonably large compared to the total population of around 30 current students and around 25 alumni. Knowing and understanding the statistics behind the IT concentration helps perform better analysis and come up with better suggestions. At the same time, these statistics are an important guideline to find out whether the expectations and goals of IT concentration advisors were met.

5.2.1 Concentration Combination

Hence, to begin with the combinations of concentration of IT students are presented. *Figure 3* below shows the concentration combination of current IT students at AUK. This is composed of only students that either have IT as first or second concentration. So if they have another concentration as their first, it is automatically assumed that IT is their second concentration and vice versa. For example, if their first concentration is Management, it means that their second concentration is IT. As it can be seen from the figure the prevalent combination

of these students is IT and Management with Management being their first concentration. Whereas, the combination of IT with Media and Graphic Communications and that of IT with Public Policy is not very popular among current IT students.

Figure 3 – Concentration Combination of Current IT Students at AUK

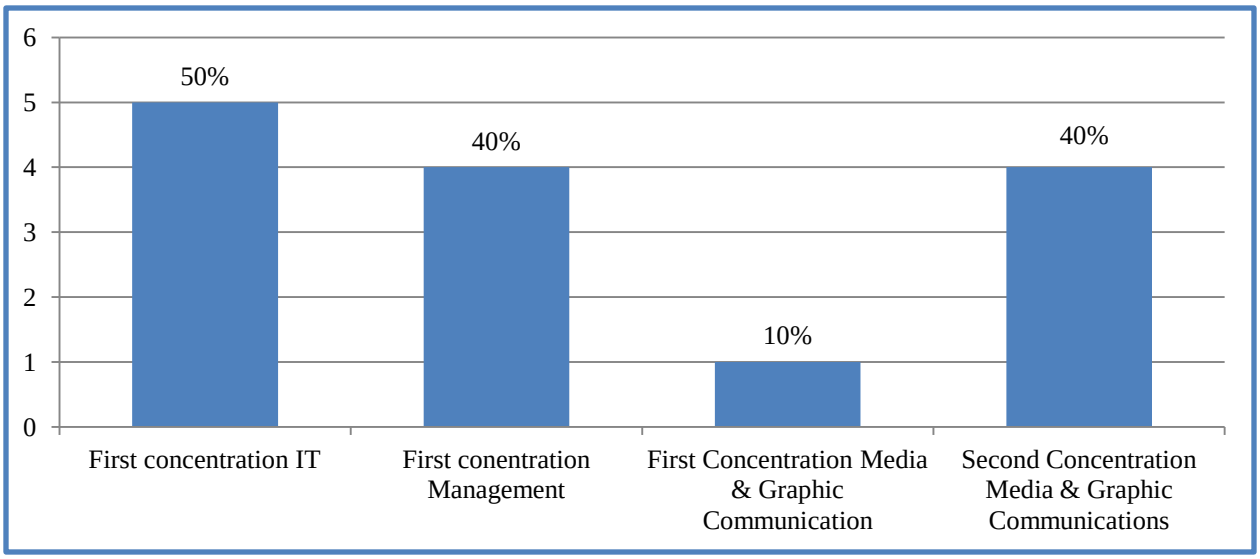


Source: Interviews with IT Current Students

This is what actually the initiators of the IT program predicted as explained by Mr. Boyd – this is why they tried to tailor the courses so that they would mostly match the IT with the Management concentration. However, they also matched IT with the Media and Graphic Communication concentration but as it is seen from the figure above the current students do not have such a combination of concentrations.

However, that was much more different in the case of IT Alumni. *Figure 4* below presents the combination of concentrations at AUK that IT Alumni had. The composition of the sample has still the same structure; all the Alumni involved there had IT either as their first or second concentration so the same rule as in the case of current IT students presented above applies.

Figure 4 - Concentration Combination of IT Alumni at AUK



Source: Interviews with IT Alumni

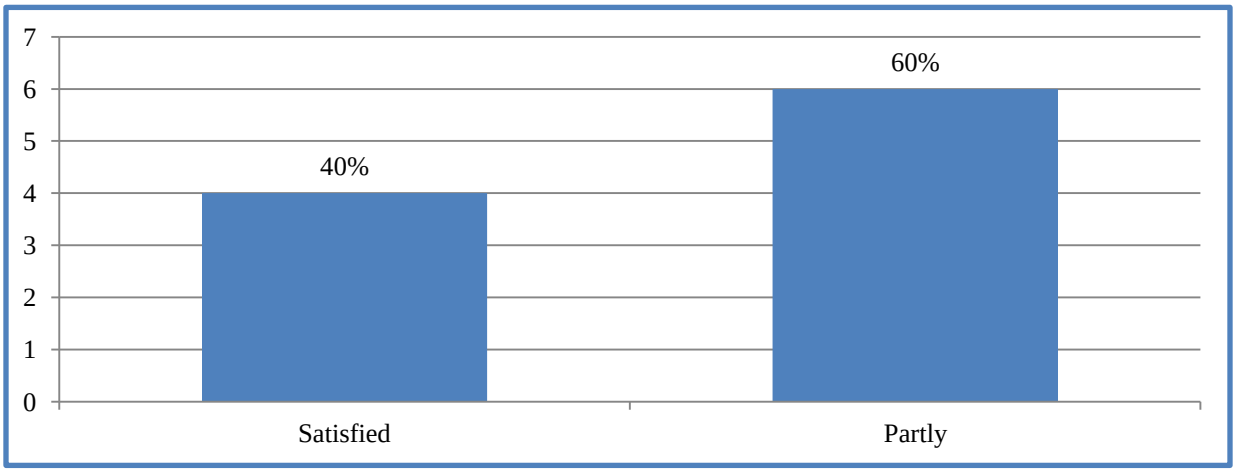
As we can see from *Figure 4*, alumni had a very different combination of the concentration since a good percentage of them had IT and Media and Graphic Communications as a combination of concentrations. An interesting fact regarding these students is that they had no family businesses related to IT but all of them had a background in IT so it was purely their desire to study technology what made them select IT at AUK. One of the main reasons why the current students to not have such a combination of concentrations is the limited number of instructors in these concentrations as claimed by most of them in the interview questions 9 and 10, but this point will be analyzed further later in the report.

5.2.2 Student Satisfaction

All of the students interviewed showed that they chose to study IT because IT professionals had good opportunities of employment today and in the future. However, when asked how satisfied they were with what they have been able to study in IT at AUK they were positive but reserved since they saw a lot of room for improvement.

Figure 5 below presents the satisfaction of IT alumni from their IT studies at AUK as obtained from the interviews conducted with them.

Figure 5 - Satisfaction of Alumni from the Studies in IT Concentration at AUK

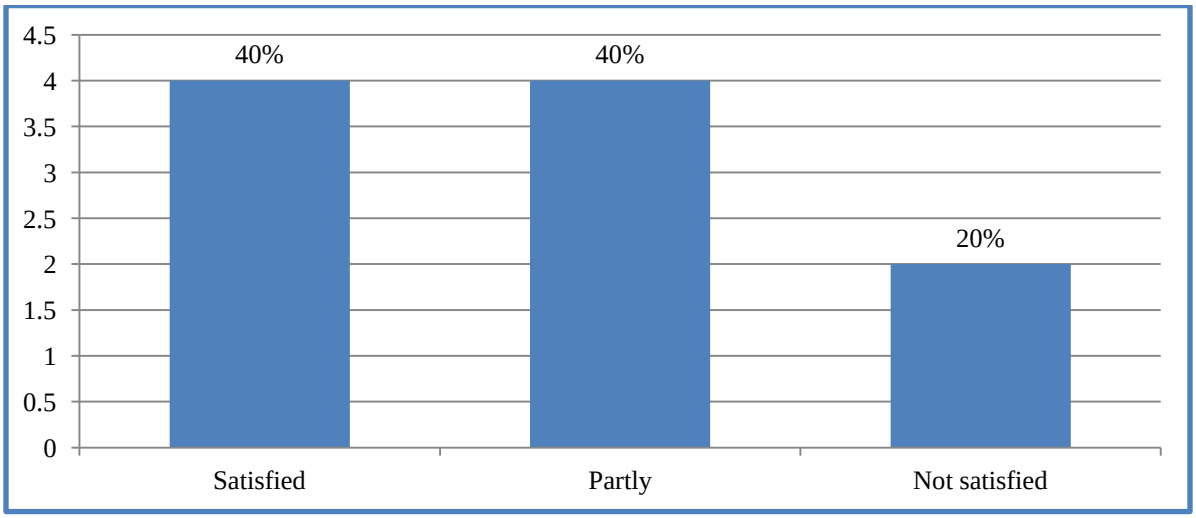


Source: Interviews with IT Alumni

The students that were satisfied mentioned that they were satisfied because they did not expect to learn more from a bachelor degree in IT so they claim that when combined with their background what they have achieved at AUK becomes enough to lay the foundations for becoming a useful IT person for any company you may work at in Kosovo but they all claim that more practical work is needed and have quite specific suggestions for improving this concentration as it will be presented in the next sections of the report.

Continuing with the presentation of further statistics on IT concentration, *Figure 6* below presents the satisfaction from IT concentration of the current IT students at AUK.

Figure 6 - Satisfaction of Current IT Students from the Studies in IT Concentration at AUK



Source: Interview with Current IT Students

The difference between alumni and current students with respect to satisfaction from studies is that in the current generation of students in IT there are some of them who have expected a lot more and now are not satisfied at all with what they have learnt or what they are learning now in this concentration.

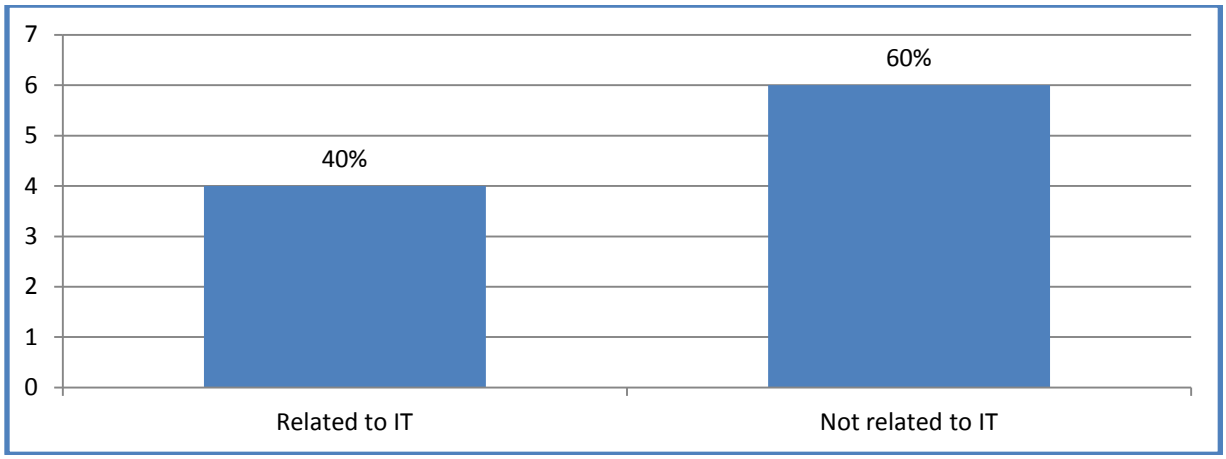
As for the expectations, all the students interviewed mentioned they expected to study programming and networking along with the web based technology. In addition, all of them mentioned they expected the focus of the concentration to be more specific but as it will be seen from the recommendations they made, they generally think that the focus of IT concentration is too broad and it has to be more specific since that is what the current IT market in Kosovo is looking for according to most of the interviewees.

5.2.3 Students' Co-ops and Alumni Job Experience

The focus of this section is to present some general statistics about the co-ops of current IT students and in addition it will show what the IT alumni are doing. As informed from the Office of Academic Affairs at AUK, all AUK students are obliged to finish two co-ops, so in this section we will see if the IT students have any of the co-ops related to IT and how that reflects in their overall IT preparation.

Firstly the current IT students will be analyzed in terms of their co-op experience and then the same analysis will follow for IT alumni. *Figure 7* below shows the co-ops of the current IT students at AUK.

Figure 7 - Co-Ops of Current IT Students at AUK



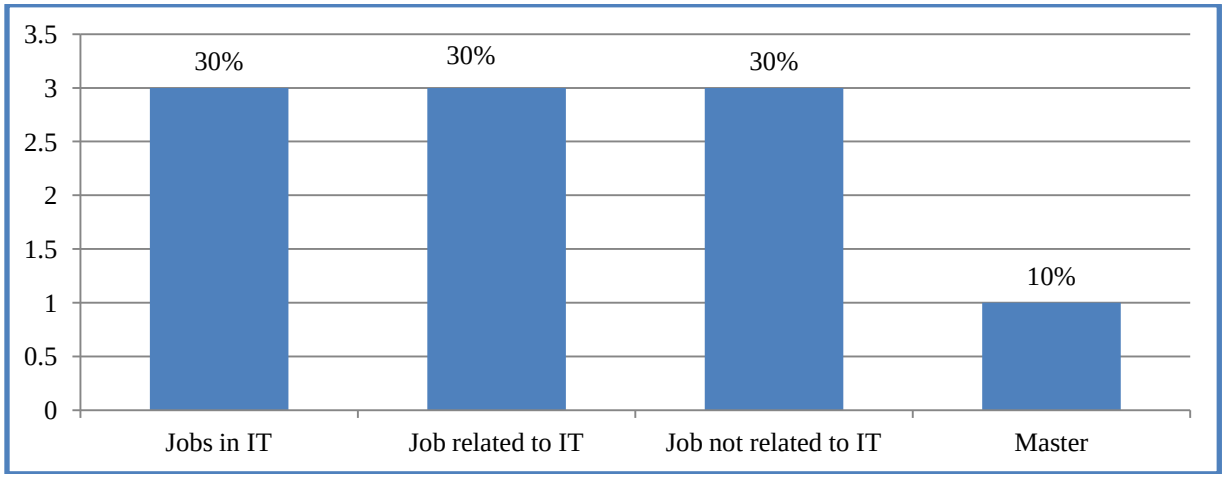
Source: Interviews with Current IT Students

As seen from the figure above, a pretty good percentage of students in the IT concentration have not done any of the co-ops related to IT. On one hand, the students that had at least one co-op related to IT were asked about the helpfulness of IT concentration in the job they had and all of them said that they found it helpful but they mentioned that the companies they had the chance to work at, look for more specific knowledge. On the other hand, the students that had co-ops not related to IT missed some valuable experience which would help them strengthen the IT skills obtained during classes at AUK and this is something to that needs more attention in making it happen.

An explanation for this comes directly the office for co-op registration at AUK which claimed that IT students – just as students from other concentration – are not obliged to have co-ops related to IT. This is one of the reasons why many students although they study IT do not have their co-ops related to it. We will look back at this issue of the co-ops later.

While the current students were asked about the co-ops, the alumni were asked to reveal what they are currently doing and how much their job position is related to IT and what they learned at AUK. Some of the alumni that were contacted were working in actual IT companies and some others had jobs related to web design but they claimed that the job they were doing was related to IT to some extent. So, they are included in the category of having jobs related to it. *Figure 8* below presents a general chart on what IT alumni are doing.

Figure 8 - Jobs of IT Alumni

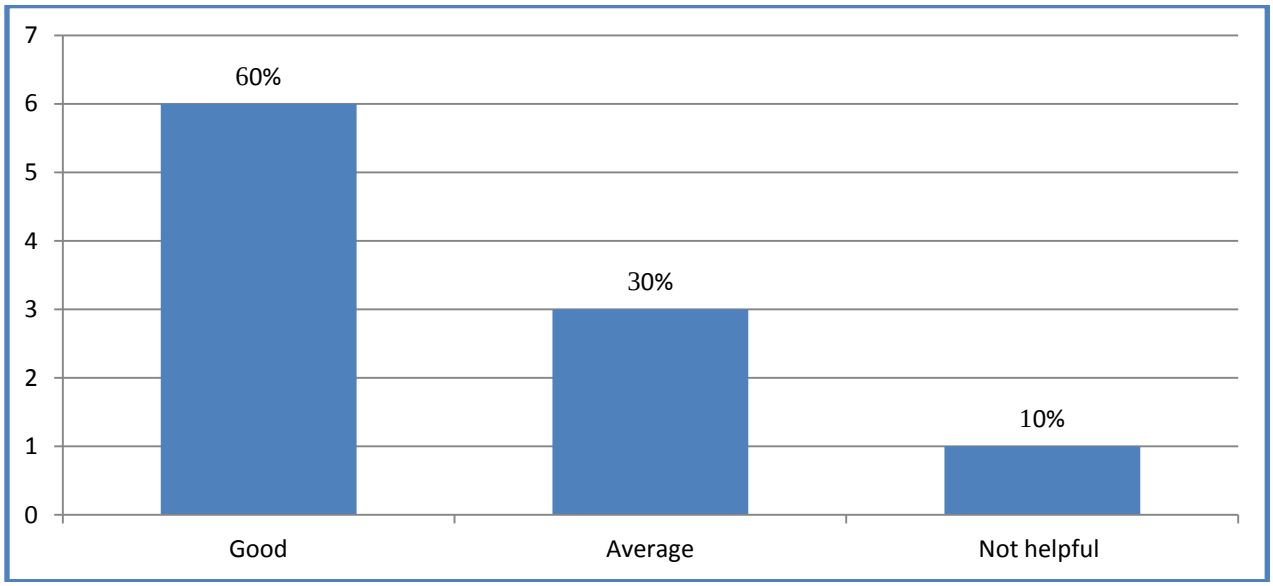


Source: Interviews with IT Alumni

This is what the AUK IT graduates are doing. Although alumni pursuing master studies could not be interviewed, it is confirmed that they are not doing masters in the field of IT but mostly in economics or management.

Although most of the interviews were conducted via e-mail, the format of the interviews allowed to go further by asking on the helpfulness of IT concentration at AUK. *Figure 9* below presents the responses of the alumni interviewees on the usefulness of their IT studies at AUK in their current jobs.

Figure 9 - Usefulness of IT concentration in current jobs of AUK IT graduates



Source: Interviews with Current IT Students

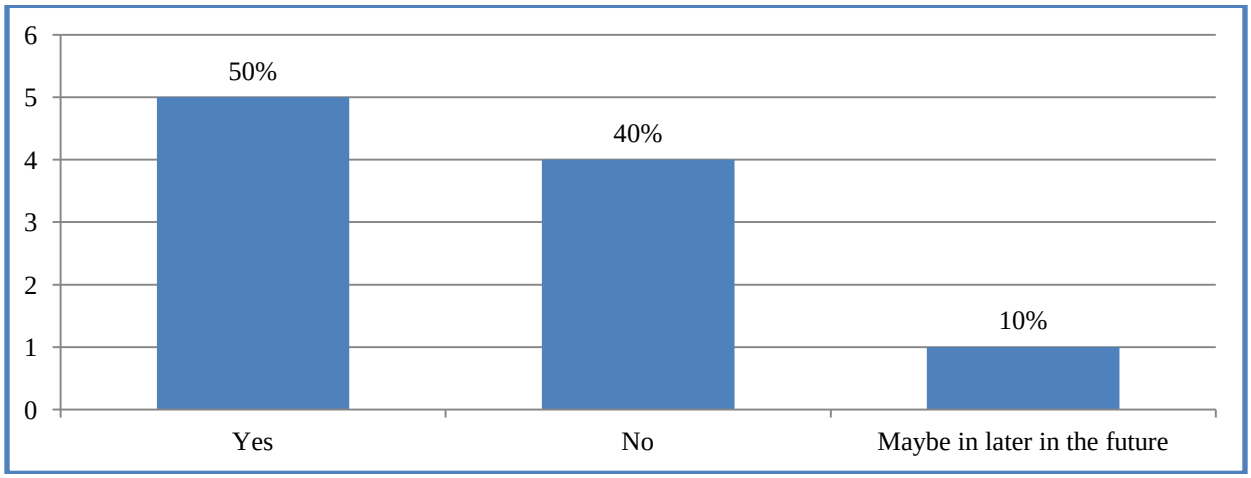
On one hand, it is interesting to find out that the ones that responded average added that they are working actually working in IT and IT concentration laid the foundation for them but they are not ready to work on their own without assistance from colleagues since, according to them IT at AUK is relative broad whereas the current employees look for specific knowledge. On the other hand, the ones that responded positively on the usefulness of IT concentration are in the category of jobs related to IT so they do not need very specific knowledge in IT.

5.2.4 Future Plans of IT Alumni and Current IT Students

As also mentioned previously, all the students who study IT also have a second concentration, so in the interviews they were asked whether they actually plan a career in IT.

Figure 10 below shows the results of the AUK alumni that had IT as one of the two major concentrations.

Figure 10 - Do AUK IT Alumni Plan a Career in IT?

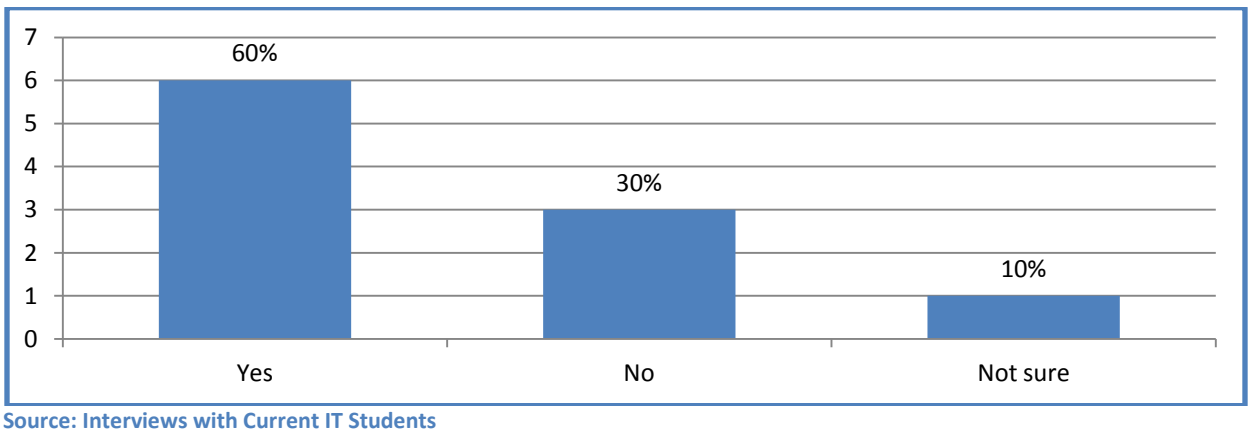


Source: Interviews with IT Alumni

Those that responded yes were quite sure of their future and they claimed that they studied IT so that they would be more prepared for the career which they had already chosen. Several of these students actually plan to open businesses in IT. The other ones plan to have careers other than IT but they found studying IT at AUK necessary for their career success. As expected, there are a number of students that are not sure what they are going to do yet.

Similarly, looking at the responses of the same question that the current IT students at AUK gave, we can see that the results are pretty much the same compared the alumni. *Figure 11* below presents the results of current IT students at AUK in terms of whether they plan a future in IT.

Figure 11 - Do Current AUK IT Students Plan a Future in IT?



Source: Interviews with Current IT Students

The students that are positive about their future in IT claimed that they had already decided about the career in IT and the studies in AUK have only strengthened that but as mentioned earlier they expected more from the IT concentration at AUK.

5.2.5 Recommendations from Alumni and Current Students

Lastly, student and alumni interviewees were asked about the changes in IT in terms of the courses offered and the faculty. As for the faculty, all of them responded that the current professors were good but more professors are needed. However, all of them seemed that had different recommendations regarding the changes in the way courses are offered and the IT concentration in general. The recommendations offered by these interviewees are presented in the tables below and they are the actual words of the interviewees with no intervention in them. *Table 2* below shows the recommendations offered by the current IT students at AUK.

Table 2 - Current IT Students' Recommendations

Recommendations from Alumni
Courses ought to be more specific, and related to one another. Perhaps there should be also some minor concentrations related to IT.
More work needs to be done; there should be a lot more projects and workshops.
Offer more flexible schedules not only in the afternoon
The way the classes are taught does not inspire student become creative. Students must be more engaged in lessons and each student must develop programs based on his/her own creativity.
An IT club must be created with the help of professors.
Grading system must be improved
I would like to be engaged more in IT projects, organize visits to different IT companies, make agreements with them for students' co-ops.
More tutorials, more practical job.
Practical information goes a long way in IT and can be used to teach more effectively. AUK should seek individuals that have worked out in the field so that students can learn applicable skill sets that will actually be used in the real world.
Include a broader scope of IT, and maybe change of the professors.

Source: Interview with current IT students

As we can see, each student had a slightly different recommendation from their colleagues. This implies that there is a lot of room for improvement in this concentration and this is the best reflection of the level of satisfaction with IT concentration that was mentioned above. Of course, such recommendations are very valuable when discussing the extension of this concentration so they will serve as a reference point later in the report.

Table 3 below presents the recommendations of the alumni which also reflect what they have experienced after the graduation and what they think is best to do in this concentration at AUK.

Table 3 - IT Alumni Recommendations

Recommendations from Current IT Students
I would recommend the following: For Programming I, II, and III, except for learning only Java programming language, to learn .net, C++, and C#, at least. I would add an IT lab where students for the class SOHO Networking and Computer Fundamentals would have the necessary equipment to test for the content of those courses.
Professors need to aware of the current trends in the IT market in Kosovo so that they can deliver more efficient lectures
I would recommend that Programming for IT and other courses be explained step by step from the most basic things, so that students have the chance to know how programming actually works, and not just have to learn them by heart.
The courses selected to be taught sometimes lack an end-goal. As an example, the IT concentration could be fully focused on programming as opposed to having courses that also teach you how to follow instructions for Photoshop tutorials from the web.
A lab for network courses. More effort in web programming. And the most effort to software and APPs programming.
I would recommend more applicable projects so that the IT concentration by the time can start to create IT products in this case software and then can be sold to local businesses.
I would recommend changing the teaching technique, make it more fun. Also, hire more IT professors.
Add more Networking courses, more Programming courses, go more in depth. Have more projects, do more exams and real life problems.
Some of the courses I would take off because it is not important learning about the computer fundamentals and computer components.
More LAB work and experience on real life devices.

Source: Interviews with IT Alumni

Similarly, all alumni interviewed had somehow unique recommendations when compared to the previous ones. These recommendations are very valuable because the interviewees have gone through IT at AUK and know they are trying their knowledge in their workplaces and can actually reflect on what they could have done better while studying at AUK. So, this is valuable information when we discuss the possibilities for improvement and extension of IT concentration later during the report.

These interviewees have given us a very close insight in the IT concentration at AUK because we have looked what the students that are still studying and those that have already graduated have to say in relation to their IT studies at AUK. The first thing that can be concluded

is that the goals of the initiators of the IT program on delivering a broad IT program that would give the students the foundations for a career in IT have been met to some extent because the majority of the students claimed that they are satisfied to some extent. However, the students studying IT expected more from this concentration in terms of being more specific and providing them with more specific knowledge. In addition, from interviews it was learnt that more programming and web design courses are needed since most of them are working in companies that deal with web development. This is an issue that needs to be taken in consideration when discussing the structuring the courses or the way they are offered.

Chapter 6 – AUK from Outside

This chapter will identify the major AUK's competitors in IT concentration and we will look closely what they are offering. To obtain more insights in this aspect, few of their IT/Web Design concentration alumni have been interviewed to see what they are doing and how useful they have found their studies in the universities they have graduate from.

6.1 South East European University (SEEU)

SEEU was founded from international funds in year 2001 (Jensen et al. 3). The main aim of its funding was to provide higher education in Albanian to the Albanian community living in Macedonia (3). This is because the Albanian university had only one that of Tetovo, and even that one was questionable after the conflict right after the year 2000. The university counts more than 7,000 students of various levels (4). The university also has student dormitories and a large campus equipped with various centers to serve student needs (6). In addition, from the interviews conducted with students, it was understood that different private house providers have built student dormitories and apartments near the campus to house students that cannot find place in university dormitories. SEEU also puts effort in establishing contract with employers in providing employment for its graduates and has an active Alumni club which provides feedback constantly (10). The university finances 82% of its activities from its own operations such as tuition fees, campus rents, and alike (8). For that reason, the university is constantly engaged in new recruitment. Later, we will discuss some of the methods used by this university to recruit new students.

Although this university is present only in Tetove (FYROM), it is capable of absorbing a relatively significant number of students from Kosovo especially in its faculty of computer sciences. This university has five faculties, Faculty of Contemporary Sciences and Technologies (CST), Faculty of Law, Business and Economics, Faculty of Languages, Cultures and Communications, and Public Administration and Political Sciences ("*SEEU - Self- Evaluation Report"* 5). For the benchmarking needs of this project, the focus will be specifically in its Faculty of Contemporary Sciences and Technologies. The report will look closely to what this faculty offers and in addition more insights will be presented based on the interview that was conducted with one of the alumnus of this university.

6.1.1 Faculty of Contemporary Sciences and Technologies

According to official statements of SEEU, the Faculty of Contemporary Sciences and Technologies successfully integrates the field of IT in other fields of study it offers such as computer sciences, computer engineering, and business informatics (seeu.edu.mk). The Faculty of CST offers four study programs: Computer Sciences, Media Informatics, Business Informatics, and Computer Engineering ("*SEEU - Self- Evaluation Report"* 4). In 2010, under the new leadership, this faculty went through a detailed self-analysis which resulted in the improvement of the curriculum and set goals forward to put more effort in maximizing enrollment.

In order to increase the enrollment, this faculty approached high schools in Macedonia, Kosovo, and Serbia and provided informative courses as well as organized different activities related to computer sciences and technologies (7).

In this vein, the faculty made a lot of effort to improve the contracts with the industry where its graduates would be hired potentially and analyzed the skills they are requiring in order to apply them in its curriculum (7). This faculty, in cooperation with some other companies was able to provide certificates in e-Banking for its students and that was offered free of charge (9). In the next sections, briefing of the four different programs offered by the Faculty of CST of SEEU will be provided.

6.1.2. Computer Sciences

This study program follows the Bologna model, 3+2. According to official statement of the university it aims to meet local requirements but still maintain a global perspective (seeu.edu.mk). This study program tries to teach students the theoretical aspects of computer sciences as well as equip them with the ability to apply the knowledge and quickly learn from new technologies.

An additional feature of the Faculty of CST, is that it offers monthly seminars from different scholars where students can attend and be updated with the current news from the world of computer sciences along with other new information related to what they are currently studying.

Courses that a student needs to complete in order to graduate from this program are listed in *Table 4* presented below.

Table 4 - Courses offered by Computer Sciences concentration at SEEU

Course Title (A-Z)	
Algorithms and Data Structures	Elective course in English language
Applied Probability and Statistics	Elective course in English language
Calculus and Linear Algebra	Elective course in English language
Capstone Project	Elective Course: Albanian/Macedonian language 1
Computer Architecture	Elective Course: Albanian/Macedonian language 2
Computer Graphics	Free Elective Course 1
Computer Networks	Free Elective Course 2
Databases	Free Elective Course 3
Discrete Structures 1	Internet Technologies
Distributed Systems	Introduction to Computer Sciences
Elective Course 4.1	Object-Oriented Programming
Elective Course 5.1	Operating Systems
Elective Course 5.2	Programming
Elective Course 6.1	Software Engineering
Elective Course 6.2	Structures 2
Elective course in English language	Web Programming

Source: www.seeu.edu.mk

6.1.3 Media Informatics

This concentration comes from computer sciences but has a great focus in the field of communications. Same as in computer sciences, students are offered both theoretical and practical experience through the computer labs (seeu.edu.mk). Among other requirements, this program also the development of various multimedia technologies and practice of the use of IT in media. The courses offered in Media Informatics at SEEU are presented in Appendix 2.

6.1.4 Business Informatics

This program is designed to equip students both with business skills in terms of managing and leading businesses towards growth, but also it merged these skills with the technological ones preparing students to be well equipped both as business leaders but also understand enough

of informatics to be able to deal themselves in catching up with the newest technological trends (seeu.edu.mk). The courses offered in Business Informatics programs are listed below in *Table 5*.

Table 5 - Courses offered by Business Informatics concentration at SEEU

Course Title (A-Z)	
Algorithms and Data Structures	Elective course in Albanian / Macedonian language 1
Applied Probability and Statistics	Elective course in Albanian / Macedonian language 2
Business Information Systems	Elective course in English Language 1
Calculus and Linear Algebra	Elective course in English Language 2
Capstone Project	Elective course in English Language 3
Computer Programming 1	Elective course in English Language
Computer Programming 2	Financial Accounting
Computer Systems	Free Elective 1
Corporate Finances	Free Elective 2
Data Engineering	Free Elective 3
Databases	Information Systems Fundamentals
Discrete Structures	Introduction to Economics
Elective Course 4	Management Principles
Elective Course 5/1	Marketing
Elective Course 5/2	System and Software Engineering
Elective Course 6/2	Web-programming

Source: www.seeu.edu.mk

6.1.5 Computer Engineering

This program offers specific access to different fields. As mentioned previously, the Faculty of CST has tailored the courses to meet local market demands but always keeps a global perspective. According to SEEU, graduates from this program "will be able to: design, create and maintain computer-based systems and computer networks as well as apply hardware-oriented solutions; maintain the system software; maintain automated control systems; develop multimedia systems; manage information and telecommunication systems(seeu.edu.mk) So, essentially all these offerings are heavily related to IT. Courses offered in this program are listed below in *Table 6.*

Table 6 - Courses offered by Computer Engineering concentration at SEEU

Course Title (A-Z)	
Broadband Wide Area Networks (WANs)	Embedded Computer Systems
Capstone Project	Free Elective 1
Computer Architecture	Free Elective 2
Computer Networks	Free Elective 3
Control Systems	Fundamentals of Electrical Engineering
Databases	Fundamentals of Electronics
Elective course 5.1	Logic Circuit Design
Elective course 5.2	Mathematics 1
Elective course 6.1	Mathematics 2
Elective course 6.2	Mathematics 3
Elective course in English language	Microprocessor Systems
Elective course in English language	Object Oriented Programming
Elective course: Albanian / Macedonian language 1	Operating Systems
Elective course: Albanian / Macedonian language 2	Real Time Systems
Elective course: English language 1	Structural programming
Elective course: English language 2	Wireless Computer Networks

Source: www.seeu.edu.mk

6.1.6 Interview with SEEU Alumni

To get more insights in the SEEU, an alumni student from this university that had graduated from the Faculty of Contemporary Sciences and Technologies of SEEU was interviewed. The questions of the interview were mostly focused on obtaining information on his personal experience while studying at SEEU and what employment opportunities he sees. Among other more general questions, he was asked a few similar questions that were also asked to AUK alumni in order to compare the responses. In general, it could be easily noticed that these students were quite satisfied with their studies (Jakupi).

In the question on why they chose to study at SEEU, they mentioned the lecturers from EU countries and U.S.; modern teaching and contemporary methods; multilingual university environment; university library with over 40,000 books; scholarship for every distinguished student; work and study- at SEEU; swift employment with the support of career centre. As for the expectations from SEEU, they had pretty much similar expectations on what they would study at SEEU as AUK alumni had on their studies in IT at AUK. Thus, they said that they expected to study both programming but also web design and of course they also expected to obtain some fundamental knowledge on IT through some of the courses that were to be offered.

In addition, being able to arrange your schedule on line through MySEEU system was an advantage which attracted him (Jakupi).

It was impossible to create statistics with alumni of SEEU because of the technical and practical difficulties in contacting and surveying them because of the lack of the data on student numbers that would allow to come up with a good sample size. That information is not for sharing according SEEU policies and that is why only a general interview with one of the alumni was conducted. Nevertheless, he said that most of his friends share same opinions on SEEU as he does and he added that part of the decision for them to study at SEEU was the good experiences they heard from the previous students.

In addition, the interviewee was asked if he had any senior project or did he have to submit any work before graduation and he explained that students could not graduate without having their senior project done. Since he studied Computer Sciences, he had to develop an application that would run flawlessly in order to graduate. He added that this project has also helped him find his first job since he could present to the employers what he was capable of doing. Currently, he is working in Kosovo and in a web developing and designing company and he claims that studies at SEEU have helped him both get the job and be professional in what he is doing.

Regarding the laboratory in Computer Sciences, the interviewee explained that it contains different types of computers that can be used for doing research and working on different applications. However, he said that many students had their own laptops so they did not make a lot of use of the laboratory, nevertheless the university does not provide any computer to their students. In addition, he explained that there was a lack of practical/applicable work in the courses but they followed the predetermined course outlines with clear end goals.

6.2 University for Business and Technology (UBT)

UBT is a higher education institution located in Prishtine. It offers Bachelor, Master, and is on the way of establishing its PhD degree. This university offers Bachelor degrees in Management, Business and Economics; Computer Science and Engineering; Mechatronics Management; Information Systems; Law; and Architecture and Spatial Planning. For the purpose of the focus of this research we will only focus on the bachelor degree and specifically in the

faculty of Computer Science and Engineering. The Bachelor degree lasts three years and follows the Bologna system. The first and two years are composed of general courses of the faculty whereas the third year allows students to choose the specialization field and then they are offered the relevant courses. Only the Bachelor of Law program lasts four years (ubt-uni.net).

The faculty in UBT consists of both local and international instructors. In addition, UBT offers students several options in selecting the schedule of classes, from 9:00 a.m. until 9:00 p.m. and also during the weekends. Next section will look closely at the Bachelor Program in Computer Science and Engineering at UBT.

6.2.1 Bachelor Program in Computer Science and Engineering

According to its website, UBT decided to offer this program because this program encompasses all the necessary recent achievements in technology to help students improve the quality of life in the society. The program offers the following majors listed in *Table 7*.

Table 7 - Majors of CSE Program at UBT

Majors offered by the Bachelor Program in Computer Science and Engineering at UBT
Software and Systems Engineering
Database and Information Systems
Networking and Telecommunications
Design and Multimedia
Mechatronics and Robotics

Source: ubt-uni.net

The program is offered both in Albanian and English language and as mentioned above it lasts for three years. In Albanian language the program costs 1,200 Euro whereas in English language the program costs 2,700 Euro. The payment can also be done in monthly installments.

In addition, UBT also offers another related program, that of Information Systems. This program focuses on the creation of information systems with the aim of helping the organizations achieve their goals. The main focus of the program is the study of systems of information and their management. Part of the program is that students must develop their own practical projects. According to UBT, upon the completion of this program, students must be able to the make the design and development of information systems and the key networks. Similarly, the program is

offered both in Albanian and English language and as mentioned above it lasts for three years and its costs the same as the previously discussed program.

6.3 American University of Tirana (AUT)

In the process of benchmarking, the report goes beyond Kosovo and Macedonian borders and also looks at the American University of Tirana. This is a private university founded in 2008. The university claims to offer the American way of learning by harmonizing the theory and practice and combining learning and technology. AUT has three faculties which offer bachelor degrees, those faculties are: Faculty of Medicine, Faculty of Sciences and Humanities, and Faculty of Arts and Architecture. In the Faculty of Sciences and Humanities it is also offers the program of Computer Sciences.

6.3.2. Computer Sciences at AUT

The Computer Sciences program has six lecturers, two of them have PhD and the others have Master degrees. UAT says that its Computer Sciences program aims to equip its students with the fundamental knowledge in order to be able to adopt to the changes in the computer sciences in whatever career they might follow. In addition, students have to do professional practice in this field while they are studying and they also have to submit their senior project in order to graduate (ubt-uni.net). The courses offered in this program are presented in Table 8 below.

Table 8 - Course offerings of CS program iSource: uat.edu.al

1st Year	2nd Year
Academic Writing I and II	Objective Programming
English I and II	Computer Networking
Academic English I and II	System Analysis and Projecting
Math I and II	Computer Architecture
Basics of Informatics	Utilization Systems
Basics of Internet and WWW	Data Structures and Algorithms
Fundamentals of Programming	Research Methods
3rd Year	
Advanced Networking	Wireless Networking
Programming for Networks	Web Programming
Artificial Intelligence	Logic Programming
Professional Thematic in IT	Software Engineering
Spread Systems	Data Security

The bachelor degree lasts 3 years and the student has to successfully finish around 27-30 courses in order to graduate. Parts of this program are the lectures and seminars but they are also accompanied with practical work in the laboratory to apply the concepts learned during the lectures.

As mentioned previously, besides successfully completing the above courses, in order to graduate the students must accomplish the practice work in any company dealing with information systems. Students receive a grade based on their performance on the company and the ability to demonstrate what they have achieved during their practice.

In addition, students must also work in their senior project during their third year of the bachelor studies. The senior project is assigned individually to each student. Students have to select their own research topic and work on it by conducting extensive research and later they have to be able to support their ideas and opinions presented in their report during the public presentations in which they present their work.

Chapter 7 – Insights in Enrollment in IT Concentration

This section will look the goals that IT concentration initiators set forward to achieve at AUK and see whether they were met based on what current students and alumni have experienced during their studies at IT concentration at AUK. In addition, in-depth analysis of various factors measured above will be performed to find out the reasonable foundations for effective recommendations and solutions.

7.1 The Goals of the Program Initiators

The idea of the founders of this concentration at AUK was to develop a program that would be enough general to make it possible for students to be adopted to regular overnight changes in IT and simultaneously give them enough specific knowledge to be able to apply it in their careers. The idea of offering a rather general technology program was also in line with the availability of professors and costs as explained by Boyd. To see whether this goal was met now I will analyze more deeply the interviews that were conducted with students current and alumni students of IT concentration at AUK.

From the interviews conducted with 20 students consisting of current students and alumni it was evident that 60% of the students expected more from the concentration with around 40% from both alumni and current students being only partly satisfied and with around 20% not being satisfied at all. The main reasons why they were not satisfied is that they expected to gain some more specific knowledge. They did not expect the IT concentration at AUK to have such a broad focus.

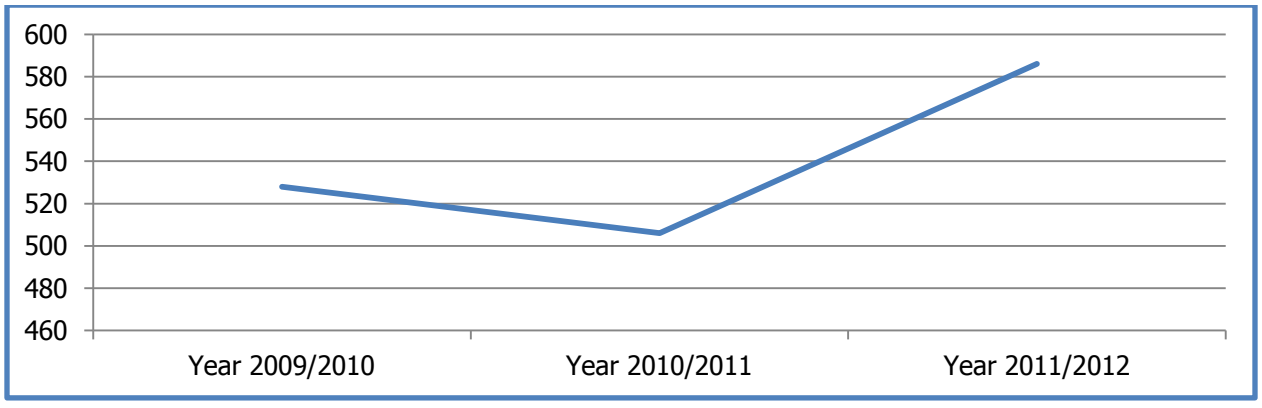
Thus, the goal of the program founders to deliver a general program on information technology was achieved but that was not what the unsatisfied students were expecting from AUK. Following the reputation of AUK, these students were expecting a very professional IT concentration where they would be able to learn things on IT that they cannot learn elsewhere and they expected to be prepared for their employment. Nevertheless, there were also students that were satisfied with the program as explained previously because they expected to study the fundamental concepts and general application of IT; however, even the satisfied students said that IT at AUK lacks a focus on the applicability of the concepts learned during lectures. This is not in vein with the IT concentration at RIT where the applied work simultaneously with the

learning of the concepts so that students can apply immediately the concepts they learn in the class environment by being aided by the professor and his/her assistant at any point that is necessary ("Bachelor of Science in Information Technology – Handbook" 3).

7.2 Expectations on Enrollment

As for the expectations in terms of enrollment in IT concentrations, as was discussed previously in the report, the initiators of the program did not expect a very high enrollment in this concentration but they expected that the program would continue to grow. Of course, the enrollment in each concentration is linked with the general student enrollment at AUK, only if AUK has more students the number of students in each concentration would grow. In order to see graphically how the enrollment in IT concentration has been in relation to the total enrollment at AUK, the number of total current students at AUK from the year 2009/2010 up to the year 2011/2012 was obtained. At the time when this graph was compiled the data for the year 2012/2013 were not ready yet as informed by the office of Academic Services at AUK. On one hand, the graph below shows the trend of AUK general student enrollment from the year 2009 up to now. As we can see after a small decline in the year 2010/2011 the enrollment has increased again.

Figure 12 – General Enrollment Trend at AUK



Source: Academic Services at AUK

This trend can be a result of many variables but they are not the focus of this report since we are only concerned on the enrollment in IT concentration. However, since enrollment in IT concentration is also dependent on the general AUK enrollment, normally we should see a similar trend in IT concentration since the generation enrolled in academic year of 2011/2012 should choose their concentration now and they should be reflected in an increase in enrollment

in IT concentration as the first indications are. Nevertheless, as we saw from the *Figure 1*in the beginning the trend is more or less flat and there is almost no increase reflected from the general trend of AUK enrollment, so these two trends do not seem to be positively correlated, as in fact they should be.

Based on the research conducted it appears that there are numerous reasons why this enrollment in IT does not follow the same trend as the general AUK enrollment. Although more students have been enrolled at AUK, it has not been reflected in more students being enrolled in the IT concentration. The report looks at this issue from two perspectives, the first perspective is the marketing and advertising strategy that AUK uses and the second perspective is how the high school students view AUK in terms of the programs it offers.

7.2.1. AUK Advertising Strategy

The hypothesis is that the many high school students view AUK as a more economics and management school rather than a technological school and this is in large part due to advertising since the information technology concentration is not specifically advertised but is part of the broad advertising campaign of AUK so few students enroll at AUK with the aim to study IT. As we could also see from the IT student interviews where many of them did not know that AUK offered an IT degree until they enrolled at AUK, moreover the first and the second generation of IT students at the time when they enrolled in AUK, the later did not even have an IT concentration but they decided to study IT after they saw that this option existed. This analysis reveals the importance of an adequate advertising strategy to boost the number of students in IT concentration. However, as the Director of Admission at AUK, Lavon Bajrami, explains in the interview that was conducted with him, having a concentration-focused advertising strategy is not easy in a university were the first two years are general education. In order to get more insights on this issue, interviews with enrollment office at AUK and survey with high school students on the effectiveness of AUK advertising was conducted.

7.2.1.1 Interview with Mr. Lavon Bajrami

Therefore, in order to go in more depth of this analysis, an interview with the Director of Admission at AUK was conducted in terms of the marketing and advertising strategy they follow to see how much the IT concentration is included in their general AUK advertising campaign and

what AUK is doing for advertising in general. The questions asked to Mr. Bajrami are listed below in *Table 9*.

Table 9 - Questions asked to Mr. Bajrami, Director of Admissions at AUK

Interview questions asked to Mr. Lavon Bajrami
1. Does AUK advertize specifically its programs or advertizes its academic offerings as a whole? Please explain the rationale behind such advertising decision.
2. Which are the most common media types that AUK uses to advertise its academic offerings?
3. Has AUK ever visited high schools to distribute brochures and explain its academic offerings and scholarship opportunities to high school senior students?
4. Is there any plan on the part of AUK to boost the number of students in IT concentration through advertising by targeting tech-savvy high school seniors? Please explain the rationale behind undertaking or not undertaking such a plan.

Mr. Bajrami explained that AUK does not advertize its academic programs separately but it advertises its academic offerings in General. He said that the reason for this strategy is that fact that first two years at AUK are general education and it's because about 90% of our applicants are undecided about majors (Bajrami). Hence, the strategy followed here is to target a broad range of high school seniors that are yet undecided about their careers and offer them the academic program of AUK where they will be able to chose their concentration after the second year at AUK. Unfortunately, this is not what tech-savvy high school seniors are looking for. Based on the research conducted online, the majority of tech-savvy people want very clear focus and want things to be specific rather than offer them general education programs (Hendrix 16). In order to approach this issue, there should be some changes made in the general course offering in the first two years at AUK where some general courses related to IT can be offered. This point will be discussed further in the recommendation section.

Regarding the media use for advertising, AUK seems to encompass the most important media types such as newspapers, web banners, and billboards. In addition, AUK makes once a year visits in high schools (gymnasiums) and also organizes open days for high school students to come and visit AUK campus. However, all these forms of advertising focus only in advertising the academic program as a whole for the reasons mentioned above (Bajrami).

7.2.1.2 Survey with High School Senior Students

Similarly, to see how much effect this general advertising has had among high school students both in general and in terms of IT concentration and to understand their potential plans for college studies, a survey with high school senior students from different schools and cities around Kosovo was organized. Knowing the population of high school students is large, the focus was only on senior high school students since they are more likely to be making the decision on where they are going to continue their college studies and what they are going to study. The survey was done both online and was distributed to two schools, one in Viti and one in Prishtine. In addition, high school students from different cities around Kosovo were surveyed and the total number or respondents is 100. The reason why one school in Viti and one in Prishtine was selected is to see the difference between the city where most of AUK students come from and from a city where AUK does not seem to be very popular considering that there are only a few AUK students from Viti. As mentioned, the survey was also distributed online to hundreds of high school students but only a small percentage of them responded to the survey but those that responded are from different cities which make the survey representative, yet very general.

Nevertheless, the sample is not very representative considering that the number of the respondents is only 100, so further stratification of the sample might be needed but that was difficult to do due to the lack of data. In spite of these difficulties, the survey serves to some extent to see where AUK stands in terms of how it is perceived among high school senior students in Kosovo. Further reach of more high school seniors required considerable amounts of funds because a survey with broader range had to be arranged. In spite of the evident limitations, this survey gives us a pretty clear idea on how much informed about AUK the high school seniors in Kosovo are and it lays the foundations for further studies in this area. The questions asked in the survey are listed below in *Table 10*.

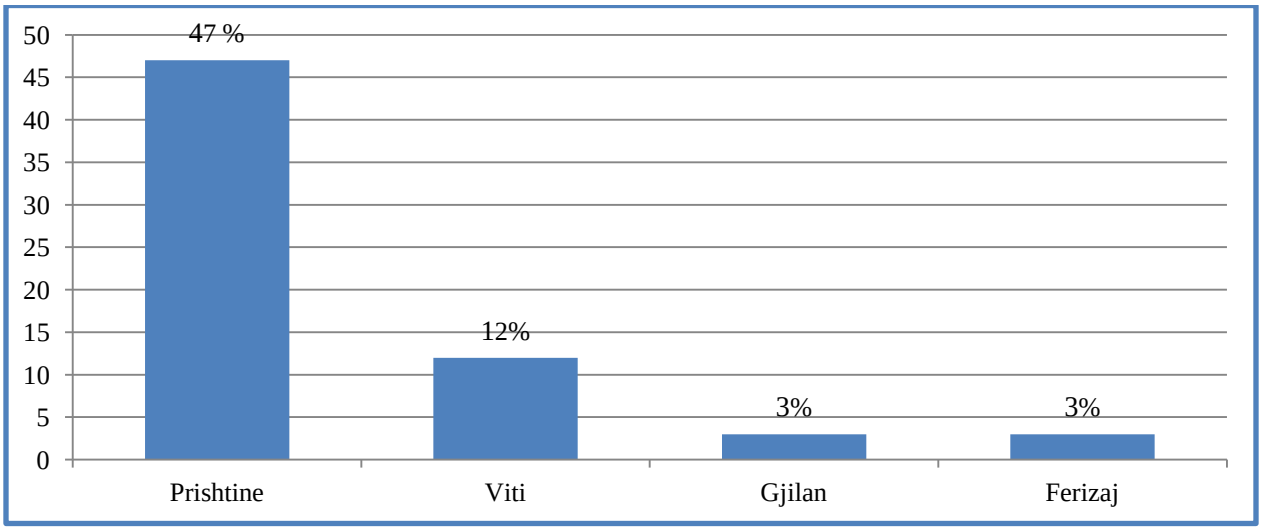
Table 10 - Questions of the survey with high school senior students

Survey Questions	
1. Which city is your school located in?	
2. What college degree do you plan to pursue?	
3. Have you ever heard about AUK?	
4. Where have you heard of AUK from?	
5. Which of these study programs do you think AUK offers?	
-Management	-Math
- Public Policy	-Law
-Economy	-Mass Communication
-Media and Graphic Communications	-International Relations
-Information Technology	
6. What is your opinion on the quality of studies at AUK?	
-Offers better quality of studies than the other private and public universities in Kosovo	
-Offers same quality of studies as the other private and public universities in Kosovo	
-Offers lower quality of studies than the other private and public universities in Kosovo	
7. Do you plan studying at AUK?	
8. What is the reason that you will not study at AUK?	
-Unaffordable tuition fee	
-Does not offer the program I want to study	
-I have better alternatives	

The result of the survey will be discussed in the following paragraphs. As it is seen, it was interesting to see how popular was computer sciences among current high school seniors. However, it is worth mentioning that computer sciences is not well defined among the high school students because during the survey that was distributed personally to them, they were also asked about the definition computer sciences and what they considered a computer sciences program was a concentration where they can learn to do programming, build applications, and create websites.

As *Figure 14* below shows, most of the respondents were from Prishtina, followed by Viti, Ferizaj, and Gjilan. As explained previously, the reason for this selection was in order to make the survey as much inclusive as possible but it was difficult and too costly to do more stratification of the sample and to reach other cities of Kosovo.

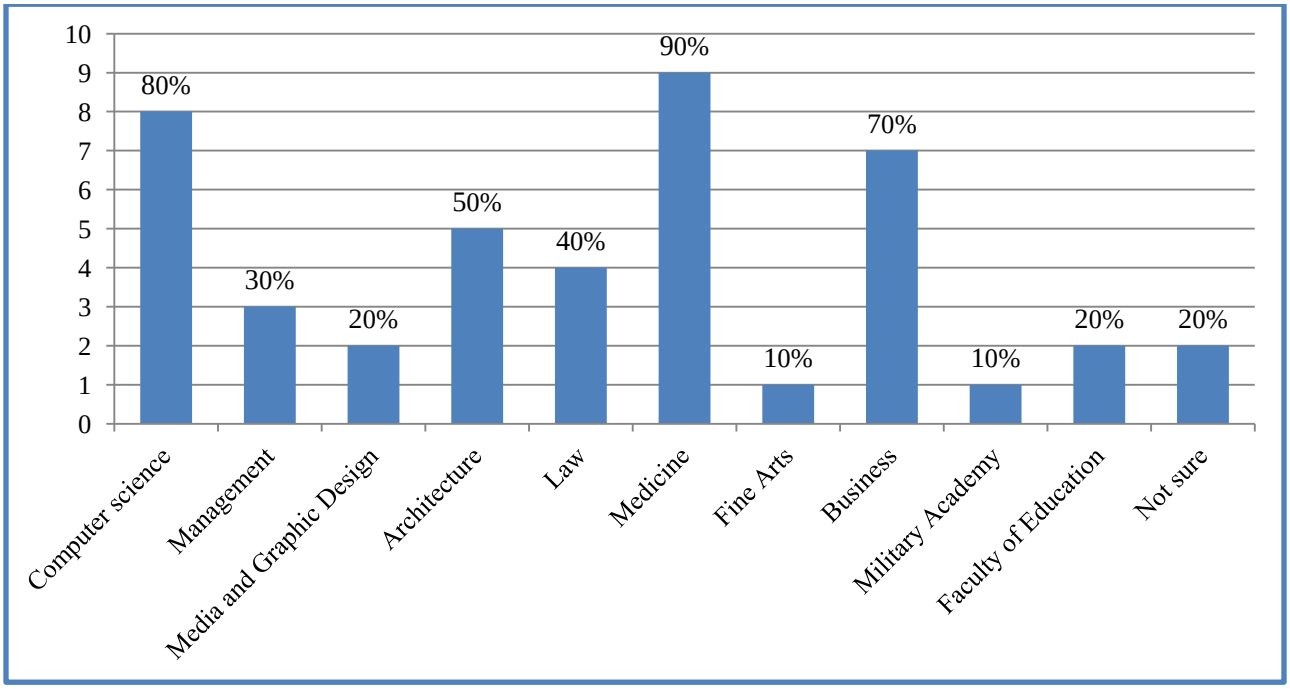
Figure 14 - Hometowns of the Respondents



Source: Survey with High School Senior Students

Through the survey, it was realized that Medicine, Computer Sciences, Business Administration as college programs are popular among high school students as shown in *Figure 15* presented below obtained from the survey results.

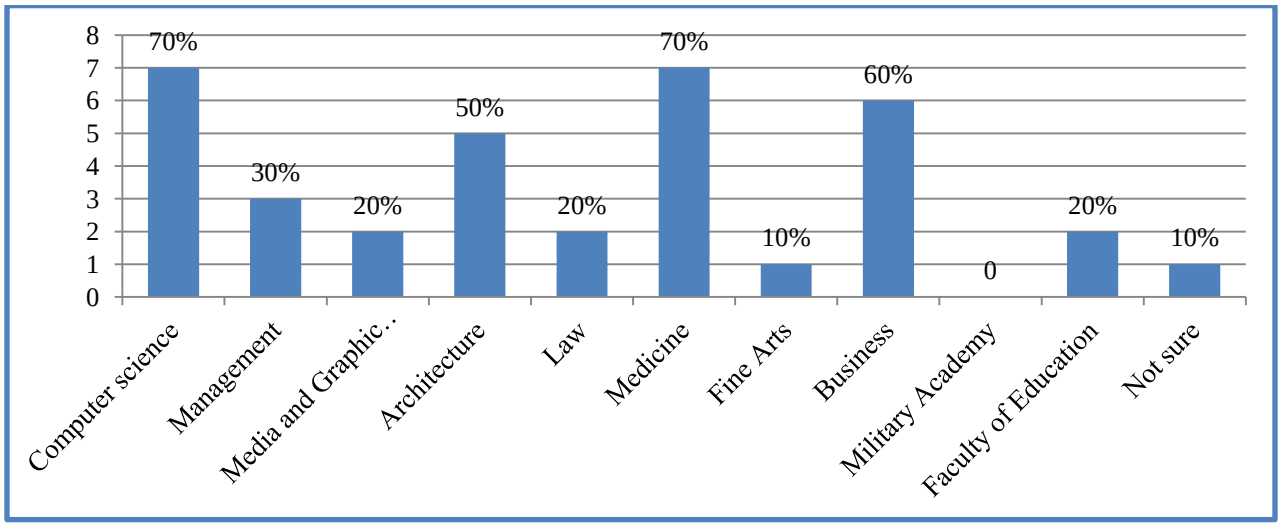
Figure 15 - Popular College Program among High School Student



Source: Survey with High School Senior Students

Thus Computer Sciences is a preferable concentration among high schools students along with Medicine and Business Administration. Then, students from Prishtine and other cities were divided and analyzed the same way as in the figure above to find out if there is a difference in program preference between the regions. Firstly, here are the results of the surveys from Prishtine presented in *Figure 16* below.

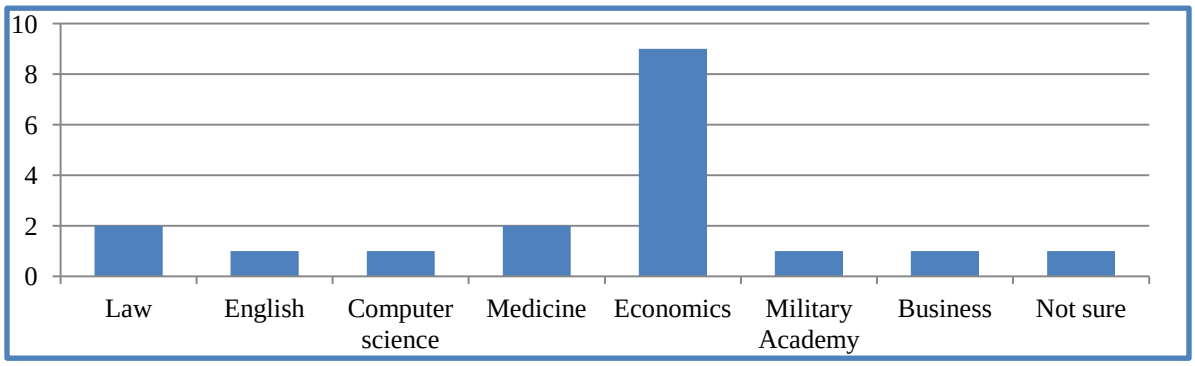
Figure 16 - College Program Preference in Prishtine



Source: Survey with High School Senior Students

As we can see that the share of Computer Science and Media and Graphic Design is quite significant and as mentioned previously computer sciences is quite broadly defined among high school students which leaves considerable space for tailoring the concentrations at AUK to attract those high schools students. However, the picture is much different for the results from Viti, Ferizaj, and Gjilan as shown in the *Figure 17* below.

Figure 17 - College Program Preference in other regions



Source: Survey with High School Senior Students

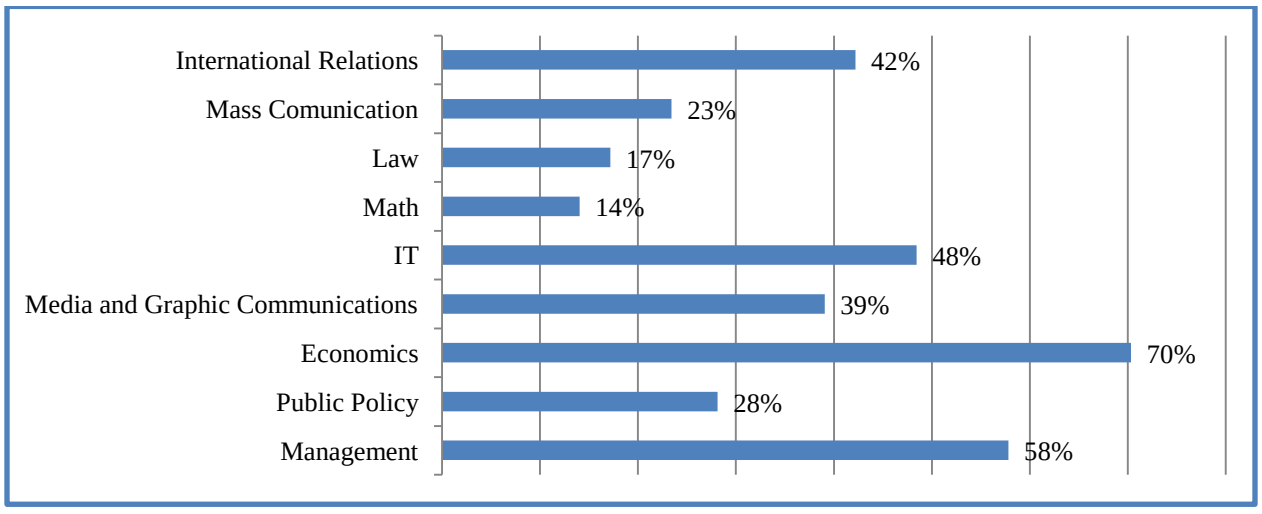
In this figure can been see that Economics is the most popular university program among high school senior students.

Nevertheless, Computer Sciences still remains a preferable concentration in general for high school senior students in general. Thus, the share that Media and Graphic Communication and Computer Sciences take in the chart is a measure of finding out the importance of having both IT and Media concentration strengthened and make AUK a market leader in these concentrations as well since there is market demand both in terms of student enrollment and market need for professionals in this field as we will see with the interviews conducted with the IT companies in Kosovo.

Coming back to the interview with Mr. Bajrami, he said that AUK uses these media for its advertising campaigns, newspapers, web banners, and billboards, but still most of high school senior students have heard of AUK from their friends, internet, and TV (from guest speakers covered by different news stations) as revealed by the survey.

Now, we're back to the efficiency of AUK advertising – the main reason why this survey was conducted – and as we can see from the *Figure 17* below only around 50% of high school students actually know that there is an IT concentration at AUK, but at the same time Media and Graphic Communications and Public Policy as program offerings at AUK are even less known to high school senior students.

Figure 13 - Knowledge of High School Students on AUK Program Offerings



Source: Survey with High School Senior Students

The overall campaign of advertising might be correlated with the increase in general enrollment at AUK as seen from the *Figure 17* above, but the lack of knowledge on AUK program offerings is a disadvantage for AUK. Hence, a considerable number of high school students are yet not sure what AUK has to offer to them in terms of academic programs. Focusing on IT concentration and considering the fact that tech-savvy students are quite specific in their requirements as will be described below, it is difficult to attract the latter by advertising the general academic offerings of AUK since as we see only a small percentage of highs school senior students are actually aware of specific AUK offerings and this does not contribute in attracting students with diverse interests.

Nonetheless, around 20% of the respondents said that they will enroll at AUK and the rest said they won't or were unsure about their decision and the main reason for a non-positive answer was the high tuition fee but a considerable percentage said they had better options for the same amount of money. Hence, very high number of senior students find AUK as an expensive choice and this might as well be their lack of knowledge on scholarship options they have at AUK. Following some more numbers obtained from the survey, around 76 % of respondents valued AUK as being the best university in Kosovo, the rest of the students were pessimistic about the ranking of AUK in the same level as other private and public universities in Kosovo.

7.3 Enrollment Practices within AUK

An important phenomenon among students at AUK that is difficult to be measured is the way students select the classes and the concentrations. Before each class registration period student engage in active discussions in asking each other which class is better with which professor and so on. This plays a major role in how the classes are selected at AUK and it is no wonder why some classes are full of students and some others have less than 20 students in it. As seen in the tables in Appendix 1, in the interviews conducted with alumni and current IT students they were also asked about what recommendations they have and if they recommend studying at IT at AUK to prospective students. One thing they all said is that there was a very low number of professors and in addition they gave many sorts of comments on the courses offered, under such circumstances it is obvious that students that are unsure of which concentration to chose would be pushed away from the IT concentration. Hence from this perspective, as was also mentioned earlier the small number of professors in IT concentration is both the problem and the effect of

this situation since more teachers cannot be hired due to the lack of students, but simultaneously new students hesitate to enroll in IT concentration because of the lack of professors.

7.4 Analysis of Concentration Combinations at AUK

In this section we will look whether the courses offered in IT concentration are combined effectively with the concentration combination that students choose. Most of the student that have combine IT with management the second option is IT with Media and Graphic Communication but as we saw from the *Figure 2* this combination is much less popular among current IT students when compared to alumni, *Figure 3*. During the interviews, most of the current and alumni students said that their main goal is to be prepared for their future employment and that reflects best the way they chose the concentrations because IT and management skills are assumed to be desired for any employer.

Chapter 8 – Insights from IT Industry in Kosovo

In order to go further in this analysis, three companies that are potential employer of IT students were interviewed. Two companies offered different IT services and IT expertise while the third company interviewed offered website development and graphic design to their clients. The companies interviewed are Ati-Kos, BOTEK, and MIK Agency. The companies were asked a number of general questions to identify their offerings and employee structure but the core questions were on the way how they hire new employees. There results of the interviews with each company and the short descriptions of companies interviewed will be described shortly below.

8.1 Profile of the Interviewed Companies

All interviewed companies are located and operate in Kosovo. Two of the companies interviewed are located in Prishtine and one is located in Gjakove.

8.1.1 Interview with Ati-Kos

ATI-KOS was founded in 2002 and now is a leader in developing software solutions in field of: e-Government, e-Health, e-Learning and e-Business. It is based in Gjakova. The company offers Software Development Company and Training Academy. The company hires 12 employees and 5 of them have degrees in IT the other ones have degrees from other programs and/or practical work (Stavileci).

8.1.2 Interview with BOTEK

BOTEK was also found in 2002, it is leader in the IT industry in Kosovo. Recently the company is expanding in other sectors such as alternative energy and power distribution systems. The company is based in Prishtine but also has representative offices in Albania and Macedonia. The company hires 27 employees, 9 of them have IT degrees, 12 of them of college degrees unrelated to IT and 6 of them do not have any degree but only practical experience (Basholli).

8.1.3 Interview with MIK Agency

MIK Agency is found in 2006 and it is specialized in graphic design and website development. The company is located in Prishtine. The company hires 6 employees, 1 of them

has an IT degree 1 has a college degree but unrelated to IT, 2 of them have only practical experience while the remaining are still studying (Ujkani).

8.2 Analysis of the Interviews with IT Companies

Of these three companies, BOTEK and MIK Agency have had the chance to hire AUK students, whereas Ati-Kos has not had the chance to have AUK students or graduate as part of its staff. When asked about what are the criteria they use to hire new job applicants, all three of them mentioned that willingness to learn and work in teams is crucial, however all three of them said that the university education is as important to them as it is the practical work and the ability to apply concepts in real work environment.

These companies were also asked whether candidates with IT degrees have an advantage over those with experience when applying for a vacant job position in their companies. They said that both of these criteria are important and the candidates who have both of them are always the preferred ones but such candidates do not apply often. On one hand, the candidates with IT degree that have no experience, when accepted for a job position they usually have to undergo a certain period of practice within the company. On the other hand, the candidates that only have experience if they cannot demonstrate their work through a presentation or alike are usually refused in their first interview. Nevertheless, both BOTEK and MIK Agency, the companies that have had the chance to hire AUK students said that they were satisfied with their performance and the work attitude they have while they were rendering their services to these two companies. Both of the companies said they see potential at AUK students, but they suggested AUK should try to give as much practical work to its IT students as possible because that is what makes them competitive in the market.

8.3 Analysis of IT Industry in Kosovo

Furthermore, AUK is the only university in Kosovo that offers a program solely in IT. As noticed in the previous sections during the benchmarking process, the three universities that were benchmarked offer programs in computer sciences but not specifically in IT. A global report in IT explains that in the past few years the boundaries between information technology and communications technology have become increasingly indistinguishable in the computer services sector" (Dutta and Beñat 35). This means that also the IT companies are looking for

people who have knowledge on both of these areas. The three companies in Kosovo that were interviewed were also asked about this issue and the three of them claimed that the young tech-savvy individuals in Kosovo need to merge their knowledge on IT with knowledge on web applications and communications technology in order to adopt to the new market requirements.

All this discussion brings us to the topic of co-ops which all IT students have to undergo and the need for more practical work which was recommended by all of the current IT students and IT alumni during the interviews conducted with them. Firstly, let's refer back to the statistics presented under section 4.2, specifically to *Figure 6* and *Figure 7*. From these figures we can see that a higher percentage of IT students have co-ops unrelated to the field compared to students that actually have co-ops related to IT. However, *Figure 7* shows that a considerable percentage of students that have graduated in IT are either working in jobs related to IT or actually working in jobs in IT sector. An interesting fact was that all these students that were actually working in IT or had jobs related to IT were satisfied with their studies in IT concentration at AUK, but they only wished there had been more practice and applicable work so they would be even more prepared for the jobs they have now. Even among the current students the need for more practical work rather than just lectures was evident.

8.4 Analysis of Viability for an IT Club at AUK

In order to come up with an idea where IT at AUK stands in terms of being organized with different clubs and seminars the AUK clubs and their activity were analyzed. There is a number of clubs operating such as Management club, Economists club, and although there is no specific Public Policy club there few related clubs such MUN Club where the students of Public Policy concentration are active. These clubs arrange different visits and meetings and sometimes even arrange guest speakers. Often, the members of the club work on different projects, for example the Economics Club delivers a weekly report on current global issues in the field of economics and all this is done in consultation with the professors. So, an IT Club where IT students can participate organize events, seminars and projects together with professors is a good idea to begin with. This idea will be discussed further later when we discuss the recommendations for extending the IT concentration at AUK.

8.5 Assessing the Benefits of IT Alumni Experiences

In this section the results of the interviews with IT Alumni will be discussed from a different angle in order to find out how the good experiences of IT alumni in AUK can be used to increase enrollment in this concentration. Looking back at *Figure 7* we can see that a majority of IT alumni are either dealing with IT directly or have jobs related to IT. Nevertheless, although few IT alumni have continued studies and now are in their master degrees, none of them is actually studying IT in their graduate studies and the reasons for this are numerous starting from scholarship opportunities to overall career goals. Nevertheless, most of the alumni students actually plan to have a career in IT either by opening an IT business or being involved in IT in a way or another. In addition, the majority of alumni said that they were partly satisfied with their studies at AUK and the rest said that they are quite satisfied with what they have been able to learn in IT at AUK as we can see from *Figure 4*, so this is a positive indicator that the IT alumni is satisfied to some extent meaning that IT at AUK has met their expectations. This positive feedback from the alumni should be used to encourage new students to enroll in IT concentration. This point will be referred again in the recommendations' section and potential ways how this can be achieved will be analyzed.

Chapter 9 – Recommendations for Extending the IT Concentration

In this part of the report the focus will be on the recommendations as obtained from the research and analysis conducted so far which are all related to improving and extending the existing IT concentration at AUK.

Before going any deeper in the phase of recommendations, some successful strategies for IT concentration in other universities will have to be analyzed. Luckily, it is not needed to go go far in order to understand what a successful IT program means because RIT has already a highly developed IT program and is a market leader in this program in US. So, in analyzing a successful strategy for IT concentration, the IT at RIT will be benchmarked.

9.1 IT at RIT

The IT program at RIT officially started in 1992 when it accepted the first students. The aim of the program was to train and educate students to make things work in the world of technology .Now, "RIT's IT program is the leader in defining information technology as both an academic discipline and a profession" ("*Bachelor of Science in Information Technology – Handbook"* 3).

The education philosophy in IT at RIT is based on offering the students all the necessary conditions to be an active learner by being engaged in projects both in and outside the class and giving the opportunity to work with the most up-to-date technology ("*Undergraduate Advising Handbook* " 13). In addition, the best students are also offered to be assistants of professors during classes that require practical work and they are also offered the opportunity to work in the IT tutoring center. The IT tutoring center offers help on classes related to programming, database, and web (10). IT at RIT currently offers the following programs in IT as listed in *Table 11* next page.

Table 11 - RIT Program Offerings

IT Program Offerings at RIT
Enterprise Web Application Development
Enterprise Application Development
Enterprise Database Development
Mobile Application Development
Data Analytic Technologies
Geospatial Informatics
Special Topics

Source: http://www.ist.rit.edu

However, both the concentrations and courses are reviewed in annual bases in order to keep up with the changes in information technology and to offer students the most up-to-date knowledge and skills as required by the market.

The core IT courses are the following listed in *Table 12*. However, after the second co-op experience students begin work in their senior project individually or in teams which lasts for one year and is meant to bring together all the skills students have learned during the IT concentration

Table 12 – IT Core Course Offerings at RIT

Freshman Year
• Introduction to Multimedia: The Internet and the Web • Programming for Information Technology I • Programming for Information Technology I I • Programming for Information Technology I I I • Cyber Self Defense
Sophomore Year
• Interactive Programming • Computer System Fundamentals • Network Fundamentals • Introduction to Database and Data Modeling • HCI 1: Human Factors
Junior/Senior Year (after first Co-op block)
• HCI 2: Interface Design • Needs Assessment • Technology Transfer

Source: http://www.ist.rit.edu

Nevertheless, there is a long list of courses offered in IT concentration at RIT from which students can choose, but these courses above are the core courses through which IT students have to go. Other courses from which IT students at RIT can choose from are shown in Appendix 1.

In which courses should AUK be focused based on what was obtained from the research will be discussed in the recommendation phase; however, at this point the courses that immediately draw attention are the last four ones, Senior Development Project I, Senior Development Project II, Information Technology Seminar, and Information Technology Undergraduate Independent Study.

The course Senior Development Project I involves teams of students who focus in creating architectures and designs, and depending on the project, also may begin software development. Whereas, in Senior Development Project II, the teams of students complete

development of their system project and package the software and documentation for deployment by reviewing carefully through the methods and means they have learned in previous course work (Bachelor of Science in Information Technology 17).

Similarly, the course Information Technology Seminar is very interesting since it is on the discretion of the professor to design the course and the course is essentially meant to explore the emerging topics in Information Technology and prepares the students what to expect in the future in the field in which they are graduating. Lastly, the course Information Technology Undergraduate Independent Study is essentially a individual project in which students can choose a topic or do a project of their interest and they will be closely supervised by the instructor (*Undergraduate Digital Portfolio Guidelines* 3). Of course there a number of courses that are as interesting and viable for IT at AUK as these discussed here therefore few more of them will be discussed during the solution design phase of the report.

9.2 Presenting Specific Recommendations for Extending IT at AUK

Having had a look on what an advanced IT program is offering and how it is structured; it is easier now to come up with viable and effective recommendations for extending the IT concentration at AUK. The next sections will discuss separately many different recommendations to be considered in extending the IT concentration. In this section we will look at what recommendations could be offered from the analysis phase of the report. There is a

number of potential issues that can be turned in recommendations that were encountered during the analysis phase such as: (a) offering IT courses as part of the general education at AUK, (b) increasing the number of professors, (c) cooperating with IT companies regarding co-ops, (d) using the positive feedback of alumni to encourage enrollment in IT concentration, (e) focusing in one or two of the five pillars of IT, and lastly (f) organizing seminars and public lectures in cooperation with IT club. Each of these recommendations will be discussed separately in the following sections but the specific steps toward their implementation will be discussed during the solution designing phase.

9.2.1 Recommendations of Current IT Students and IT Alumni

In this part of the recommendations, the focus will be on the recommendations obtained from current IT students and IT alumni. Analyzing these recommendations that were presented in *Table 2* and *Table 3*, we can see that having more applied work in the courses is the most prevalent recommendation that both alumni and current IT students gave. This recommendation is accompanied with a need for a lab classes such as class SOHO Networking and computer fundamentals where certain equipments and program applications are needed for the class to be delivered effectively.

Another important recommendation that was offered from the students is that courses should have an end goal and the objectives of the courses should be defined and met. From the student recommendations can be seen that many students are not satisfied with the IT concentration because students expected to have the course objectives to be specific so that they could conclude whether they were successful or not in the course.

In addition, as many of the students put emphasis on the need for more practical and applicable work within IT concentration and within IT courses, some students pointed out the need for an IT club that would be closely supervised by the teachers. The creation of such a club would allow students to participate in extracurricular IT-related activities within AUK.

Furthermore, a number of current students and alumni recommended more practical work through different projects. This seems to be a good opportunity to introduce the senior project for IT concentration in the form of courses as Information Sciences and Technologies Department at RIT is doing.

9.2.2 Offering IT Courses as Part of the General Education at AUK

Just as Mr. Bajrami explained during the interview conducted with him, AUK cannot advertise its programs separately because the first two years are general education at AUK and the courses are very broad and general meant to enrich students with knowledge in various areas such as those in *Table 13* presented below.

Table 13 - Areas Covered by General Courses at AUK

Areas Covered by General Courses at AUK
Communications
Computer literacy
Critical and abstract thinking skills
Global issues
Liberal Arts & the Humanities
Literature
Math & Science
Problem solving and research skills
Spoken and written English

Source: aukonline.org

As we can see, there are many areas covered in this general education program at AUK and students can choose courses of different fields and they all have teaser courses in each of the fields ("*Undergraduate Academic Bulletin 2012-2013"* 30); however, as it is seen courses that cover the area of information technology are not included here at all. One common feature that all tech-savvy students is that they want to be engaged as much as possible in the courses related to technology they are not as much interested in other general courses (Laakmann 76) and this is a problem if AUK tries to promote the IT concentration to them because coming to AUK for them would mean spending two years on general courses which are not very much related to their field of interest. However, if several introductory courses in information technology are offered as part of the general education in the first two years at AUK it would be more attractive to prospective IT students.

9.2.3. Increasing the Number of Professors in IT

As mentioned previously, the low number of professors in IT concentration is both the cause and the effect of low enrollment. It is difficult to hire professors with a low number of students but at the same time it is difficult to attract students in a concentration where most of the courses are offered by one or two professors. In order to solve this sort of circular problem of the

low number of professors and low enrollment, we should look where the beginning of the circle is. Obviously, the number of students cannot be affected from AUK immediately, but the number of professors can be increased with more investment in the faculty and that would increase the level of attractiveness of IT concentration among students since as we saw from the interviews the number one concern is the low number of professors which makes the IT concentration be seen as a secondary concentration compared to other concentration at AUK where the number of professors is considerably higher. So, a better organized concentration with more professors and more courses to be offered combined with the introductory IT courses as part of general education would certainly be more attractive to prospective IT students.

9.2.4 Cooperating with IT Companies in Kosovo for IT Student Co-ops

Co-ops are definitely a valuable experience for all students of IT; however, as we saw from *Figure 6* the majority of IT students do not have co-ops related to IT. So, there should be more effort put to establish cooperation with IT companies in Kosovo so that IT students at least have the chance to do one of the co-ops in jobs which are specific to IT. The three companies that were interviewed during this project were more willing to cooperate for AUK for new interns since they were satisfied with the interns they had had so far.

9.2.4 Using Positive Feedback of Alumni to Encourage Enrollment in IT Concentration

It was also mentioned previously that is a widespread phenomenon among AUK students to ask other students in deciding what classes to take and what concentrations to choose, of course they also advise with their academic advisors. We saw earlier from the interviews that alumni students are generally satisfied and they all suggested that IT at AUK was helpful in their careers. These are the words precisely that many undecided second year students at AUK want to hear in deciding about their concentrations.

9.2.5 Focusing in One or Two of Five Pillars of IT

Mr. Boyd explained that the courses in IT concentration were chosen to be introductory so that they would need extra equipments and students would be able to comprehend the general concepts of IT. Looking from outside, IT in itself is very focused, but from inside the term IT is pretty broad because it includes all of the below five pillars that were also mentioned in the introductory part of this report:

- Programming and application development
- Web and multimedia development
- Database
- Hardware and Networking
- User-Centered Design and Deployment

Focusing on all these five pillars gives students a relatively broad sphere of knowledge on IT, but focusing on one or two of these pillars makes students specialist on those areas. From the interviews with current students, alumni, and the IT companies in Kosovo we saw that web and multimedia development, programming and application development are common words among both students and IT companies in Kosovo. Hence, another potential recommendation for AUK would be to focus on these two pillars of IT and offer courses that would actually make students proficient in these two pillars.

In addition, as seen from the interviews conducted with students and the companies, the IT is needed almost in any organization and profession where the alumni are working. Similarly, the three companies interviewed also claimed that they need IT people in their companies; however, being only IT specialist in a company hiring only 15-30 employees does not add much diversity in a company because the IT related problems do not take much effort when the company has a small number of computers and technological applications so IT people find themselves being free most of the time in the small companies (MacKechnie 2). This is why the employers look for people who have both knowledge on IT but who can also do other related work. Almost all the alumni and current students that work in companies related to IT, do jobs which deal with website design and development as seen from the interviews conducted with them. Hence, a very first step towards making the IT at AUK more specific and beneficial to students is focusing it in pillars of IT that are more closely related to website programming and application development where they can contribute both in IT of an organization but also do other tasks on design and development of webs and applications. In addition, the cooperation with Training and Development Institute (TDI) should be intensified in order to certify students at least in some programs. In the solution design phase of the report will be discussed in details how this can be achieved.

9.2.6 Organizing Seminars and Public Lectures in Cooperation with IT Club

Recently AUK has become quite known for organizing different public lectures and these help a lot to promote AUK in addition to benefiting current students who are able to learn from different successful people. However there is an obvious lack of public lectures and seminars or workshops related to information technology. Having these kinds of seminars, public lectures, or workshops being organized more often at AUK not only current IT students would benefit, but the entire IT concentration would be promoted even further among current AUK students but also outside since AUK would be a place where seminars and public lectures on IT are organized and as such it would strengthen the position of IT not only among the current AUK first and second year AUK students but also would strengthen its position to prospective AUK students.

9.2.7 Advertising at AUK

As we saw in the survey conducted with high school senior students, by advertising the general academic offerings, AUK has been able to let high school students know of its existence since 100% of the respondents knew about AUK, but less than 50% of them know what kind of programs is AUK offering. So, another potential recommendation is to figure out a way to advertise its programs to prospective students and attract by them by showing what they will be able to achieve at AUK and show them why it is worth paying 6,300 Euro to study IT at AUK.

Chapter 10 – Solution Designing

This final section of the report will discuss how we can implement the recommendations and strategies discussed throughout the report. In the beginning of the project the goal of the report was set which was to come up with viable solutions that would extend and improve the existing IT concentration at AUK. Having looked at the IT concentration at AUK both from inside and outside and having benchmarked a number of universities as well evaluated the IT market in Kosovo, it was possible to come up with several recommendations that would help make IT concentration more attractive to prospective students and to current AUK students and thus boost the number of students in this concentration in order to meet the expectations of the program initiators in terms of enrollment. They key question here is "How can we market our IT to be worth 6300 Euros?" The recommendations presented in the previous section of the report will be elaborated in detail in this section in relatively clear guidelines for their implementation will be presented based on the research conducted during this project. The recommendations presented in the previous section of the report will be elaborated in detail in this section and relatively clear guidelines for their implementation will be presented based on the research conducted during this project.

10.1 Senior Project in IT

The first thing to towards extending the IT at AUK is to offer the courses that provide students with skills and knowledge that are of their interest and which are required in Kosovo's market. This is also includes the need to have mandatory senior projects for this concentration so that students could work on a project which would include all of their skills and knowledge learned at AUK and that would serve as a demonstration of student's skills in the case of applying for a job. The senior project could be done in two parts just as it is in RIT and be offered through two courses such as Senior Development Project I and II (as discussed above) in order to spread the work load and make the senior project as more professional as possible so that students can actually be competitive in the job market using that senior project as demonstration of their skills.

10.2 Changing the Name of the Concentration and Selecting the Courses to be Offered

Since more than 90% of the companies in Kosovo are small and medium (*Statistical Register of Business in Kosovo*) and since the market in Kosovo is oriented towards web and application development, AUK should consider to change the name of the concentration from Information Technology to a name more appealing and inclusive of web and application design since that is more attractive to prospective students as could also be seen from the survey. Mr. Daniel Cosentino has already revealed in IT concentration presentation in front of the AUK sophomores that a potential name change for Information Technology concentration would be Web Systems Design and Development. This name satisfies the criteria presented above. In addition to changing the name, the new-named concentration will also offer a number of web related courses which are added to already existing programming and networking courses.

Nevertheless, there is lack of courses on application development offered in this concentration despite the reformations going on. However, there is an increasing trend among Kosovo's tech-savvy youngsters to be competitive in this area as we saw during the interviews and the analysis previously in the report. This can be also seen from numerous events that are being organized on this topic by different foundations in Prishtina that gather tech-savvy youngsters and organize different application development competitions. Hence, the new-named IT concentration at AUK should be focused in the three pillars of IT:

a. Programming and application development
b. Web and multimedia development
c. Database.

Courses that can be offered to cover these areas are: Application Development Practices, Web Application Development, Foundations of Mobile Design, Mobile Application Development I and II and lastly there should be a course on social webs to reflect the immense use of social networks by the youth in Kosovo. Such a course would be Social and Web Analytics. Of course, programming and database modeling courses should also be continued to be offered as usual.

10.3 Offering IT-related Courses as Part of General Education

It was discussed previously how tech-savvy students want to spend more time in technology-related courses rather then general courses as offered by AUK in the first two years. At the same time, this was a problem for advertising as explained by Mr. Bajrami who said that advertising specific program offerings of AUK is difficult because the first two academic years at AUK are of very general nature (Bajrami). In order to be able to overcome this in the case of IT concentration, there should be some introductory courses in the field of IT, web, and application development offered as general and/or teaser courses during the first two years at AUK. These courses should be introductory in nature and would include both some practical work and literature and trends view on the world of technology today. These courses should be opened to all students but of course the expectation would be that students aiming to study in the IT concentration would be more inclined to take those courses. At the same time, having these courses during the first two years of study at AUK would offer these tech-savvy students the opportunity to learn some literature and philosophy behind the application of technology in modern lives so that when they continue studying IT in their final two years at AUK, they would be enriched with a good background from the literature side of the world of technology, and of course they would be able to substitute some general courses such as history, anthropology or alike that are not of their interest with the courses that meet their career goals. Hence, offering a broader category of courses not only IT-related ones and making it possible for students to take general courses related to technology in their first two years at AUK would make this concentration marketable to an even broader range of prospective students.

10.4 Hiring More Professors

Another step that needs to be taken in extending the IT concentration, now under the name Web Systems Design and Development, is to hire a number of professors that would teach the courses. The number of professors should not be related with the number of students in this concentration, but should be related with the effective delivery of the courses. Each category of the courses should have its own specialized instructor. The rationale behind this is the analysis that was provided in the previous section where it was described how the enrollment of new students is tied to the number of professors to some extent and vice versa. New students are reluctant to enroll in IT concentration because they know about the limited number of professors

in that concentration, similarly the number of professors cannot be increased due to low enrollment. This is why at this point AUK should take the financial risk and burden to hire several professors for this concentration even with a relatively low enrollment in the beginning in order to have the concentration be promoted as significant and worth paying for. So, programming classes should have at least one professor, application development classes should have a separate instructor, and web courses should have their own instructor. Making such an investment in faculty is crucial because it is very difficult to convince prospective students to pay 6,300 Euro per year for a technology-related concentration where there are only one or two instructors in the entire concentration as was seen from the trends presented in previous sections of the report.

10.5 More Focused Advertising Campaign

An additional step that needs to be taken in extending this concentration is a more focused advertising campaign. This does not mean to advertise the IT concentration separately in the usual media channels mentioned by Mr. Bajrami, but it means that AUK and people in this concentration should put effort in combining the work of the IT Club with seminars and many extracurricular activities in order to promote AUK as a market leader in this field.

Hence, IT Club or it can have any another name based on whatever the final decision to name this concentration will be, should concentrate in organizing regular activities such public lectures, guest speakers, and even organize seminars on different developments on technology with experts on the field. The Club should involve both faculty and the students and the participation in the club could be linked with the course Information Technology Seminar that was described earlier. Even the RIT course guideline it says that "The faculty member(s) who offer an Information Technology seminar course determine specific course parameters such as prerequisites, format, learning outcomes and assessment methods ("Bachelor of Science in Information Technology – Handbook" 16).

Therefore, there is academic space for structuring the course to meet the IT Club's needs. Thus, students that take this course would be in charge of proposing and delivering projects that would enrich the activity of the IT Club which in turn would have the effect of promoting the concentration through different activities, such seminars, public lectures, organizing different visits in IT companies and organizing different competitions related to the field of IT or

application development both for AUK students and for non-AUK students. In addition, it would the responsibility of the club in cooperation with the admission office to make sure the alumni are contacted and brought back to share their experiences in the IT concentration so that prospective students can get information from insight what the concentration really offers to them. The whole idea is to make the concentration popular among tech-savvy youngster so that it makes sense to market the concentration for 6,300 Euros (*Undergraduate Academic Bulletin 2012-2013"* 66) to students that have options of studying the same concentration with a considerably lower fee, but we know this works just as it does work with other concentrations at AUK that are also available in other private and public universities in Kosovo for a much lower tuition fee.

10.6 Increasing Cooperation between AUK and TDI and IT and Web Design Companies

An additional step that needs to be taken in improving and extending the IT concentration that would eventually lead to an increase in the number of students is to increase the cooperation of AUK with TDI as well as IT and Web Design companies in Kosovo in order to make students professionally prepared to enter the labor market in IT sector but also prepare them for their graduate studies. As Mr. Boyd mentioned during the interview, the key idea of the IT concentration was to lay the foundations of IT for students that want to pursue graduate studies in this field. However, as we saw from the interviews with current students and alumni, most of them want to have practical and applicable knowledge in addition to being prepared for their graduate studies and wit could also be seen from the interviews that only a small percentage of IT students are pursuing master degrees and not even in the field of IT. Thus in order to approach this requirement, there should be established a stronger cooperation between IT concentration and TDI so that students can get certifications on different programs that TDI offers.

Therefore, a research should be conducted to analyze the financial means how this would be possible without having IT students pay extra fees for the certifications and how the lectures on certifications can be intertwined with the regular lectures at AUK. For example, many of the courses offered by TDI last for 72 hours (per course) in 12 weeks and are offered 3 times a week and 2 hours per day ("AUK Training and Development Institute - Catalogue" 44). A solution of incorporating these lectures with the regular lectures at AUK can be found. Having IT students

obtain at least one certificate in TDI during their 2 years in the IT concentration is a very positive step towards giving them even more tools in being competitive in Kosovo's labor market after graduation from AUK, at the same time it would make the concentration more marketable to high school senior students in the same way as offering lap tops to students has worked.

In addition, as we saw from the interviews with current students, a large percentage of them do not have their co-ops related what worsens the situation in terms of students' practice and their ability to apply concepts in work environment. Hence, it should be mandatory that IT students finish at least one of their co-ops in IT-, web design-related companies in Kosovo. This would help increase their practical knowledge and would also make them even more competitive in the labor market for this industry in Kosovo since we saw from the interviews conducted with the IT companies that they all look for experienced and people that understand the way of work in this industry.

Chapter 11 – Conclusion

The report has provided a very detailed insight in the IT concentration at AUK in terms of strength and weaknesses. In addition, the analysis has been performed using different approaches and from different perspectives. A number of people have been interviewed which has made possible the elaboration of different subtopics related to the main topic around which the report was centered. This has made it possible to look at the IT concentration from many different angles which in turn have been concluded in recommendations and specific solutions.

The report began with the examination of how the concentration started and what the main goals were. Then, those goals were analyzed through student interviews to see how much they have been met in terms of delivering what the concentration was meant to deliver and of course the enrollment goals were analyzed through the close analysis of the enrollment trend in IT concentration.

Moreover, the close insights obtained from IT students at AUK have been analyzed by looking at the same time at the other related universities in Kosovo and the region in order to understand the differences in experiences. The process of benchmarking has served as a very strong indicator in understanding where IT at AUK stands academically

Furthermore, the survey conducted with the highs school seniors is of very high importance since it has offered a very close insight in the potential future AUK students and what they are looking for. In addition, it served to evaluate the advertising campaign at AUK and helped make focused recommendations and prepare solid solutions on increasing the enrollment at AUK by looking what the target market is looking for.

In preparing the recommendations and the solutions, the feedback from IT companies in Kosovo was also obtained and their requests and suggestions were considered and integrated in the analysis. In addition, the IT companies also provided very important feedback from the perspective of employers which was crucial in understanding how the classes at AUK meet employers' expectations.

Finally, no matter which path is chosen in extending the IT concentration at AUK, one thing should be kept in mind: IT program is the pride of the RIT and thus it should also be the

pride of AUK. IT concentration should be in the same line with other concentrations at AUK that operate according to the AUK mission which is "to deliver a high quality American education to outstanding students from Kosovo and around the world, from diverse backgrounds and nationalities that will prepare them to be ethical, practical and socially engaged leaders of their communities" (aukonline.org). IT concentration should try to deliver the same outstanding students as other concentrations at AUK have delivered Kosovo's society over the past few years in fields such as economics, management, and public policy. The example of Josip Frankjović, a student majoring in IT at RIT's American College of Management and Technology in Zagreb, who won an award from Google and Facebook for discovering security errors in these companies' systems (Gregory par. 4) should be the aim of IT concentration at AUK in terms of the type of IT graduates it should deliver.

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Appendix 1

Questions asked to IT Alumni
1. Did you have an IT background prior to studying IT at AUK? If so, please give few details about that.
2. Why did you choose to study IT at AUK?
3. What did you expect to study in IT at AUK?
4. Are you satisfied with what you have already learned in IT at AUK?
5. What are you currently doing?
6. Do you think what you have learned at AUK is useful for IT companies in Kosovo?
7. Do you ever plan to open an IT business? Please explain, why or why not? Do your studies in IT concentration at AUK impact such a decision?
8. Having gone through several courses of IT concentration at AUK, what changes would you recommend in the courses offered?
9. How satisfied have you been with faculty in IT concentration? Were there enough professors? What would you suggest and change in relation to IT faculty at AUK?
10. Would you recommend studying IT at AUK to prospective students? Why or why not?

Questions asked to current IT students
1. Did you have an IT background prior to studying IT at AUK? If so, please give few details about that.
2. Why did you choose to study IT at AUK?
3. What did you expect to study at IT in AUK?
4. Are you satisfied with what you are learning and what you have already learned at IT at AUK?
5. Were any of your co-ops related to IT? If yes, please explain your experience. Based on your internship experience, what do you think of IT at AUK in terms of preparing students for employment in the IT sector in Kosovo? Did you feel prepared to meet employer's needs?
6. What do you plan to do after AUK?
7. If you plan to work in IT sector in Kosovo, do you plan to open your own business, work in your family business (if you have any), or find a job in an IT company based in Kosovo? What do you think are your major obstacles in accomplishing these goals?
8. What master degree do you plan to pursue?
9. Having gone through several courses of IT concentration at AUK, what changes would you recommend in the courses offered?
10. How satisfied have you been with faculty in IT concentration? Were there enough professors? What would you suggest and change in relation to IT faculty at AUK?

Appendix 2

Course Title (A-Z)	
Applied Probability and Statistics	Free Elective 2
Basics of Programming	Free Elective 3
Calculus and Linear Algebra	Information System Management
Capstone Project	International Communication
Computer Applications in Communications	Introduction to Communication Sciences
Elective course 4	Introduction to Media Studies
Elective course 5.1	Media and Society
Elective course 5.2	Media production and co-production
Elective course 6	Media Writing and Reporting
Elective course English for Special Purposes 1	Multimedia Programming
Elective course English for Special Purposes 2	Multimedia Systems and Applications
Elective course in Albanian/Macedonian language 1	Political Communication
Elective course in Albanian/Macedonian language 2	Social Media and Media Information Systems
Elective course in English language 1	Theories of Communication
Elective course in English language 2	Web Engineering
Free Elective 1	Web Technologies

Source: www.seeu.edu.mk

Appendix 3

Course Offerings in IT at RIT
Ethics in Computing
Computational Problem Solving in the Information Domain I
Computational Problem Solving in the Information Domain II
Web I
Foundations of Modern Information Processing
Java for Programmers
Digital Image Creation
Introduction to Database and Data Modeling
Web II
Designing the User Experience
Data Exploration and Knowledge Discovery
Database Connectivity and Access
Client Programming
Server Programming
Introduction to Geospatial Technologies
Introduction to Geographic Information Systems
Fundamentals of Instructional Technology
Interactive Courseware
Application Development Practices
Distributed Application Systems Development
Information Requirements Modeling
Database Application Development
Data Warehousing
Database Management and Access
Web Application Development
Web Server Development and Administration
Foundations of Mobile Design
Mobile Application Development I
Mobile Application Development II
Text Analytics
Social and Web Analytics
Visual Analytics
Geospatial Data Analysis
Undergraduate Co-op
Senior Development Project I
Senior Development Project II
Information Technology Seminar
Information Technology Undergraduate Independent Study

Source: http://www.ist.rit.edu