



SELF-EVALUATION REPORT 2010 SHORT VERSION

University College for Applied Computer
Engineering

Self evaluation report was prepared by Committee for Quality,
Dean and Managing Board, accordingly to NVAO Assessment
Framework.

This is internal document detailing present state of affairs in
respect to institution's internal quality assurance system. This
report is appended with additional documentation as stated
in NVAO's Assessment Framework.

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Preface

This self-evaluation report was prepared as a part of a Pilot project in quality assessment and enhancement in professional higher education institutions in Croatia, launched in March 2010 and financed by the Flemish Government within the co-operation programme between Flanders and Central and Eastern Europe.

Three main objectives of the Project are as follows;

- The first one is focused on the transfer of know-how from Flanders to Croatia and intends to support the development of the internal quality assurance systems in professional higher educational institutions in Croatia. This objective will be realized through the provision of expertise supporting process of institutional self-evaluation, quality assessment and certification, the development of internal quality assurance guidelines and the presentation and exchange of best practices from Flanders and the Netherlands.
- The second dimension of the project is institutional assessment, including the accomplishment of external institutional audits. These will be organized by NVAO and supported by Agency for Science and Higher Education – Croatian public accrediting body in higher education. As a result of the self-evaluation process and the external institutional audits, for each of the partner institutions, an assessment report will be published by NVAO, as well as a number of system-wide recommendations.
- Finally, the third dimension of the project consists of wider knowledge transfer to Croatian stakeholders in order to build closer ties in quality assurance and certification procedures between Flanders and Croatia.

University College for Applied Computer Engineering planned and proposed the Project application to Flemish Government together with NVAO and assembled other project partners and promoter in order to support its internal strategic orientation towards development of holistic and robust internal quality assurance system that is also internationally comparable. In that respect, we see this self-evaluation report as a snapshot depicting current state of affairs in internal quality control system, taken during the early stage of institution's development. Experience gathered in the course of this project will certainly serve as an asset in future development of our institution and its perspective towards quality.

Table of contents

1.	INTRODUCTION AND CONTEXT	1
1.1.	Introduction.....	1
1.2.	History and recent developments	1
1.3.	Location and facilities	2
1.4.	Program	2
1.5.	Students.....	3
1.6.	Staff	4
1.7.	Funding	4
1.8.	The Mission	5
1.9.	The Vision	5
1.10.	Strategic aims	5
1.11.	Quality assurance	6
2.	METHODOLOGY USED TO PREPARE THE SELF-EVALUATION REPORT	6
2.1.	Introduction.....	6
2.2.	Involvement of internal and external stakeholders	7
2.3.	Dissemination	7
3.	INTERNAL QUALITY ASSURANCE	7
3.1.	Vision of quality	7
3.1.1	Values	8
3.1.2	Goals of quality in respect to training programs.....	9
3.1.3	Positioning in respect to stakeholders	9
3.1.4	Continuous enhancement of aimed quality	11
3.2.	Internal quality assurance system.....	11
3.2.1	Organizational structure of quality assurance	11
3.2.2	Policies, procedures and documents supporting Quality Assurance	13
3.2.3	Resources	13
3.2.4	Targets	14
3.2.5	SWOT	15
3.3.	Quality of education	15
3.3.1	Program design and learning outcomes.....	16
3.3.2	Student Assessment	17
3.3.3	Learning infrastructure and resources	17
3.3.4	Teaching staff	19
3.3.5	Monitoring of educational achievements	19
3.4.	Performance measurement	20
3.4.1	SWOT	20
3.5.	Quality improvement	20
3.5.1	Program improvement	21
3.5.2	Improvement of education.....	21
3.5.3	Improvement of resources	21
3.5.4	Expected future improvements.....	21
3.6.	Organizational structure.....	22
3.6.1	Responsibilities and decision making process.....	22
3.6.2	Involvement of stakeholders.....	22
3.6.3	SWOT	22
4.	CONCLUSION	23
5.	APPENDICES.....	23

List of Figures and Tables

Figures

Figure 1. – Ground floor plan of UCACE premises

Figure 2. – Structure of newly enrolled students in last two years

Tables

Table 1. – Program structure

Table 4. – SWOT analysis in terms of policy and funding

Table 6. – Teaching staff structure

Table 7. – SWOT analysis in terms of procedures in operation, quality of programs and education

Table 8. – SWOT analysis in terms of organizational structure

List of Acronyms and Abbreviations

ASHE	Republic of Croatia - Agency for Science and Higher Education (hrv. AZVO)
ASIIN	Accreditation Agency for Degree Programmes in Engineering, accredited by the German Accreditation Council (Akkreditierungsrat)
AVET	Republic of Croatia - Agency for VET and Adult education (hrv. ASOOO)
CCE	Croatian Chambers of Economy (hrv. HGK)
CEA-ICT	Croatian Employers' Association in ICT (hrv. HUP-ICT)
CES	Croatian Employment Services (hrv. Hrvatski zavod za zapošljavanje)
CCUUCAS	Croatian Council of Universities and University Colleges of Applied Sciences
CROSTAT	Croatian Bureau of Statistics (hrv. Državni zavod za statistiku)
DG	EU Commission - The Directorate General responsible for (i.e. Education and Culture, Energy,...)
EQF	European Qualification Framework
ETF	European Training Foundation
EUCIP	European Certification of Informatics Professionals - www.eucip.com (by CEPIS)
FER	University of Zagreb, Faculty of Electrical Engineering and Computing (hrv. FER)
IPA	EU fund; Instrument for Pre Accession, available for "candidate countries" based on acquis communautaire
ISVU	Information system for higher educational institutions (hrv. ISVU - Informacijski Sustav Visokih Učilišta)
Kn	Croatian national currency – Kuna; current exchange rate is app. 7,2 kn for 1 EUR
KPI	Key Performance Indicator
LMS	Learning management system – infrastructure for e-learning
MOSES	Republic of Croatia - Ministry of Science, Education and Sports (hrv. MZOŠ)
NVAO	Netherlands - Vlaamse Accreditatieorganisatie (Accreditation Organization of the Netherlands and Flanders)
OECD	Organization for Economic Co-operation and Development
UCACE	University College for Applied Computer Engineering (hrv. VŠPR)

1. INTRODUCTION AND CONTEXT

1.1. Introduction

University College for Applied Computer Engineering was founded on 7th of July 2008 by Algebra Ltd, leading private IT adult educational institution in Croatia, active on the IT educational market for more than 12 years in 20 towns in Croatia and Bosnia and Herzegovina. Algebra currently supports more than 30 out of 50 biggest Croatian companies in different aspects of IT education, and in recent years it published some 30 different IT related books and e-learning issues, sold in more than 200.000 copies.

Process of initial accreditation of educational program was conducted by National Council for higher education¹ under the jurisdiction of MOSES and was finished on 16th of Jun 2008 upon which UCACE was awarded with the temporary Accreditation for organization and pursuance of professional higher educational program; Applied computer engineering². UCACE was founded as Non for profit private higher educational institution, according to the Act on Scientific Activity and Higher Education (Official Gazette 123/03 with amendments 198/03, 105/04, 174/04 and 46/07) and Act on Institutions (Official Gazette 76/93 with amendments 35/08). Initial location used to launch the institution was the headquarters of Algebra group in Maksimirska 58a, Zagreb. UCACE is today located within University Campus complex in Ilica 242, Zagreb and its location is formally changed in all legal documents. On 20th of July 2010 UCACE was awarded with the permanent Accreditation issued by MOSES for its study program and will be regularly assessed by ASHE as defined in Act on Quality Assurance in Science and Higher Education (Official Gazette 45/09). First generation of students started their Bachelor education program in UCACE on 7th of October 2008.

1.2. History and recent developments

Accordingly to the recognized trends and employment needs of IT educated specialists, work on UCACE's program started in 2006 by Program Committee and external consulting experts. During the process, two extensive surveys of employers in IT were conducted by IDC Adriatics³ and "Moj-Posao.net"- most important private employment portal, showing detailed market requirements. Portal "Moj-Posao.net" made available their complete database of announced vacancies in the past 7 years in the field of IT and computing, in order for the Program Committee to get clear picture of overall market requirements in wider context. IDC's survey, covering 80 most significant employers of ICT experts (out of which; 12,5% IT distributors, 30% financial institutions, 7,5% ISV's, 20% public institutions, 5% production companies, 7,5% system integrators, 5% telecom operators, 5% development companies and 7,5% others) yielded detailed analysis of technologies used by IT employers as well as skills and knowledge required by the market. As a result of both inputs and extensive work of experts and Committee members, a first draft of the program structure was prepared. During the second half of 2007 program draft was discussed with CIO's and other ICT experts in order to harmonize its content with variety of different market needs (public vs. private companies, small companies vs. big enterprises, open source vs. proprietary technology...). Program was further developed according to ASIIN⁴ requirements (Recommendations for *More Application-Oriented Informatics Study Programs - Type II* rev. 18.03.2005.), and final version was fine tuned in close cooperation with team of academics from University of Zagreb, Faculty of electrical engineering and computing – FER in late 2007 and at the beginning of 2008.

First generation of students started their education on UCACE in 2008 using three classrooms / laboratories equipped with computers and other equipment available in Maksimirska 58a and two lecture rooms and library on FER, located in Unska 3, Zagreb. During that time UCACE students did not experience problems due to courses held on two locations because their time schedule was prepared in a way that each day they had all lectures on the same location. Still, UCACE management was dissatisfied for not being able to foster development of true academic spirit and institution's identity while working actually in the premises of two other well established institutions. Solution to this problem came in July

¹ National Council for higher education – www.nvvo.hr

² <http://www.racunarstvo.com/Uploads/dokumenti/Dopusnica1.gif>

³ IDC Adriatics - <http://www.idc-adriatics.com/>

⁴ http://www.asiin.de/english/download/crit_tc4.pdf

2009 when contract was reached to rent more than 800 m² of excellent educational premises in Ilica 242. During the summer of 2009 new furniture and equipment was purchased and decoration works were undertaken in order to fully setup new facility to UCACE purposes. UCACE started its second academic year on 21st of September 2009 in new premises and with the new Dean appointed by Professional council and approved by Managing board, as per article 23 of UCACE Statutes⁵.

In February 2009 UCACE assembled partners and prepared the application for Pilot project in quality assessment and enhancement in professional higher education institutions in Croatia, financed by Flemish government within Cooperation Program for Central and Eastern Europe. Project commenced in March 2010. At the end of 2009 UCACE assembled partners and prepared grant application for significant project in development of VET Curriculum for IT and computing under the IPA for the Human Resources Development Component in Croatia 2007-2009. Project was elected for financing in August 2010 and the contract will be signed in September 2010.

1.3. Location and facilities

UCACE is today situated in some 100 years old, newly decorated and fully equipped building within University Campus complex in Ilica 242, Zagreb. UCACE's facility consists of more than 1000 m² of acclimatized rooms available for students and staff, each within the reach of fast wireless internet and fully accessible to persons with disabilities. Teaching process is organized in 2 lecture rooms (70 and 42 seats) situated on ground and first floor respectively, 3 fully equipped PC classrooms (18 – 26 seats), 2 laboratories for network technologies (each of 18 seats) and 2 multipurpose classrooms (10 and 14 seats), all on the ground floor. Students can also use career centre, student office, spacious lounge area, and library equipped with PC's for self study and demonstrational server and networking equipment for exercise, all situated within the same building. Café and cantina for students and staff, spacious parking lot, library and dormitory are located within the campus.

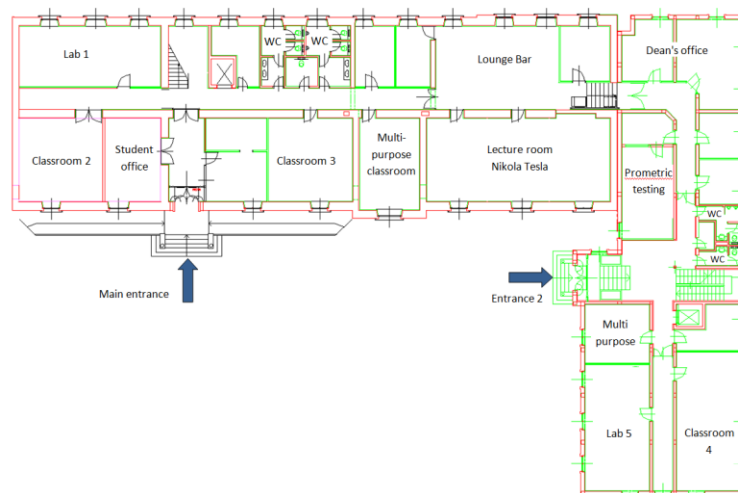


Figure 1. – Ground floor plan of UCACE premises

Offices for teachers and other staff are located on the ground floor and on the second floor. Teachers and assistants are situated in smaller offices for one to three persons while other staff uses bigger offices as per organizational unit (i.e. Marketing, department for administration and support to the teaching process,...). Heads of organizational units have its' own offices.

1.4. Program

To this end, UCACE holds Accreditation for one undergraduate professional higher education program; Applied Computer Engineering with two sub specializations; System Engineering and Software Engineering. Program is accredited with 180 ECTS points, lasts for 6 semesters in total of 3 years and graduated students are awarded notion *Bachelor of Applied Computer Engineering* (hr; bacc.ing.prim.rač.). Students have 6 subjects on each of first 5 semesters and 4 subjects plus diploma

⁵ Statutes: <http://www.racunarstvo.com/Uploads/dokumenti/statut%20VPR.pdf>

project on 6th semester. Total duration of the education in each semester is 15 weeks with educational load of app. 23 school hours of direct education weekly. During the semester there are 2 midterm exams (first after 5 weeks of education and the second after 10 weeks of education). For the purposes of midterm exams, there are 2 weeks off during the semester for each midterm (total of 4 weeks) so each semester lasts for 19 – 20 weeks.

There is a total of 50 courses within the program out of which 14 are electives. Courses are organized in 6 departments as follows:

1. Software engineering dpt. - 15 courses, 8 teachers
2. Operating systems dpt. – 6 courses, 5 teachers
3. Department for general courses – 12 courses – 11 teachers
4. Computer networks dpt. – 5 courses, 3 teachers
5. IT security dpt. – 4 courses, 2 teachers
6. Department for information systems – 8 courses, 10 teachers

Structure of the program in respect to ASIIN recommendations:

Field	Recommended	System engineering	Software engineering
Applied computing and IT	40%-60%	50,56%	52,22%
Mathematics, natural sciences and basics of engineering	15%-20%	18,33%	18,33%
Ergonomic, law and communication	5%-10%	9,67%	7,22%
Economy and management	5%-10%	6,67%	6,67%
Specialization within computing and IT and final project	15%-25%	14,78%	15,56%

Table 1. – Program structure

Program was prepared in a way that students enrolled in any of the available sub specializations are able to get bachelor diploma and gain knowledge to pass most significant IT certification exams, recognized by the industry, just following the formal courses. This was mandatory requirement excerpted during the program preparation, which modeled the program, courses and courses interconnection significantly. From the students' perspective, certification exams are available extra benefit already calculated in the admission fee. Aforesaid exams are relatively easily passed by most of the students after they finish respected courses and pass formal course examination conditioned by learning outcomes. Index of available IT certificates and exams is clearly listed each year in call for admissions and is regularly updated.

More details regarding the program and the courses are available on <http://www.racunarstvo.com>

1.5. Students

UCACE got its program accredited relatively late to organize quality promotion campaign for admissions in 2008/2009. Public presentation of new institution was held on 18th of July 2008 and first entrance examination was organized in the last days of August 2008. In these circumstances, admission of 64 students in 2008 was more than most anticipated, especially having in mind that UCACE's admission fee was one of the most expensive for IT and computing programs and that Croatia had, and still have, free studying on public institutions. Most of the students enrolled in 2008 were adult, already employed students attracted by Algebra's brand that was not so popular in high school population during that time. In 2009/2010 UCACE enrolled total of 75 students and its emphases moved to high school graduates, with still relatively high proportion of adults. In 2010/2011 we expect the same or similar number and structure of enrolled new students due to severe economic downturn in Croatia and significantly raised quotas for free studying on public institutions presented recently within the campaign of free first year on public institutions for all. There is a total of 123 students enrolled today, out of which 50 on second year and 73 on first year. Structure of enrolled students is as follows:

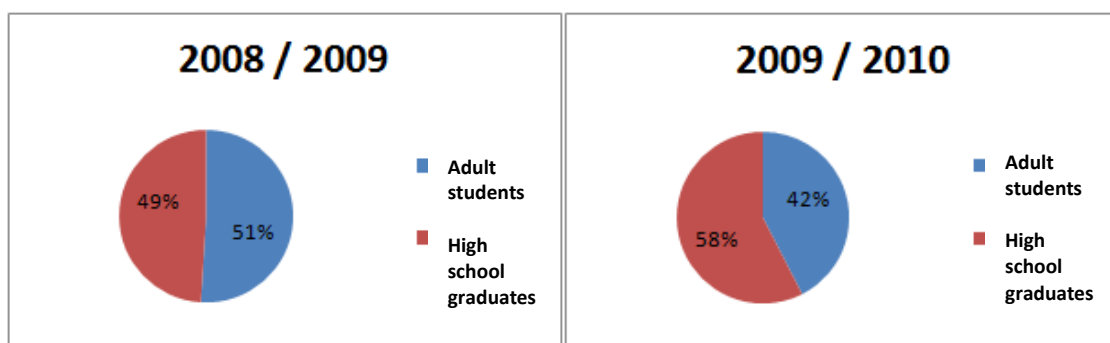


Figure 2. – Structure of newly enrolled students in last two years

Today there is 92% of male and 8% of female students, 35% finished grammar school, 58% finished VET program in duration of 4 years, 3% finished VET program in duration of 3 years and 4% of students already finished other degree program.

For any higher educational institution, quality and predispositions of enrolled freshman students are of topmost importance. Being new private institution without already established and trusted brand, operating together with respected and quality public institutions offering free programs, put even stronger burden on institution and emphasizes on student quality. Guided solely by this fact we introduced different levels of scholarships to app. 25 % of freshmen population this year, in order to attract high quality students so that we could build positive and competitive atmosphere within new student population.

1.6. Staff

UCACE has a total of 30 employees in 6 organizational units (sectors) each consisting of sub units (departments) as per organizational scheme (Appendices 1). Some of the employees are also employed in other parts of Algebra group (cumulative employment). There are 7 full time employed teachers and 4 full time employed assistants. Courses are also conducted by 30 part time teachers and 13 part time assistants.

1.7. Funding

UCACE's founding originates from tuition fees, development and research projects and financial support from Algebra group.

Annual tuition fee has been unchanged from 2008 and it ranges from 31.000 kn for single payment to 33.400 kn for up to 12 monthly installment payments. For the past two years there have been additional discounts for single payment or bank loans, so annual fee in these cases was reduced to 28.830 kn as publicly announced on UCACE's web page, call for admissions and printed official documents. Bank loans provided to the students are specially tailored for the purpose, upon bilateral agreement between UCACE and Unicredit Bank (Zagrebačka banka). They are unique for their low interest rates (same rates as for real estate), 3-4 years of grace period, long repayment period (up to 10 years) and no payment assurance burden. Tuition fee is further reduced for students who have already passed similar exams on other higher educational institutions, if these exams are acknowledged by UCACE. Fee reduction is calculated per ECTS points, as per article 13 of Book of regulations on Study⁶.

In order to better support its students, UCACE raised one full 3 year scholarship in 2009/2010 (paid by Jutarnji list) and three full 3 year scholarships in 2010/2011 (paid by; PBZ, APIS-IT and Economic Council members). Also, to promote excellence and successful studying, UCACE awarded three partial (up to 20%) scholarships to best 1st year students last year, and will award up to eight partial (up to 30%) scholarships to best 1st and 2nd year students, this year.

Average annual fee paid by fee paying enrolled students in 2009/2010 was 25.500 kn.

⁶ http://www.racunarstvo.hr/Uploads/VŠPR%20pravilnik%202010_2011.pdf

Algebra's financial contribution was carried out through financing of educational courseware development. Actually, Algebra as publisher prepared and financed almost all courseware (especially books) and invested more than 1.500.000 kn in the past two years. Books were prepared especially for UCACE, and development was organized and managed by joined production team. Algebra holds all legal and publishing rights on all prepared books and they are delivered to UCACE as requested.

1.8. The Mission

UCACE was established with sole purpose to organize and conduct professional higher education in the field of computing and ICT, as stated by article 9 of its Statutes. We at UCACE are well aware of our responsibility in a wider social context and therefore through our work we actively foster education and especially one in the field of technical sciences, as a foundation to competitiveness growth and economic development of national economy. By doing so, we strive to build value system coherent to values in which we strongly believe through:

- Organization and pursuance of public campaigns promoting ICT literacy and expertise;
- Gathering of information, analysis and research in the field of ICT as a basis for social and policy development;
- Support to formal educational system in Republic of Croatia, and especially VET system;
- Active work within nongovernmental sector and employers association,
- Active work within EU and global initiatives fostering development of national economy and educational system (OECD, ETF, ...);
- Fostering of e-skills and other basic competences for Life long learning stated in EU policy and development strategic outlooks;
- Cooperation with institutions and society of persons with disability in order to foster their social inclusion and employment;
- Activities fostering international cooperation, research and mutual projects;
- Cooperation with employers and especially ICT employers in order to educate work force capable of achieving and maintaining competitive advantage of national economy;
- Attraction of foreign direct investments and projects significant for development of national economy;
- Fostering of holistic approach towards quality in education on any level (from high school to higher and adult);

In order to fulfill goals and conduct activities stated in article 9 of UCACE's Statutes and in aforesaid paragraph, strategic development decisions are taken, material and technical resources are assured, internal quality assurance system is being developed and close contacts and cooperation with business sector and employers are maintained. Furthermore, UCACE fully supports career development of its students through activities of internal Career centre and its Economic Council.

To support above stated activities, integral information system is being developed together with IT infrastructure for assessment, e-learning, facilities, equipment, learning resources and overall capacity is being built in order to provide prerequisites for high quality study.

1.9. The Vision

University College for Applied Computer Engineering aims to become first choice of Croatian and regional students interested in professional higher educational programs in the field of computing and ICT, through development of excellence in all aspects of institution's work, its infrastructure, staff, cooperation with the industry and international activities.

1.10. Strategic aims

In order to better structure and organize educational and other activities in accordance with its mission and vision and to foster stable development of its future position, six broad strategic objectives were stipulated by UCACE's Development Strategy for 2009 – 2013 period (Strategy), accompanied with measurable KPI's and detailed action plan. They are:

- 1: Establish high quality educational process based on learning outcomes principles, supported by adequate training materials and methods with curriculum fully respecting market requirements.
- 2: Develop such internal quality assurance system which can guarantee successful UCACE's accreditation and facilitate introduction of highest European standards covering all aspects of institution's activity.
- 3: Establish such Human resources development model which can assure UCACE's further sustainable development and fulfillment of other strategic goals.
- 4: Build high quality infrastructure in order to assure excellent study prerequisites and maintain high student standards.
- 5: Initiate and organize new study programs in Computing and ICT field.
- 6: Establish and maintain full cooperation with employers and the industry in order to contribute to society and consequently national economy.

1.11. Quality assurance

Private higher education started in Croatia less than a decade ago and is still considered by many as low quality and insignificant educational segment. To this end, with 26% of all higher educational institutions being private, enrolling annually more than 10% of total student body, it is safe to say that private higher education still did not fully catch up in Croatia. If reasons behind aforesaid position are analyzed in more detail, three main groups should be closely considered:

1. There is indeed lack of knowledge, experience and sometimes broader vision and recognition of social responsibility in some private higher educational institutions.
2. After some 55 years of socialist regime and significant privatization scandals in 20 years of recent Croatian history, any kind of private business and especially private education is still stigmatized by many.
3. Private institutions are cohabitating with public ones, sharing same legal environment which is not favorable; students in private institutions do not get any support from public budget like their colleges studying in public institutions (health insurance, subsidized food and accommodation costs,...), they are paying tuition fees while studying in public institutions is now free for all students for first study year, and finally private institutions are not supported from the state budget but are obliged to pay 5% of their total market income to the government.

Being fully aware of all aforesaid circumstances, we at UCACE trust that only dedicated and holistic approach to quality of our overall work and education that we provide can help us survive and develop in such an environment. We also know that time left to establish public trust and to build excellence in all aspects of our work is limited due to near Croatian accession to EU and consequent arrival of internationally established and advanced foreign competitors.

These external facts, combined with our intrinsic strive towards excellence, the same one that made Algebra market leader in adult ICT education for the past decade, made constant quality enhancement our most significant goal.

2. METHODOLOGY USED TO PREPARE THE SELF-EVALUATION REPORT

2.1. Introduction

This self-evaluation report was prepared as a critical reference to institution's organization and implementation of internal quality assurance system upon NVAO's Guidelines for structuring the self-evaluation report.

2.2. Involvement of internal and external stakeholders

This document was prepared in three phases. First phase of preparation was done by the Dean and the President of Committee for Quality assurance and it finished with transposition of questions stated in; chapters 1.3 and 1.4. of the *“Guidelines for structuring the institutional self-evaluation report”* and presentation *“Framework for self evaluation based on NVAO- & ESG standards”* held during the Zagreb workshop, to future self-evaluation report’s contents backed up with original or rephrased questions. In the second phase, text of the report was prepared by the Dean, members of Management board and Committee for Quality assurance, upon already set up contents and initial questions. Third and final phase actually involved discussion and review of prepared draft document by some members of Economic Committee, Professional Council and students representatives.

2.3. Dissemination

Dissemination of prepared final report was done to internal and external stakeholders .

3. INTERNAL QUALITY ASSURANCE

3.1. Vision of quality

As already stated in chapter 1.11. of this report, holistic approach and strategic orientation towards ultimate quality is the paramount goal of UCACE’s management and employees. In that respect Management Board backed up with additional 10 members of Committee for Strategy developed in November 2009 Development Strategy of UCACE for period 2009 – 2013 (Appendices 2) including Policy for Quality Assurance in UCACE. That, second, strategy succeeded first short term strategy (2008-2009) developed in December 2008 by Management Board covering quality in 7 out of its 8 strategic goals. Abstract of recent Strategy (2009-2013)⁷ is published on UCACE’s web page showing all strategic goals, each strategic task and most of the KPI’s (all KPI’s concerning quality).

In UCACE’s Policy for Quality Assurance (QA) it is stated that internal quality assurance systems are of topmost importance for institutions of higher education in order for students, employers and wider society to gain and maintain trust that the institution is conducting its educational activities in correct, transparent and socially beneficial manner for which it was entrusted public rights through institutional and program accreditation. It is so because higher educational institutions are in charge of the whole process from program and curriculum development through organization and pursuance of education to student assessment. In contrast to i.e. secondary educational system where programs are prepared and brought by the Ministry and evaluation of pupils’ achievements are conducted by external organizations, internal quality control system is in charge of the whole process in higher educational institutions so it must be reliable and robust.

In its vision of quality, UCACE is fully aware of often negative perception of private institutions considered to be constituted for the sole purpose of profit generation for their founders /owners. Our value system is in complete contrast to such ideas and we therefore strongly incorporated public wellbeing and overall benefits for the society in our strategic goals, backing it up with internal quality assurance measures and our KPI’s on institutional level.

Furthermore, we at UCACE are familiar with speculations that private institutions of higher education, being financed mostly by tuition fees paid by their students, are in a way, in constant conflict of interests. Respecting entrusted public rights to serve in the best interest of the society, we are determined to strictly obey publicly announced assessment and other standards in order to build our graduates’ careers in accordance with employers’ expectations, making them fully employable and able to increase competitiveness of national economy. Holistic and well developed internal quality assurance system that is strictly applied is the single most important tool that will be used in order to avoid and discard any such possible future speculations aimed at UCACE.

⁷ <http://http://www.racunarstvo.hr/studij.aspx?id=1312>

3.1.1 Values

Apart of overall values stipulated within strategic goals and policy, there are six specific values stated in the Strategy, describing determination towards quality of education that we provide and the realization of our Vision. They are:

1. **High value for money** – we at UCACE strongly believe that high value should be given to our students in exchange for tuition fee they are paying.
2. **High level of professionalism and specialization** – although opportunism is immanent to present development phase of Croatian higher educational system, we are fully aware that trying to simultaneously become expert in many fields ends up being, at best, average in all of them. We are not interested in being just average, so all our efforts will be still focused on development of excellence in the field of applied computer engineering, the same field in which we are active and successful for more than 12 years. Furthermore, for the aforesaid reasons, UCACE will not develop nor offer accredited short lifelong learning programs until Croatian Qualification Framework endorsing such programs on higher educational level is finished. Present accredited adult education programs on level 4 of Cro QF and EQF will be still offered by Algebra POU, established market leader and the member of the same educational group as UCACE.
3. **Value of international certification build in our program** – Higher education will never be replaced by system of industrial certification for many reasons. Still, in the field of ICT value of international industrial certification is extremely important in Croatia (accordingly to survey UCACE conducted with CEA-ICT and CCE in 2010, 30% - 50% of employers consider certificates as an important asset in selection process) and globally (according to Certcities.com and Microsoft, wages of certified engineers are 13-15% higher compared to their non-certified colleagues working on the same jobs). Industrial certificates are acquired through the process of independent external assessment organized and controlled on the global level by technology providers. Therefore it serves not only to students and their prospective employers but also to the UCACE and the public as an independent measure of educational achievements of our students.
4. **Strong and constant determination towards quality** – From its very beginning, while still in preparation of training program, UCACE's founder signed Contract with FER - most prominent higher educational institution in the field of computing in Croatia and wider region, in order to increase quality of curriculum being developed. Accordingly to the stated Contract, FER and its experts will continue to conduct program assessments on annual basis, in order to help UCACE maintain high quality of its educational work. Positive review of 2010' FER assessment⁸ and initiation of Pilot project in quality assessment and enhancement in professional higher education institutions in Croatia, both evidence that determination towards quality is not just wishful thinking for UCACE.
5. **Responsibility towards employers' and students' trust** – It makes tremendous difference to students in higher education, whether they are studying with the best in generation or with those not being able to pass state high school graduation examination or institution's entrance examination (if any). Quality of enrolled students determines consequently level of education that higher educational institution can conduct and hence results of the whole educational process. Furthermore, if an institution is for any reason willing to enroll students incapable of successful completion of the program, it can be certain that not only these deceived students will be unhappy for time and effort lost (and in worse case money paid for tuition fee), but they will also serve as bad ambassadors to employers and the public. Damage made to institution's reputation and public trust, and also damage made to all other students, even excellent ones, is long lasting and almost unrecoverable. For all the aforesaid reasons, we at UCACE highly respect given trust and we never put short term incomes or benefits ahead of responsibility, quality and trust.

⁸ <http://www.racunarstvo.hr/Uploads/dokumenti/ocitovanje.pdf>

- 6. Long-term and systematic development of internal strengths and capabilities** – Investment in any higher educational institution is rarely motivated by speculative reasons. Instead, in its core there should be intrinsic motivation and willingness to promote wellbeing of wider social community. Since we at UCACE start from the same paradigm, it is our strong believe that by development of our internal resources and capabilities we can, given time, build higher educational institution that will be internationally comparable and will serve economy as a source of competitive advantage on EU and global markets.

3.1.2 Goals of quality in respect to training programs

UCACE's goals concerning quality of its training programs are stated clearly in its Strategy and are transposed in detailed operating procedures within number of other relevant documents. They are distributed within 3 out of 6 main strategic aims listed in chapter 1.10. and are as follows:

1. Assure that the published official framework plan for each course is strictly followed within detailed plan of training execution, prepared by each teacher.
2. For each course define measurable learning outcomes on the course level and assessment mechanism based on stated outcomes.
3. For each course prepare top quality training materials.
4. Maintain and develop implemented e-learning system and introduce support for distant students in the form of on-line web conferences, supporting at least lectures.
5. Implement eight basic competences for lifelong learning stated by DG Training and Culture in the training program and, if possible, in each course.
6. Implement and conduct mentor support and mentor teaching for all students.
7. Increase the number of students successfully passing from first to second study year.
8. Introduce formal awards and honorable mentions for best performing students.
9. Introduce formal methodical and didactical training for lecturers and assistants.
10. Foster exchange of teachers on international level.
11. Upgrade existing undergraduate (180 ECTS and 3 years) program to graduate one (additional 120 ECTS and 2 years).

Stated goals have been identified by the Committee for Strategy upon discussion with members of the Economic Committee - representing most significant employers in ICT in Croatia, and analysis of students' reactions and recommendations given within student surveys in 2008 and 2009. Monitoring of the training program quality is a constant process described in detail in Book of regulations on QA System and checked against desirable KPI thresholds. Program enhancement is done constantly upon received suggestions and recommendations (from students and Economic Committee members), and in cooperation with broader representative sample of employers, at least once each 2 years as stated in the Strategy.

3.1.3 Positioning in respect to stakeholders

National institutional stakeholders

UCACE was founded as a reaction to shortage of highly skilled ICT experts on Croatian labor market that lasted, at that time, for almost a decade. To be able to detect and quantify proportions of the stated shortage, we were in constant communication and partnership with CES and other private employment agencies (i.e. moj-posao.net).

In order to support development of our program and to constantly observe and audit its quality, we closely cooperate with FER and benefit from the exchange of knowledge and expertise possessed by the most significant project and research oriented Faculty within University of Zagreb.

UCACE is an active member and initiator of activities conducted by Agency for VET and Adult Education (AVET) in order to modernize VET curriculums and qualifications and consequently build CRO QF

Algebra and UCACE are particularly interested in wellbeing of persons with disability where we cooperate with number of institutions and NGO's including: URIHO – biggest institution for rehabilitation and work

therapy for persons with disability, Fund for education and rehabilitation of persons with disability and SOIH – Croatian Union of Associations of Persons with Disability – National umbrella organization for persons with disability.

Other national institutional stakeholders are represented in Economic Committee populated with total of 12 representatives from:

- ICT companies
- Technology vendors (internationals but represented with local offices)
- University of Zagreb
- CEA ICT
- National Competitiveness council

Council meetings are organized 2 times each year and most important strategic and program development issues are discussed, together with the wider impact of UCACE's activity on the society.

International institutional stakeholders

Being in existence for just 2 years and without any international reputation makes unfavorable grounds for extensive and fruitful international cooperation, we would like to develop. Still, implementation of internationally recognized industrial certification in our formal program necessitated cooperation with international training providers and technical vendors. First such agreement and accession to Academic program UCACE signed with Microsoft in 2008 (Microsoft Developer Network Academic Alliance (MSDN AA), followed shortly with accession to IBM Academic initiative, CISCO Networking Academy program, SUN Academic initiative program and in the spring of 2009 ORACLE Academic initiative. Through stated cooperation we receive most recent information regarding technology development and our experts are able to communicate and exchange experience with international industry specialists.

Another bilateral agreements covering similar types of cooperation will follow shortly, once we have produced detailed program and curriculum description based on learning outcomes, that is translated to English and published on our web page⁹. Till this end we made contacts with several international higher educational institutions such as; Ostwestfalen-Lippe University of Applied Sciences (<http://www.hs-owl.de>)

Most important international project that will, in a way shape future of UCACE started in March 2010, financed by the Flemish Government within the co-operation programme between Flanders and Central and Eastern Europe. Pilot project in quality assessment and enhancement in professional higher education institutions in Croatia was initiated and prepared for financing in early 2009 by UCACE's experts. Project will possibly have wider implications on quality, not only on involved partner institutions (one of which is also UCACE) but also on other professional higher educational institutions willing to use its deliverables in order to learn how to improve their internal QA systems.

Internal stakeholders

Students and employees are most important internal UCACE's stakeholders. In order to support their influence on strategic and operative decisions taken by UCACE, both groups were represented as early as in preparation of development strategy.

Students within UCACE are organized within Student section and are in the process of registration of their own NGO "KASPER". Work of the section is supported by UCACE when such support is requested by the students (i.e. sport clothes were purchased for two teams representing UCACE on official University sports games, UCACE financed freshmen's party in 2009, ...).

UCACE's Vision inherently put great emphasize on internal and external stakeholders. They both have to be fully satisfied with the way institution is performing in order for it to become first choice for professional higher education in Croatia. In that respect students' and employers' propositions and recommendations should be well balanced while at the same time social and national context should not be put aside.

⁹ <http://www.racunarstvo.com>

3.1.4 Continuous enhancement of aimed quality

We at UCACE do not consider quality to be just a measure of performance. Especially not just a measure of effectiveness and / or student satisfaction with conducted education. In UCACE's short existence it was our determination for success and better competitiveness that made us:

- Move to new facility in order to build better academic environment
- Assemble Economic Committee with significant authority over UCACE's development in order to establish direct and sustainable contacts with external stakeholders
- Help Ministry to develop CRO QF in order to promote more pupils elect study in the field of ICT and computing, resulting also in the long run, in better capabilities of high school graduates enrolling to UCACE
- Prepare handbook for each course (most of the higher educational institutions in Croatia does not have such infrastructure after decades or existence)
- Start the Quality assessment project with NVAO

3.2. Internal quality assurance system

Internal quality assurance system that UCACE built and is still developing is clear, documented and transparent, covering comprehensively all aspects of our work, not only educational activities. It respects interests of employees, students, employers, national economy and EU and national strategic development guidelines. UCACE's internal QA System involves students, employees, employers and other relevant stakeholders awarding them with clear functions and influence on all processes that occur in UCACE. Operating procedures, authorities and responsibilities are determined within corresponding regulatory acts. In order to realize its vision of quality, UCACE set up a series of strategic tasks grouped within strategic aim 2. They are as follows:

1. Develop and implement documented internal QA System and successfully complete institutional reaccreditation planed by ASHE as well as program reaccreditation scheduled by FER. In that respect NVAO and ESG guidelines as well as Croatian acts and ASHE's recommendations will be closely obeyed. Furthermore, UCACE will use Algebra's experience and prepare internal documentation and operating procedures accordingly to ISO 9001 / 2008 standard in order to implement ISO certified quality system in the future. Certification and full accreditation of the quality system according to ISO norm will be organized only after first generation of UCACE's students finish their complete 3 year program in order for UCACE to fully develop and implement all operational procedures and corresponding documents, from enrollment to diploma project and promotion of graduated engineers.
2. Complete initiated Pilot project in quality assessment and enhancement in professional higher education institutions in Croatia and successfully pass institutional assessment accordingly to NVAO's framework. In this respect NVAO's assessment framework, ESG and ASHE's reaccreditation guidelines were all used in order to fine tune institution's processes and prepare this self evaluation report. Although NVAO and ASHE both used ESG as the guiding element in their frameworks, difference in emphases (NVAO's towards QA System's results and ASHE's toward QA System's existence and infrastructure) was clearly determined and respected.
3. Form necessary internal organizational infrastructure and bodies in order to fully implement QA System.
4. Constantly and fully maintain and pursue implemented QA measures and procedures.

In order for UCACE to be sure that its vision and quality culture is fully supported by all staff members and other involved internal stakeholders throughout the organization, they were involved in its very creation.

3.2.1 Organizational structure of quality assurance

In its Policy, UCACE stated that Internal QA System should in organizational context recognize and respect roles and responsibilities of internal organizational units (i.e. Committees, departments...) and of each individual staff member in respect to maintenance and development of overall quality. That will be achieved through monitoring and evaluation of realized results against published expectations (KPI's).

Stated quality goals will be continuously monitored by Committee for Quality (CQ) and other quality assurance organizational structures in order not only to observe and react but also to innovate and initiate system's revisions and upgrade.

From the organizational standpoint, Committee for Quality is in charge of QA System as stipulated in Book of regulations on Quality Assurance. It is appointed by Professional Council and it consists of 5 members, presided by Dean's assistant for quality issues, and assembled by one student representative, one representative of Managing Board and two teachers out of which one is full time staff member and other is external expert. Accordingly to the article 14 of aforesaid document, CQ is in charge of:

- QA System of UCACE
- Strategic planning and development of guidelines and procedures for enhancement of Quality
- Recommendation of concrete projects, activities and innovations that may result with enhancement of quality to Professional Council, Dean and Management Board

CQ works in sessions as stipulated in Rules of conduct for CQ.

According to Book of regulations on Quality Assurance, CQ will be held responsible also for activities as follows:

- self evaluation (including preparation of self evaluation report together and in cooperation with other stakeholders and self evaluation reporting at the end of each semester for Professional Council's meeting. Other departments will provide information and data for self evaluations when requested by CQ),
- development and enhancement of Quality indicators (including some of the KPI's),
- involvement of students in Quality monitoring,
- monitoring successfulness of studying and detecting causes of ineffective, unsuccessful and too long studying,
- research and monitoring of teaching staff competences,
- initiation of didactics and methodological training for teachers and assistants in coordination with department for teachers support,
- initiation of training for administrative and technical staff if one is required based on results of quality monitoring,
- gathering proofs of education enhancement,
- measurement and analysis of basic and professional competences reached as a result of study program,
- evaluation of teacher's reports and preparation of argumentative feedback,
- evaluation and preparation of argumentative feedback on received complaints, objections and recommendations,
- involvement of its representative in the work of each special Professional Council's meeting concerning quality issues.

Furthermore, CQ and its members can, according to article 43 of Rules of conduct for CQ, respond and react to observed quality breaches even outside CQ sessions. It is especially so in case of underperformance within teaching process where remedial actions and quality checks can and will be undertaken by President of CQ, as per action plan schedule or provoked by received compliment or student survey results. Any such action will be documented using formal template.

Although Quality Assurance is formally handled by CQ, responsibilities to promote and enhance quality are prescribed also in operating procedures of Economic Committee, Ethical Committee and Committee for penal measures. According to UCACE's Statutes, Professional Council, Managing Board and the Dean are also responsible to build and enhance quality. Responsibilities in that respect concerning each employee, department or sector are described in the Book on Systematization and Organization of work places and responsibilities.

After CQ's recommendations or CQ's Sessions minutes are received by the Dean, he will depending on the actions proposed;

- Resolve issue upon authority assigned to him by UCACE's Statutes (i.e. dismiss staff member, employ additional administrative staff member, consent to purchase of additional equipment, consent to change work schedule or organize more additional lectures, etc.)
- Assemble Professional Council and discuss proposed actions in order to reach decision (i.e. decision to reduce study groups, decision to discharge or hire new teacher, decision to initiate revision of subject or program, etc.)
- Inform Managing Board President and demand that the Board discusses proposed action or project. Dean will provide information during the Board meeting and if required, CQ's president can be called to participate during the meeting.

3.2.2 Policies, procedures and documents supporting Quality Assurance

Motivated by years of experience in use and development of ISO 9001 quality system implemented in Algebra, we started to document our work procedures using the same principle and similar templates. On the other hand during the course of time we have prepared and published external documents in form of Books of regulations covering all aspects of our work. As a relatively young institution, we managed to prepare each of them as we become able to fully define particular area or procedure. It can be therefore witnessed that our first book of regulations on Study (for 2008/2009) covered only part of activities that are covered with the current one (for 2010/2011). Also, Book of regulations on responsibilities and penal measures¹⁰ was prepared only after first such incident was reported to Professional Council and had to be resolved using only Statutes and Book of regulations on Study. Ethical Codex¹¹ and other regulatory documents followed, respecting goal 10 of UCACE's Strategy. To this end UCACE have prepared and uses:

- **9 Books of regulations**
- **3 Rules of conduct**
- **16 Documented work procedures**
- **20+ Formal templates**
- **Integral Development Strategy** of UCACE for period 2009 – 2013
- **Integral action plan**
- **Annual operating plans**

Development of policy documents started also relatively early. First short term and, if evaluated from present perspective, incomplete Development strategy was prepared in November 2008 by then President of Managing Board who used most of it as his operating program some half year later to win elections for Dean (institution was managed by temporary Dean for the first year of its operation). The short term Strategy was accepted by Managing Board in December 2008 and its results were discussed and accepted as per *Implementation report on short term development strategy for period November 2008 – September 2009*, during Managing Board meeting in November 2009 when new Strategy (2009 – 2013) was also accepted. Stated new strategy was prepared as integral document including three policies listed in preceding paragraph with detailed QA goals and tasks scattered through few strategic aims.

3.2.3 Resources

For new and unproven private higher educational institution operating within already described Croatian higher educational area, resources required to reach highly set quality goals are even more important in its early days than documented quality system and well elaborated strategic and development plans. UCACE for that reason invested significant energy, resources and financial means during its first year of operation (considered by its Managing Board as very early stage of development) in order to build them. During that period, UCACE managed to:

- Equip and move to high quality new facility, allowing us to have complete educational process organized in one place. By doing so UCACE's students and staff got much better working conditions compared to academic year 2008/2009 when lectures were organized on FER, Exercises and Labs in Algebra's facility (Maksimirska 58a) while most of the teachers, Dean and Managing Board was situated on third location in Savska 66, Zagreb.

¹⁰ <http://www.racunarstvo.hr/studij.aspx?id=1309>

¹¹ <http://www.racunarstvo.hr/studij.aspx?id=1311>

- Purchase new equipment in order to modernize its labs in order to be able to organize high quality training for two parallel generations of students and to support work of new employees. With more than 100 PC's for students and more than 1 PC per each staff member in Ilica facility, UCACE reached acceptable standard supporting future enhancement of overall quality.
- Reach agreements with external training partners (IBM, Microsoft, Cisco, Sun, Oracle, IPMA) in order to acquire software licenses for its equipment and for students and to get training resources that can be partially used for labs and exercises in order to prepare students to reach set learning outcomes and also industrial certification.
- Purchase, implement and further develop IT System (Infoeduka) supporting its complete educational process and serving already in that early phase as the infrastructure for future robust Quality Assurance system. In its original form Infoeduka had all options and tools contained within ISVU System that was provided free of charge to all accredited institutions, and more. Still, we decided that it is worth investing financial and other resources in that solution and develop it further in order to once have competitive advantage compared to other institutions using ISVU and also reduced administration and number of required administrative staff.
- Prepare application for Pilot project with NVAO in order to support development of its internal QA System.
- Assemble Economic Committee in order to get constant and sustainable contacts with most significant employers, necessary to support UCACE's further program development but also its students in terms of final projects and work placement.
- Support scientific and professional work of its prospective teachers and their advent on national and international scientific conferences in order for them to reach prerequisites to be elected teachers.
- Invest in development and production of 12 handbooks for courses toughed on three first semesters.

If present situation at UCACE is analyzed from the perspective of resources required to reach set quality, already listed should be amended with:

- Operational Career Center supporting study, work placement and employment of UCACE's students and capable of supporting students with disability through involvement of external experts.
- Developed 31 handbooks and training materials for 5 out of 6 semesters.
- 30 employees, 7 full time employed teachers.
- Infoeduka system fully integrated with internal financial system of Algebra group and capable of data interchange with Algebra's ERP, LMS and testing infrastructure. In respect to QA it includes:
 - o System of student on-line surveys with reporting subsystem
 - o System for constant student assessment monitoring able to distinguish each point (not ECTS) scored by the student per assessment criterion and learning outcome
 - o System for monitoring and reporting on realized education according to detailed lecture plan, able to distinguish each lecture and topic and associate to them students who were attending
 - o Different reports on students and teacher's performance, enabling comparison and back office analysis
 - o Subsystem supporting analysis of teachers and assistants work load
- Variety of teaching and students resources described later in chapter 3.3.3

Taking into account that we expect total of some 230 students to be enrolled at UCACE in 2010/2011, we think that available resources can support desired level of quality and serve as a foundation to further development.

3.2.4 Targets

UCACE's targets concerning quality are elaborated in its Strategy under Strategic aims 1 and 2 as already mentioned in chapters 3.1.2 (targets concerning quality of education) and 3.2. (targets concerning QA System). They are further developed within:

- A) Action plan
- B) List of UCACE's KPI's

Persons responsible to measure and monitor KPI's, as well as the source of relevant information are designated within KPI list.

3.2.5 SWOT

Table 4 shows strengths and weaknesses in terms of policies and funding but also possible threats and opportunities.

Internal	Strengths	Weaknesses
	<ul style="list-style-type: none"> - Experience of UCACE's founder and management structure to prepare strategic development documents and policies respecting real requirements of educational market, - Strong position of Economic Committee, - Quality culture inwrought in value system of UCACE's staff, - Financial strength of Founder and willingness to support development of UCACE. 	<ul style="list-style-type: none"> - Lack of own experience and understanding of overall educational cycle in higher education by UCACE's staff - lingering development of some policy documents, - Current income insufficient to support faster development unless co financed by founder. - Lack of institutions' brand and market position that will attract more students and increase income, required to accelerate further development, - Absence of additional graduate program what necessitates future investment of resources in order for UCACE to become fully attractive to prospective students.
External	Opportunities	Threats
	<ul style="list-style-type: none"> - Established relationships with the Industry, - Other purposely omitted. 	<ul style="list-style-type: none"> - Financing system of public higher education in Croatia, - Too slow change of public perception of private higher education,

Table 4. – SWOT analysis in terms of policy and funding

Two general types of weaknesses can be perceived; lack of own experience and knowledge regarding full higher education cycle and insufficient UCACE's income required for faster development.

3.3. Quality of education

Quality of education was almost a mantra that once in the past became code of operation governing all decisions of UCACE's founder, making it finally top provider of adult ICT education in Croatia. Same principle was respected by UCACE's management from the institution's very beginning. It was used when market analysis was conducted in order to prepare training program, it was strongly incorporated in UCACE's first short term development strategy, in approach governing development and availability of learning resources and also in selection of teachers and other experts involved in program production and teaching.

First problems in respect to quality of education were encountered while assessment and other educational criterions were discussed with teachers that would teach six courses during the first semester of academic 2008/2009. Lack of experience in higher education and absence of written recommendations and rules of conduct for teachers required too extensive involvement of UCACE's managing structures in order to organize educational process on expected quality and organizational level. To put it simply, teachers were more experienced than the institution and they tried to maintain approach and procedures they used to use in other higher educational institutions they already worked for. That reverted focus of UCACE's management from development of infrastructure to policy development, preparation of guidelines for teachers and upgrade of Infoeduka to support UCACE's educational approach funded on full implementation of Bologna recommendations and FER's experiences.

During that period we at UCACE gained significant experience which helped us prepare more elaborated policy and regulatory documents depicting our vision, that followed.

3.3.1 Program design and learning outcomes

UCACE's program was developed as a result of two extensive market and industry researches, backed up with involvement of external and internal industry and educational experts and FER's program team, as already mentioned in chapter 1.2. Approach used in program preparation significantly differed from accustomed approaches that were used to prepare some other professional higher educational ICT programs in Croatia. In contrast to professional higher educational programs in ICT that already existed, we wanted to really listen to industry and decided to respect their recommendations.

Stated determination was inspired also by deeper insight into ICT labor market got from:

- CEA-ICT in form of *Analysis of the Croatian ICT Industry, 1999 – 2004*, prepared by IDC Adriatics in 2006 and interviews held with CIO's,
- CCE's report showing economic parameters of the industry (Income, firm sizes, number of employees,...),
- publicly available admission quotas and number of graduates on Croatian Universities and Colleges published annually by Crostat.

All aforesaid inputs led our program team to conclusion as follows; although there had been lack of highly educated ICT experts on Croatian labor market for at least 7 years, it was even more significant in the area of more applicable (industrial certificates would be an asset) experts with Bachelor's degree in ICT.

When all stated inputs were taken into account, program design was done in respect to skills required by the market and the industrial certification pathways, all transposed to learning outcomes on the program level, separately for System¹² and Program¹³ Engineers. As already stated, ASIIN recommendations were fully respected, EUCIP structure was closely analyzed and EUCIP Core was incorporated within the program while international developments in the field were also seriously considered (Norwegian School of Information Technology, Oslo; Institute of Technology Tallaght, Dublin; Griffith College, Dublin;...). Finally FER's expert team made revision of the program and issued positive recommendation that was used as supporting document during the process of program initial accreditation made by National Council for higher education.

Although stated may look like a simple and non complex task, this approach took us much more time and effort compared to commonly used Croatian principle of "adopting" university programs or copying already existent Professional ones. Therefore, UCACE ended up with 50 courses out of which some 70% did not exist in Croatian higher educational area and other 30% had some similarity with courses already lectured in other local institutions.

UCACE's study program was initially prepared and fully described accordingly to then valid Sub law on standards and criteria for higher educational institutions foundation (Official Gazette 09/2005) and Sub law on standards and criteria for quality and efficiency assessment of higher educational institutions and programs (Official Gazette; 09/2005) and was published on our web page and in printed student brochures¹⁴. As stated in chapter 1.1., UCACE's program was formally accredited by MOSES on 16th of Jun 2008 and is delivered since to full-time and part-time (working) students using the same methods and approaches as well as the same number of lectures but only in different daily / weekly schedule.

Aforesaid legal acts were derogated in 2009 by the ASHE's recommendations for initial program accreditation stipulated in Act on Quality Assurance in Science and Higher Education (Official Gazette 45/09). In order for UCACE to comply with the new act, each course description was recently amended by its teacher or course expert team using:

- Initially prepared Learning outcomes (LO) and educational goals on the program level,
- Detailed template for course definition including (course name, ECTS, number of lectures and exercises, educational goal, course contents, (intended) minimal and desirable learning outcomes, detailed training plan, assessment criteria),

¹² <http://www.racunarstvo.hr/studij.aspx?id=1256&idc=99450>

¹³ <http://www.racunarstvo.hr/studij.aspx?id=1257&idc=99457>

¹⁴ <http://www.racunarstvo.hr/Uploads/dokumenti/Katalog%20Visoke%20škole.pdf>

- Book of recommendations for preparation of training programs and courses upon learning outcomes and educational goals principle,
- Guidelines for courses setup and conduction of training for teachers

UCACE's Professional Council decided in Jun 2010 that the course definition template and the Guidelines for course setup will be further amended in order to also introduce desirable learning outcomes in addition to mandatory (intended) minimum LO, required by current Act on Quality Assurance.

3.3.2 Student Assessment

Minimal (intended) learning outcomes on program, module and course level are sole written and verifiable pledges educational institution can give to its prospective students and their employees in respect to students' achievements at the successful end of study process. In contrast to them, curriculum, course contents and even educational goals are just wishful thinking of professors in respect to students' skills and knowledge at the end of the teaching process.

We at UCACE believe that assessment guidelines, policies and models greatly determine knowledge, skills and hence employability of our students. In that respect we made them transparent and public, while our assessment models and criteria are simple and organized strictly in accordance with learning outcomes, representing publicly given pledges.

Assessment model used by UCACE is criterion-referenced with implemented continuous point accumulation, supported fully by Infoeduka system.

In order for student assessment to be representative, at least 75% of possible points during continuous assessment (equals 75 points) must be awarded for assessment elements organized in controlled environment, (mid-term exams, oral exams, standalone lab exercises,...) and other 25% can be awarded for; essays, homework, seminars, attendance and other activities.

Starting from academic year 2010/2011 intended and desirable LOs are introduced to all courses and they are published together with the list of questions and typical examination exercises which are each coded per LO. For each summative examination organized in controlled environment (i.e. mid-term exam) number of required points per LO is published in order for the student to pass the exam. Each mid-term exam question is designated with the LO code in order for students to have clear picture what they have to do in order to pass.

Semester at UCACE is organized in 3 blocks each lasting for 5 weeks with at least 2 weeks off in between them for mid-term exams, as already described in chapter 1.4. During the semester, formative and summative assessments are combined. Results of formative assessments are not recorded as a part of continuous assessment, but are used for students and teachers as learning aids.

Students are assessed by the teacher in charge of the course. According to the article 31 of the Book of regulations on study, student not satisfied with the result of assessment process can make official complaint. In such case new exam will be organized, this time by the examination committee appointed by the Dean, while at the same time complaint will be also reviewed by CQ as per Book of regulation on Quality Assurance. If even after 3 attempts to pass the exam, student is not successful, examination committee will be formed as stipulated in article 29 of the Book of regulations on study and exam will be organized as described in documented work procedure for such exams.

Assessment results per each course and assessment models used will be regularly reviewed by CQ and compared with students' reactions stated in survey, since they contribute to several KPI's.

3.3.3 Learning infrastructure and resources

In order to support high quality of studying process, UCACE developed and purchased in the past two years number of learning resources and infrastructure as follows:

- Infoeduka IT system – on line infrastructure for students equipped with; personalized week schedule, internal messaging subsystem, digital announcement board, forum, repository of

documents, library subsystem, subsystem for exams registration and student profile containing; accumulated points, grades, attendance, financial balance, list of borrowed training equipment, list of passed certification exams, repository of formal templates, admission process results, contact data, ...

- LMS system with training materials (now for 5 courses), on-line testing system for formative purposes, On-line servers with software systems supporting individual work and exercises (i.e. Microsoft TeamSystem, IBM Rational, ...), mail servers and mailboxes, Web conferencing system supported with audio and video equipment in lecture rooms,
- 2 networking labs with most advanced technology supporting system engineering study program,
- Library equipped with PC's for learning and individual work (total of 8 seats, 4 with PC's and available 4 notebook PC's for others) and with total of some 1000 books, subscription on 8 magazines and on-line databases. If certain book, not published by UCACE is used as a formal literature for a course (i.e. Math, Economy, English language), Library is equipped with at least one issue per each student. If specific book is a recommended additional literature for the course, but not mandatory one, copies for at least 2% of students are available. All books published by UCACE (Algebra) are distributed free of charge and left to all students. Study room is also equipped with server infrastructure (total of 6 servers and data storage) that can be used for students to exercise. Work of library is supported with Infoeduka system and is in detail defined in Book of regulation on Library.
- Career centre – in charge of career counseling and support to study and employment; from the admission request of potential student, via motivation and predisposition evaluation as a part of admission process through constant work with students, organization of contacts with employers in order to organize work placement and participation in projects with the industry to support to employment of UCACE's students and maintenance of contacts with alumni. Each student will at least once each year have conversation with Career centre employee to discuss his / hers career pathway, selection of available elective courses, recent situation on ICT Labor market, possible projects and work placement,... All counseling and conversations within career centre will be documented within internal student profile maintained in ELAP system (Electronic Academic Portfolio) – some system options are still in development.
- ELAP system - on-line student portfolio connected to Infoeduka and maintained by Career centre. Contains tools for students, career centre, teachers and employers; personal student profile, student CV in Euro pass form and other documents relevant for employment, list of received recommendations (formal template for recommendation with evaluation grid is used), list of educational achievements (grades, certificates..), list of active job propositions and open research projects where participation is possible,... System is currently in beta phase and some options are still in development.
- Limited free printing and copying is available for students within the student office and study room.

In addition to listed resources, infrastructure already mentioned in this report (equipment and facility) should be also taken into account as a facilitator of learning success. No additional fee is charged to students for use of any abovementioned resource.

As additional learning resource, work placement and development of final project is already assured for at least 20% of our final year students within partner companies represented in Economic Committee and others. If additional 40% of UCACE's students, who are already employed (mostly in ICT) are also taken into account (they will mostly do their final projects in companies of their employment), it is safe to say that some 50% of our students will have chance to get involved in development projects within the industry. Work placement is regulated within Book of regulations on final project and final exam and additionally with three party agreements between UCACE, student and the company.

In respect to international cooperation and student exchange, ERASMUS fund and reached bilateral agreements with foreign institutions mentioned in chapter 3.1.2. of this report will be used in order to achieve stated KPI. Through the same cooperation and agreements with global technology vendors, foreign lecturers already visited (two in 2009/2010) and will visit UCACE. Department for projects and international cooperation will support further cooperation initiatives on institutional level and will support mobility of teachers and students.

3.3.4 Teaching staff

Within priority aim 3 of UCACE's Strategy, which represents HR Policy (and partially research Policy), 8 out of 11 specific tasks cover development of teaching staff in various aspects. It is so because importance of high quality teaching staff from our perspective cannot be overemphasized, while on the other hand creation of such a team takes years of work and investment. As mentioned in chapter 1.6. of this report, UCACE managed to form internal team of 6 full time employed teachers and 5 full time employed assistants in the past two years. With stated number of internal teachers we managed to cover our 123 students and will be able to do so also for anticipated 200 + that we will have enrolled, starting from September 2010. If only full time teachers (with educational title) are taken into account, without 4 full time assistants and additional 30 part time teachers and 15 assistants, our teacher to student ratio is now 1:17 and will be 1:25 in September what still satisfies our KPI's, and more than satisfies article 6, paragraph 3 of Sub law on Standards and permission for higher educational activity, pursuance of study program and accreditation of higher educational institutions (Official Gazette 24/10).

UCACE's plans for further employment of new teachers elaborated in its HR Policy and formulated also through KPI's will have to be sustained with number of enrolled students. In present circumstances, UCACE will be more oriented to build and upgrade skills and competences of its present employees through internal education for teachers (methodical and didactical), Phd studies and tailored short education programs, as planned and documented within Staff education plan and to foster research and scientific work.

Formal procedures for teachers' selection and employment as well as the procedure covering elections of teachers to educational titles are defined in Book of regulations on teachers' election to educational titles and constant teachers' training. Stated regulation prescribes required:

- formal education of prospect teachers elected to educational title,
- evidences of scientific work, in line with election criterion brought by Teachers Election Committee within CCUUCAS,
- teaching experience,
- other relevant teaching skills and competences, especially training quality measured during mandatory trial lesson.

In respect to promotion of teaching quality and overall quality culture article 40 of aforesaid regulation defines, in accordance with HR Policy, criterions that are used in order to decide on financial and other prizes for successful teachers.

3.3.5 Monitoring of educational achievements

From UCACE's perspective, private training providers charging tuition fees to their students should act even more socially responsible compared to public institutions, starting from the admission process till the employment of their students and beyond. That idea shaped number of our documented work procedures and Book of regulations on Quality Assurance. It is also transposed to 3 KPI's.

Process of monitoring starts with admission requests by prospective students, filling in on-line form using public Infoeduka's admission subsystem. As soon as their data and results of secondary education are filled in, UCACE starts tracking quality of its future students. Process becomes more precise once results of high school state graduation exam or UCACE's entrance examination are also added to the system.

Monitoring of students' success rates is constantly done for each course at the end of each mid-term exam using Infoeduka system. If any deviation is detected, Dean's assistant for education will contact teacher and discuss with him possible origin of the problem and possible remedy.

Student's progression to higher semesters is also monitored and checked against admission process results in order to better shape entrance examination process (if required) and to upgrade specific courses or assessment methods. Stated results are prepare by CQ at the end of each academic year and are discussed within Management Board , Professional and Economic Councils. Profile of student population is observed also per student by; students themselves, institution financing study or parents, teachers and also employees of Career centre. Underperforming students will be automatically contacted by Career centre representative and possible scenarios in order to increase their results will be discussed.

3.4. Performance measurement

In UCACE performance measurement is used as back coupling to the QA system in order to measure and monitor achieved results against set desirable thresholds and also as an incentive to change and upgrade procedures and used QA methods (or to change / upgrade set desirable results and develop new ones) as institution and market develops. In order to measure performance and thus quality of its work, UCACE developed and uses three methods:

- A) Satisfaction of internal stakeholders
- B) Satisfaction of external stakeholders
- C) Accomplishment of KPI's

3.4.1 SWOT

Table 7 shows strengths and weaknesses in terms of procedures in operation, quality of programs and education but also possible threats and opportunities.

Internal	Strengths	Weaknesses
	<ul style="list-style-type: none"> - Study program prepared and maintained in respect to ICT industry requirements, - Experience in maintaining and enhancing quality of education, - Number of documented work procedures prepared, - Infoeduka system supporting all functions of the institution - Career centre, - Each course supported with handbook in Croatian language, 	<ul style="list-style-type: none"> - More than one third of our courses were never lectured and they still do not have structure finalized upon real experience in education, - With 35 completely new courses we still have to invest significant efforts and resources to prepare books that are on high qualitative level, - Absence of additional graduate program, - Newly hired teachers, and especially part time experts are sometimes underperformers despite evaluation done during their selection. When they are changed for unsatisfactory results, complete process should be done again with their successors, deteriorating overall quality.
External	Opportunities	Threats
	<ul style="list-style-type: none"> - Once graduate study is introduced, our graduates will be even more self-employable ... - purposely omitted 	<ul style="list-style-type: none"> - If Quality Assurance systems are not introduced fully also to other, higher educational institutions and students are able to get their diploma easy, with questionable skills and knowledge, there is short term threat that UCACE, strictly maintaining its standards, can lose some potential students to such competitors.

Table 7. – SWOT analysis in terms of procedures in operation, quality of programs and education

Most of the stated weaknesses originate from the fact that UCACE is still in the phase of early development characterized by production of training materials, building of teaching staff, development of IT and other infrastructure and fine tuning of its course execution plans. Some of them cannot be remedied prior to UCACE's own experience is build (it is hard and dangerous to skip steps in institution's development) and other will be reduced by additional investment yielding in delivery of results faster (i.e. ELAP). Stated threat, noticed from our own experience during admission process, is also side-effect of still undeveloped quality culture and lack of social responsibility exhibited by some institutions.

3.5. Quality improvement

Well designed, documented and holistic QA measures supporting all significant institution's processes still have no effect if they are introduced only in order to pass formal assessment (i.e. re-accreditation) and if management have no determination, vision or courage to benefit from them through constant, and if required, serious improvements and changes.

In that respect, UCACE's weakness of being new and non established institution served to the management actually as a strength in order to introduce climate and culture of responsibility for quality on personal level from the very beginning. UCACE, originating in a way from market oriented adult and life long learning education, introduced reactions to stakeholders' inputs (or quality improvements) even before they were documented in the work procedures, and when CQ and Policy on Quality Assurance were still distant future. UCACE now has quality improvement procedures incorporated in a number of

internal regulatory acts and in documented work procedures, in accordance with its vision. Activities and recommendations for improvements originate from CQ and are distributed to all management structures.

3.5.1 Program improvement

Constant program improvement is important strategic goal set in tasks 13 and 33 of UCACE's Strategy. In that respect, program is constantly evaluated as already described in chapter 3.4. of this report and when serious changes are to be made, Program Panel will be set up coordinated by Economic Committee to handle such task. Program structure for existing and new Graduate program was discussed by Economic Committee, while fine tuning within existing courses is coordinated by Professional Council upon received CQ recommendations. To this end, internal structure of one course was changed for some 20% by Professional Council.

3.5.2 Improvement of education

Improvement of education is also important strategic goal set in a number of tasks within the Strategy, and its numerous aspects are documented in work procedures and internal regulations. It originates from CQ upon periodic performance measurement (as stated in chapter 3.4.) and also from received compliments or improvement recommendations given by internal or external stakeholders.

During first two years of UCACE's existence, number of improvements in respect to education were undertaken. They are as follows:

- 3 underperforming teachers were dismissed after 1st semester of 2008/09, 2 after 1st semester of 2009/2010 and 1 after 2nd semester of 2009/2010,
- Total of 3 books were significantly upgraded/changed after being used in education for the first time and all other books were slightly improved,
- Infoeduka system was improved with the number of new tools and some existing tools were also improved upon received recommendations,
- Formal procedures and supporting documents for teachers were improved significantly compared to its first versions,
- Meetings with 8 professors were organized upon results of student surveys in order to reach improvement,
- Weekly schedule of study was changed in respect to students' recommendations and 2 week off for mid terms was introduced for the first time in 2009/2010,

UCACE used external reports and data (i.e. FER's program assessment reports 2008 and 2010, employers survey 2009 and 2010) in order to improve its educational process and / or program. Such data is published.

3.5.3 Improvement of resources

As with education and program, improvement of resources (Infrastructure and Human) are also strategic aims detailed within the Policies. Infrastructure improvements were significant in the past two years and are already mentioned within this report.

Improvement of human resources is further stipulated within Book on Systematization and Organization of work places and responsibilities and Book of regulations on teachers' election to educational titles and constant teachers' training both backed up with corresponding Annual education plan. Sole increase in number of employees and especially teachers, their participation on local and international conferences and newly published scientific and research papers could be interpreted as measurable HR improvement.

With Career centre and Student section (internal student organization), both introduced in 2009, UCACE improved part of its student support services. Further improvement was also made in 2009 when regular free use of Gym for students was introduced. In 2010 students were given the opportunity to borrow note book personal computers for home study, free of charge.

3.5.4 Expected future improvements

Most of the expected organizational and infrastructural improvements are foreseen within the Strategy.

3.6. Organizational structure

Organizational structure of UCACE was shaped by one external and two internal factors. National legislative in the field of higher education imposing structure and responsibilities characterized by Professional Council, Managing board and the Dean, stipulated also in UCACE's Statutes, was certainly external influencing element. On the other hand determination towards Quality and Cooperation, stated in our Vision and Mission, were other two internal factors.

3.6.1 Responsibilities and decision making process

In order for internal organization to be effective, both in respect to every day operations and policy development, responsibilities of employees are stipulated on personal, and also on the level of organizational unit, (i.e. department) while responsibilities of external stakeholders are just mentioned on the organizational unit level.

Responsibilities in respect to QA system are not separated from other responsibilities on personal employee level because most of the employees are one way or another involved in activities closely connected with QA. Also, Quality assurance procedures are incorporated in specific regulatory documents (such as Book of regulation on QA) but are also stipulated in documented work procedures that are not fully connected to QA activities. When, for instance, some information relevant for QA is required from employee working in specific department (i.e. marketing) he / or she is for that task responsible to President of CQ and not to his superior in formal organization (head of marketing department). It can be concluded that in a way, QA is incorporated in UCACE's organization using a matrix organizational model.

Decision making process is clear and set within published Statutes. Recommendations got from CQ and Economic Committee are progressed to the highest managing structures in order to improve procedures and even policies, posing altogether solid grounds for further development (on operative and policy level). As a result of management decisions, action plans may be amended, new organizational rules may be introduced and different decrees may be issued. As a small institution with only one program, UCACE do not suffer of mixed visions, split responsibilities and unclear decision making processes what may be a problem in bigger institutions with high level of internal autonomy passed to organizational or program units

3.6.2 Involvement of stakeholders

As already described within this report, all relevant stakeholders (internal; staff, students and external; employers, partners) are involved in the cycle of evaluation and improving internal quality. They participate not only as initiators of the change (i.e. student or employer filling in the survey), but are also involved in decision making process in respect to operating procedures (Students in; CQ, Professional Council, Employers in Economic Committee) and policy (Committee for Strategy).

3.6.3 SWOT

Table 8 presented on the next page shows SWOT analysis of UCACE's organizational structure:

	Strengths	Weaknesses
Internal	<ul style="list-style-type: none"> - Experienced departments for... - Organizational structure populated with many top class employees, 	<ul style="list-style-type: none"> - Lack of experience in international research projects (i.e. Framework 7,...), - Some internal procedures have never been tested in real environment,
External	Opportunities	Threats

	- purposely omitted	- If number of students is not increased in the next years, UCACE will not be able to develop its internal organization and implement new structures fast
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Table 8. – SWOT analysis in terms of organizational structure

4. CONCLUSION

UCACE's strong determination towards quality can hardly be overseen. It is best visible in already achieved improvements and development; from training materials to facility and international project in QA, to name just a few. It can be also red from UCACE's organizational structure, internal procedures, its vision and strategy. It was here all the time, even before first short term strategy was brought and its vision depicted. Origin of such determination ranges from social responsibility and obligation to deliver value for money to sense of dignity and responsibility for development of national economy. It was and still is strong intrinsic motivator initiating further development.

Its implementation evaluated in this report, as mentioned in the preface, is a snapshot taken in time.

From our perspective, UCACE managed to incorporate its determination and vision in every day work and operating procedures to the satisfactory extent, while its awareness of weaknesses and tasks left unfinished will certainly serve as incentive and obligation to further improvement.

5. APPENDICES

1. List purposely omitted