Evaluation and accreditation of informatics in Latvia

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Content

1.Developments in Latvia relating to the Bologna Process

Legislative reforms and recent changes

Latvia participates in the Bologna process from its beginning in 1999. Latvia has signed the Bologna Declaration and has participated in all main activities of the Bologna process and creation of EHEA.

1. During the period of 2007-2009 a draft Law on Higher education (HE) has been prepared which provides legal background for several important changes in the implementation of the Bologna process action lines such as:
- establishing a national qualifications framework,

- introducing a learning outcomes based approach and establishing internal quality assurance systems in higher education institutions which are using learning outcomes as a basis for quality improvements,
- creation of a system for recognition of prior learning, takes up the main principles of the Lisbon Recognition Convention into national legislation,
- replacing the national credit system with ECTS which means a change of the volume of one credit- Latvian credit used to be 1,5 times bigger than an ECTS credit (i.e. the yearly workload of students was 40 Latvian credits). As well, according to the draft law, credits will be linked with learning outcomes.
- allowing creation of joint programmes, establishing and recognition of joint degrees.
The law has been accepted by the Government and in the first reading also by the Parliament. This allows forecasting that the law could be adopted in the year 2010.
 2. Higher education institutions have further consolidated the three-cycle degree system.
 3. A major project funded from EU Social fund has been planned for the implementation of all the Bologna action lines listed in point 1.

Three-cycle (Bachelor, Master, Doctor) system

First and second cycles have been introduced already before 1999 and shaped to the Bologna principles soon after changes in Latvian legislation adopted in 2000 to introduce Bologna reforms.
According to national decisions, medicine has been left out of the Bologna structure. Apart from   that, a limited number of programmes, especially in teacher training, remain as 4-5- year programmes without division in two cycles. As well, there is some number of post-bachelor programmes that prepare for profession and lead to graduate or postgraduate diplomas.

90 % of all students are enrolled in the three cycle degree system in 2008/09.

The transition to a three-cycle system has been carried out in the whole higher education system already several years ago.
1) Besides master's programmes the law still allows professional post-bachelor programmes that lead to a professional postgraduate diploma rather than a master's degree in engineering and informatics, but this possibility is not used in informatics.
2) programmes in medicine and dentistry are not organized in Bachelor-Master cycles but stay 6 or 5 year programmes respectively.

All informatics programmes has been transferred to the two-cycle system.

In Latvia all (100%) of those doctoral candidates, who are enrolled in the status of students, study in the doctoral programmes.
However, it is still also possible to defend doctoral thesis on the basis of research done working at a research institution.
- Official full time duration of the doctoral programmes is 3 years but the actual time required to defend thesis is often prolonged to 4 years.
- Doctoral study programmes may have taught courses but the main emphasis is put on the research work. The taught courses may include high-level courses of the chosen subject, as well as courses in related subjects, in foreign language, in research methodology of the particular field of research, training in writing scientific publications and thesis.

- the supervisory and assessment procedures:
regular meetings with the supervisor of the doctoral studies,
annual (or more frequent) attestations of doctoral students where the
progress in theoretical studies, research work and thesis writing is
assessed
- The qualifications framework (QF) in Latvia has been developed and it
includes a descriptor for the doctoral degrees. However, the QF has
not been officially approved and therefore the doctoral studies are not
yet linked with qualifications framework. According to the draft Law on HE doctoral programmes
will be included in the national framework and
will be linked to learning outcomes.
- Information on whether interdisciplinary training and the development
of transferable skills are integrated in doctoral studies:
This may vary from case to case between institutions or even faculties
within one institution. In some of them interdisciplinary training is well
developed and transferable skills are specifically taken care of, while in
others the emphasis on the research component is so great that the
training component is little and then usually no specific activities are
taken to e.g. develop transferable skills.
- In doctoral programmes workload is measured in credits, including both
the taught courses and the independent research component.
- The final introducing of learning outcomes and qualification framework
is foreseen after approval of the new Law on Higher Education.
- Like other study programmes, doctoral programmes are licensed and
accredited.
- Status of the doctoral students: those who enrol in doctoral studies at
universities have the status of student. i.e. if they study in state –
financed study places they may receive a scholarship. Doctoral
students are not regarded as early stage researchers, i.e. they do not
receive a salary (they may work at the department where they are
studying but ten they will have additional tasks to fulfil as employees).
Doctoral students may receive also student loans.

Higher education institutions play a major role in research in Latvia. The
integration process of the former research institutes of the Academy of
Sciences into universities started already in 1990s   and went on
afterwards. In 2005-2006 particularly many research institutions were
officially incorporated in the universities. 53% of researchers are employed
by the universities and other higher education establishments.

State budget subsidies for state-funded doctoral study places are subject-
dependent. They are calculated per 1 doctoral study place using a
formula. The amount allocated is triple compared to the allocation for a
bachelor study place in the same field. At the same time, fee-paying
students can also be admitted on top of the state-funded study places. The
fees paid by those students are set by the higher education institutions
themselves and are usually close to the amount that state allocates for
state-funded study places. .
Student loans are available also for doctoral students.
In the recent years Special support grants are available from European
Social fund for the doctoral students and early stage researchers.

The main way how to enhance employability of graduates is through
preparing the profession standards and aligning programmes with those

standards. The above is required by the Regulations on Accreditation –
any professional programme (including professional bachelor and master
programmes) of studies is assessed against profession standard.
profession standards should be worked out and written by the employers.
in practice they are rather developed by educators in cooperation with
employers because the educators are the ones who need that there is a
profession standard in place at the time when a programme has to be
accredited.

There are no statistical data for graduates of all cycles. However, the
unemployment data of "fresh" graduates from higher education (measured
by State Employment service in October of the year of graduation) in
2005-2007 has been 1,3-1,5% of all graduates. Such outcome seems
quite satisfactory and this might be a reason why there have been little
measures for improvement.
Among the graduates with bachelor degree the fields where the absolute
numbers of unemployed where the greatest were: economics, business
administration, law (where a bachelor degree is not sufficient for the
regulated law professions), teacher training and computer sciences.
However, these are also the fields with the greatest number of graduates.
When the proportions out of the total number of graduates in the particular
field are calculated, the highest level of unemployment is observed for
psychologists (around 5%).

Employers' surveys at least before the end of accreditation period but in
some HEIs regularly on yearly basis, establishing career centres at HEIs,
meetings of staff or students with employers, advertising possibilities for
practical placements in HEIs' websites, 26 week placements in
professional programmes, long-term agreements with employers regarding
work placements, placements organized both in Latvia and, where
possible, abroad.

The preparation of the National Qualifications Framework started
already in 2004, the allocation of Latvian qualifications into Bologna cycles
was clarified and cycle descriptors were prepared

Two issues are needed to finalize the work at QF:
1) legislation which specifically mentions QF, learning outcomes and other
new terms, which means that the new Law on HE and some of the following
Cabinet regulations must be adopted and also some of the A European Social
fund project to be started in first half of 2009, planned to support creation
internal QA systems, formulate learning outcomes, finalize QF, work out the
system of RPL etc.
2) financial incentives are needed. A European Social fund project is planned
which should start in the first half of 2009, planned to support creation
internal QA systems, formulate learning outcomes, finalize QF, and work out
the system of RPL etc.

Quality assurance system

The compliance with the ESG has been discussed at several seminars,
including the one that approved the Latvian National Stocktaking report for
the 2007 London ministerial conference. The general finding was that the
external quality assurance system in Latvia is largely in conformity with the

ESG.
The internal quality assurance systems exist in all HEIs do but to comply fully with the ESG they should be adapted to integrate the learning outcomes approach as a basis for quality assurance and continuous improvement of the study programmes.

A project supported by the European Social fund is planned and should be launched in 2010, which will support creation internal QA systems, formulate learning outcomes, finalize QF, and work out the system of RPL etc.

Legislation change is needed that should foresee establishing internal quality assurance systems, take up the learning outcomes approach as such etc. The necessary changes have been introduced in the draft Law on HE but the adoption of law has been constantly delayed and the law has only reached parliament in August 2008.

Two elements of internal quality assurance that are present in all HEIs in Latvia
1) assurance of the quality of the higher education staff - it is stipulated in the existing legislation and is working in practice. The quality of staff is assured through the requirements for each level of staff positions – professor, associate professor, etc. There is no tenure in Latvian HEIs and each staff member has to be elected anew in open elections after a 6-year period
2) there are systems for internal approval and periodic review of programmes by central authorities of the HEI
3) Many HEIs have programme committees for each programme which review the success of the programme after each yea of studies in order to identify in which areas improvements are needed.
4) it is very common to organize student surveys after completion of either an individual course, a module, a semester or the whole programme. It is however not always clear how the results of those surveys are used as the results are not always publicly known.
5) Apart from the above, all HEIs have established units that are in charge of quality, internal audit and alike. Those units may have established various internal systems related to quality such as management audit, ISO methodologies, risk management, etc.
In such a way, there are many elements of the internal quality assurance in place at Latvia's HEIs. What is still missing from the point of view of ESG the link between the quality assurance of programmes and courses to learning outcomes.

Periodic internal "accreditation" procedures where self - assessment reports of programmes/departments are evaluated by e.g. a senate commission,
yearly submission of revised course descriptions of individual courses,
yearly submission of self-assessment reports after a programme has been accredited (a requirement in legislation)

Formulation of the learning outcomes in the form of competences has just started. For this reason the student assessment criteria are rather traditionally oriented i.e designed to verify that the planned knowledge and skills have been achieved, but not yet operating in categories of

competences

External quality assurance is fully operational since 1996. It covers the whole higher education system and contains self-assesment, external assessment, decision upon accreditation of both programmes and institutions and follow-up procedures for improvement according to the drawbacks indicated

Student participation:
a) in governance bodies - students participate with no voting right
b) students are ALWAYS participating in evaluation teams but mainly as observers, in some cases as full members,
c) student participation takes place through their participation in Senate (25%), senate approves the self-assessment reports

HEQEC (AIKNC) is member of ENQA, EQANIE, INQAAHE, Central and Eastern European network of national QA agencies, Eurasian network of national Quality agencies

Diploma Supplement has been introduced since its interantional approval in 1998 and it is compulsory by law since 2002.

Recognition of foreign qualifications

A system of recognition of foreign qualifications has been developed in Latvia. It is regulated by two laws - Law on higher education establishments (1995) and Law on Education (1998).
Recognition of foreign qualifications or study periods is legislated for in Articles 84 and 85 of the Law on Higher education institutions and Article 11 of the Law on Education. The law does not contradict with any of the principles of the Convention but doesn't specifically mention them either. The principles are directly addressed in the Recognition Manual produced by the Latvian Academic Information Centre - the ENIC centre. It seems to be a suitable solution as, according to law, any foreign qualification is evaluated by the ENIC centre and a statement on recognition is issued. According to law, the above statements have to be taken into account by the HEIs when making recognition decisions. Thus, in practice the principles of the legal framework of the Convention are applied in Latvia. The draft Law on Higher Education will mention the Convention principles The draft law has been submitted to Government for approval and further submission to Parliament for adoption.

The main principle of the Lisbon Convention itself and the CoE/UNESCO Criteria and Procedures is that the foreign qualification is recognized if there are no substantial differences with the appropriate home qualification.
To follow the Criteria and procedures document
1) the principle of substantial differences is embedded into the Latvian Law on Education (1998)
2) The procedure of recognition in Latvia is described in Latvian Recommendation for the recognition procedure which is taking up all the main principles, procedures and criteria of the CoE/UNESCO document (cf. Latvian Recognition Manual published in 2000, www.aic.lv/rec/LV/Expl_lv/br_sp_lv.doc

As regards recognition of joint degrees from outside, Academic

Information Centre is applying the Council of Europe/UNESCO recommendation and for recognising joint degrees in the following way: There is no problem to recognise a foreign joint degree on condition that it is recognised in those countries whose HEIs have issued it.
AIC is recognizing foreign joint degrees if there is no substantial difference between the joint degree in question and the appropriate qualification within Latvian higher education system.

Joint degrees

Another issue is the possibilities to award joint degrees in Latvia
So far Latvian legislation doesn't mention joint degrees. It creates problems to establish joint programmes and award joint degrees, but not to recognize joint degrees awarded outside Latvia that have been submitted for recognition. The draft Law on Higher Education introduces joint higher education programmes and joint degrees into Latvian legislation. Its adoption will make it possible to award nationally recognized joint degrees.

Latvian ENIC/NARIC

In assessment of transnational education Latvian ENIC/NARIC is following the UNESCO/ CoE Code of Good Practice in the Provision of Transnational Education (2001) and Lisbon Recognition Convention (1997). The national legislation tackling transnational education issue is the Law on Higher Education Establishments (1995, amended). Law (article 86) states that qualifications issued in Latvia by branches of foreign higher education institutions   are recognised according to Law on Higher Education Establishments, regarding the Lisbon Convention and Council of Europe, European Union, and UNESCO documents concerning transnational education.
A Foreign HEI may open a branch or a representation in Latvia according to the following regulations: branch should be registered in the Register of educational institutions, it should obtain a licence to start a study programme and their programmes should be accredited in Latvia. In practice it means that a branch of a foreign HEI should operate as any other HEI in Latvia.
There however are problems with Transnational education in Latvia because most of the providers of transnational education do not cooperate in the way foreseen in the UNESCO/CoE Code: they are not transparent, do not provide information on their programmes but rather chose to operate without any legal permission. The transnational education inflow to Latvia is coming mainly from Russia, Germany, UK, USA and the Holy See. However, there is only one state recognised transnational education provider – from the Holy See which has provided all the necessary information and is state recognized by the Latvian authorities. The biggest transnational education inflow comes from Russia. Yet, the branches of the Russian higher education institutions operate in Latvia without any licenses or accreditation.
The current legislation does set rules for the transnational education provision. However the enforcement mechanism of these regulations is not strong enough and it does not effectively prevent the flow of non-registered/ not quality assessed transnational education at the moment. As a result, the holders of qualifications earned through such transnational

arrangements face recognition problems.

Academic Information Centre (the Latvian ENIC/NARIC) functions in recognition have been set by the Law on Education (1998) and Law on Higher Education Establishments (1995, with various amendments in 2000 -2007). Law on education states that AIC institution established by Ministry of Education and Science which provides expertise of foreign educational documents and other activities dealing with recognition of diplomas and international information exchange.
Website of Academic information centre http://www.aic.lv provides information about both - academic and professional recognition, purposes of recognition, legislation, how to apply, how to appeal etc.
        AIC is actively participating in ENIC/NARIC networks – and not only through provision which is being done through the ENIC/NARIC listserv, individually or at international meetings. Latvian ENIC/NARIC staff have participated in a number of European working groups which elaborated the Diploma Supplement and most of the subsidiary texts of the Lisbon Recognition Convention (Recommendations on the Criteria and Procedures, Code of Good practice in the provision of Transnational education, Recommendation on the recognition of Joint degrees and others). Latvian ENIC staff has also often acted in the Bureau of the ENIC network and bureau of the International Committee of the Lisbon Recognition Convention.

ECTS
Latvian national credit system that was introduced since 1998 is a workload – based credit system based on the assumption that student's full time workload corresponds to 40 Latvian credits. Such a system was chosen because it seemed to be rather simple interpret the value of one credit – it is approximately the full-time workload of one study week that sums up to 40 points in the 40 study weeks of a regular academic year (including the examination sessions).
A full transition from Latvian National credit system to ECTS is prepared in the draft law on higher education which, after long debates at various levels has reached Parliament and has undergone the first reading (of 3 readings) in October 2008. There is a chance that the law will be adopted in 2009.

Latvian credit point is 1,5 times bigger than ECTS credit (as in Latvian system 40credits are accumulated over a full-time study year compared to 60 per year in ECTS). Thus the number of Latvian credits should be multiplied by 1,5 to get the number of ECTS credits.

Learning Outcomes (LO)

1. Since 2006 there has been at least one international or national seminar each year to clarify the issues of Learning Outcomes and/or to provide practical examples.
2. Some HEIs take care of the issue of learning outcomes at institutional level.
3. LO are included in the programmes for HE staff training/upgrading which are compulsory for teaching staff once in the 6-year election period

2.Evaluation and accreditation of informatics programmes in Latvia

Study programmes in informatics

There are 47 accredited and 3 licensed not accredited study programmes in informatics in Latvia. Table with information about all study programmes in informatics in Latvia is included *(please find attachment)*.
All 50 study programmes in informatics meet the requirements of Bologna process and EHEA. In total we have 23 academic study programmes (9 Bachelor, 8 Master, 6 Doctor) and 27 professional study programmes (10 1st level Professional, 11 Professional Bachelor, 6 Professional Master). Among them licensed not accredited are 1 Master, 1 1st level Professional, 1 Professional Bachelor study programmes.

All 47 accredited study programmes in informatics in Latvia has been accredited for 6 years (maximum possible) period.

Methodology of evaluation and accreditation of study programmes in Latvia

1. **Main stages of the evaluation and accreditation procedure**
The evaluation and accreditation of higher education institutions and their study programmes in Latvia are organized according to the Standards and Guidelines for Quality Assurance in the European Higher Education Area, accepted by European Association for Quality Assurance in Higher Education (ENQA), and confirmed in the framework of the Bologna process by ministers, responsible for higher education, at the meetings in Bergen, 2005 and London, 2007. According to the Law of Higher Education Institutions all higher education institutions and their study programmes in Latvia should be accredited. The evaluation and accreditation procedures are described in the Rules of Cabinet of Ministers, accepted on 03.10.06., nr. 821.
Main stages of the accreditation procedure are as follows:
- The self evaluation of respective study programme and preparation of the Self Evaluation Report is carried out by the Higher Education Institution.
- Self Evaluation Report and various other documents are submitted to the Ministry of Education & Science.
- According to the existing Accreditation Regulations all above mentioned documents are passed to the Higher Education Quality Evaluation Centre (HEQEC) for the organization of the evaluation.
- HEQEC creates proposal for the members of Evaluation Commission: find possible experts and put together with the proposals for observers from Latvian Association of students (representative from students) and from higher education institution (representative from employers).
- Accreditation Commission confirms the proposal for the members of Evaluation Commission (sometimes with changes).
- HEQEC carries out all necessary arrangements for the successful work of the confirmed Evaluation.
- Evaluation Commission experts during 2 days visit carry out a peer review of the respective study programme or/and higher education institution, prepare Commission Report joint report and individual reports.
- Accreditation Commission after learning Evaluation Commission reports, Self Evaluation Report, comments of persons responsible for respective study programme, in an open meeting adopts the decision: *accreditation for 6 years (for* higher education

institution – for unlimited time period), or - ***accreditation for 2 years***, or - ***refusal to accredit***.

3. The Evaluation Commission experts are asked to relay mainly on their qualification and experience to prepare their conclusions drawing from the following sources:
   - ENQA Standards and Guidelines and other Bologna process, EU regulations and recommendations, national regulations;
   - Self Evaluation Report and other documents about study programme and/or higher education institution (list and CV's of academic staff, subjects descriptions, papers, theses, examination works and reports of students etc. ;
   - evidence of resources and equipment, used for realization of the study process;
   - results of surveys of opinions from students, graduates, employers;
   - various visits and interviews.

4. In the joint final report and in individual reports it is recommended to give an opinion about:
   - goals and aims, of the study programme and higher education institution, **learning outcomes**;
   - organization, assessment and management of the **study process**;
   - qualification of the **staff**;
   - information, equipment, finances and other **resources**, their management;
   - **research**, involvement of students in the research;
   - **quality assurance**, feedback;
   - strong and week points, opportunities and threats (**SWOT**).

5. The joint conclusion prepared by the Evaluation Commission shall be discussed at an open meeting to which all the interested parties shall be invited.

6. After this meeting the final Evaluation Commission Report must be prepared. Every expert has to prepare his (her) Individual Report. Each report should contain motivated recommendation concerning accreditation and future development of the programme and/or higher education institution.

7. Each study programme or higher education institution must be evaluated by at least three experts (at least one from abroad), but one expert can evaluate many different study programmes. Each expert must write an individual report and participate in the creation of the joint report. One Evaluation Commission can evaluate more than one study programme. Evaluation reports, written by experts, may be on more than one study programme (in case of evaluation more than one study programme by one Evaluation Commission) but must contain individual recommendations concerning accreditation of each study programme under consideration.

8. Higher Education Quality Evaluation Centre covers all the expenses and pays the work done by experts. According to the existing regulations, the payment for a working hour of an expert amounts to 17 LVL (approximately 24 EUR). We pay for the site visit (approximately two days) and also for the work done at home (preparation before the visit (approximately one day - 4-12 hours) and writing the report after the visit (approximately one day - 4-12 hours)), the total number of hours being approximately 24 - 40 (from three to five days work, in some complicated cases up to six days). We count one day more for the team leader for the joint report writing and for the leading of the site visit. We count also approximately one day for the site visit of the expert to the branch of higher education institution, if such visit is necessary.

<u>Criteria of evaluation</u>

Two complementary set of the criteria are used for the evaluation: general (the same for all study programmes) and specific (different for a group of qualifications). The task to use specific standards is mentioned in the Questionnaire for Evaluation Commission Experts *(please find attachment).*
The Questionnaire for Evaluation Commission Experts for the evaluation of study programmes should be used as *a plan for the evaluation report.*The evaluation reports (individual and joint) of

the experts should contain all parts, described in the questionnaire. It is recommended in addition to the reports to use as a supplement the questionnaire.

The filled in questionnaire expert should add to the reports – individual and joint. It is recommended to evaluate each of aspects listed in the questionnaire by a mark according to the 4 grades scale and to add a short comment. In case of assessment lower than 4 the comment is desirable, in case of negative assessment (mark 1) – very desirable. It is recommended to add short description about each quality aspect: strengths, weaknesses, opportunities and threats. It is possible to leave without mark a question, about which expert is not competent. The scale for the assessment is: 4 (excellent), 3 (good), 2 (satisfactory), 1 (unsatisfactory).

The 2nd part of the questionnaire (Content and organization of the studies) should be used together with appropriate profession standard in case of the professional programmes. Several profession standarts are used for informatics study programmes, but only (*Programming engineer)* is translated.

Quality of higher education and possibilities to improve it, changing the legislation and improving criteria for evaluation has been investigated in the study "Correspondence of Professional and Higher Education Programmes to Labour Market Requirements", organized by the Ministry of Welfare and carried out by the University of Latvia 2006 – 2008. During the study as the most important criteria employers' requirements to the labour force (key personnel) were established:
-   acquired work experience in related speciality;
-   general and specific competencies (knowledge and skills acquired by formal education for a definite profession);
- work motivation.
Main problems identified by employers were:
      a) insufficient practical skills for graduates of vocational education and professional secondary education establishments - **65%** respondents, for graduates of higher education establishments – **53%** respondents;
      b) insufficient theoretical ability for graduates of higher education establishments - 11% respondents, for graduates of professional secondary education establishments – 21% respondents, for graduates of vocational education establishments – 37% respondents.

Unsolved problems of education (employers):
- payment for the work of trainees; difficulties in finding mentors;
- risks of training not a potential employee, but a competitor.
Unsolved problems of education (education establishments):
- provision of efficiency of practical training; feedback from places of practical training;
- control of level of practical competencies of programmes teachers.

The main findings regarding the profession standarts are the following.
- Profession standards are not harmonised.
- They do not contain attitudes.
- They are too detailed to be in compliance with fast changing demand of labour market.
- Employers believe that labour in Latvia in general has insufficient level of education, professionalism and qualification, and graduates of education establishments have ungrounded high self-appraisal (ambitions).
- Proportion of practical training in higher education programmes is sufficient, incompliant is the quality of practical training.

The main findings regarding the Profession classification.
- Profession classification does not have significant role to estimate and predict demand in labour market.

- Profession classification is not harmonized with other legal acts: the Law on Regulated Professions and Recognition of Professional Qualifications; EC directive 89/48/EEC and 92/51/EEC; the Law on Professional Education.
- Elaboration of framework of classification (in the framework of Bologna process) is not harmonised with development of Professions Classifier.

- The identified possible directions of development are as follows.
    1. Improvement of the system of normative acts, that determines results of professional and higher education programmes.
    2. Improvement of opportunities for acquisition of practical work experience.
    3. Differentiation and amplification of education opportunities.

- Three options for further development of the system of normative acts
    (they all include development and use of European Qualification Frameworks (EQF) also envisaging use of profession standards):
    - profession standards are included in results of education programmes
    - profession standards are combined (merged) into few area standards
    - profession standards are improved by both mutual harmonization and harmonization with EQF and Education Classification

Profession standards should be integrated into few area standards. Could be used eight higher education thematic groups given in the Law on Higher Education Establishments (coincide with Education Classification):
    - engineering sciences, industrial production and construction;
    - social sciences, commerce and law;
    - eEducation;
    - arts (humanities) and art;
    - natural sciences, mathematics and information technologies;
    - health care and social welfare;
    - services;
    - agriculture.

The suggested hierarchy of policy planning documents and legal acts, in case united profession standards should be:
    Latvian National Qualification Framework
    Law „On Regulated Professions and Recognition of Professional Qualification"
    Profession standards
    Qualification
    Positions

Development of the legislation in higher education includes the following now.
    New regulations about profession standards has been established recently, which include _attitudes -_ 27.02.2007 Regulations No 149 of the Cabinet of Ministers of the Republic of Latvia "The Order of Profession Standards Elaboration".
    Draft Higher Education Law is prepared.
    Implementation of ESG and EQF is going on (Bologna process and EHEA)

Comparison of Euro-Inf criteria and methodology with the system in Latvia

The main difference between Euro-Inf higher education quality evaluation system and the system in Latvia is use of learning outcomes (LO). Only general questions about LO are asked to investigate

in Latvia. Each expert can decide by himself about the amount of details to be investigated during the evaluation activities. System of Profession Standards in Latvia is not effective and can not serve as a basis to implement LO in HE. Law on Professional Education and draft Higher Education Law are prepared, but they could be accepted after approximately one year or later. Short analysis of the problems with LO, Profession Standards and Profession classification are described in the previous section.

International and Latvian experts use recommendations to help HEI to implement LO and other components of EHEA, but systematic approach is missing. HEQEC and HEI in Latvia has received many useful recommendations from external experts about possible improvement of study programmes in informatics. These recommendations and the results of Euro-Inf project should be used to improve quality of study programmes in informatics in Latvia. All peer review reports about study programmes in informatics in Latvia are available in internet – www.aiknc.lv (***please find attached the peer review reports, written in English***).

Some study programmes have important problems. For example, opinion of the Evaluation Commission Member Prof. Juri Kiho (University of Tartu, Estonia) about the Study Programme Computer Systems for Professional Master Degree (Code 46481, Information Systems Management Institute, Visit date: June 9-10, 2008):

"*the aims and objectives of the programme are not clearly specified. Therefore it is not possible to understand, to reach, and to control the aims and the objectives. In particular, objectives for the 6 specializations arc not given, it is impossible to decide whether the offered choices of courses for the specializations are adequate or not.*

In course descriptions, prerequisites (nor obligatory neither recommended) are not clearly stated. The paragraph in course descriptions named "Preliminary courses" cannot be considered as a substitute for prerequisites.

*It would be **desirable to have also learning outcomes defined** for each of the course. Some of the courses have essential **overlaps with similar Bachelor-level courses** (e.g. IN4004 Operating Systems Concepts).*

As a general deficiency of the programme content an excessive fragmentation can be observed: amount most of the courses constitute only 2 credits.

The programme content description needs to be redesigned."

Similar opinion about this study programme has **Evaluation commission member Prof. Aleksandras Targamadze (Kaunas University of Technology, Lithuania):**
„*The aim of the study programme is too wide. From one side, the study programme is oriented to train specialists - programmers, from the other side – to prepare high-level scientists-analysts. That is rather difficult to harmonize within one programme.*

There are several courses (Operation Systems Conceptions, Philosophy of Science Development, C++ and Java Object-Oriented Programming, Information Society) that look like general and are more suitable for a Bachelor's level.

For such a number of students (currently – 9) there are too many specializations (Computer Systems Administration and Security, Telecommunication Systems, Intelligent Teaching Systems, Applied Computer Modeling Systems, WEB Technologies Information Systems, Applied Electronics Computational and Information Systems). Specializations are wide and do not possess enough credit points (8) to reveal its subject-matter. Courses are usually small and neighbouring courses could be combined into larger modules.
…
The study programme is prepared according Professional higher education state standard, Profession standard PS 0067 'System Analyst' and after the analysis of many study programmes from Latvian and foreign universities. The analysis could be more analytic. It is insufficient to show differences or similarities and reasons should be explained as well.
…

not enough of orders from industry. It shows that pedagogical staff does not have substantial practical experience. Professional studies need that and I would offer to invite some people - lectures from the industry."

Better evaluation has received bachelor's study programme "Information technologies" of the Daugavpils University on 22 – 23 April, 2009   (the expert team was Professor Aleksandras Targamadzė, Kaunas University of Technology, Lithuania, team leader, Professor Jānis Grundspeņķis, Riga Technical University, Latvia, Professor Pēteris Rivža, Agriculture University, Latvia):

"The study programme is prepared according to the State academic education standard and after the analysis of few study programmes from Latvian and foreign universities.
...
The study programme is harmonized with the principles of the EU open education space and provides possibilities for students and the staff to participate in academic exchange programmes. This possibility is used not enough.
...
The programme is internationally oriented and ready to be delivered in the Latvian, Russian and English (several courses) languages. This enables students to study in the global academical space of the European Union."

One more example concerning the problems with LO is evaluation of the Master's academic study program "INFORMATION TECHNOLOGIES" of Latvia University of Agriculture on 22nd and 23rd September 2005. (Evaluation commission members: Professor em. Jānis Bubenko jr, Royal Institute of Technology, Stockholm, Sweden, Professor Jānis Grundspenkis, RTU, Latvia, Professor Jüri Kiho, Tartu University, Estonia): *"Goals and tasks of the program are not sufficiently clear. Goals and tasks of the different three directions should be further elaborated.*
...
The masters program, its goals, directions, and content must be reconsidered, clearly reformulated and redesigned. Research and international, reviewed publishing in topics related to the programs should be intensified. Steps should be considered in order to increase the number of students in the master program. Quality control using feedback from students should be carried out systematically for all courses."

The general conclusion about the implementation of Euro-Inf criteria for the evaluation of study programmes in Latvia is, that it will be very useful. Existing system must be improved. More specific criteria must be add to the general criteria fixed in the questionnaire and recommendations for experts. System of specific LO, fixed in the Profession Standards, should be changed. The criteria and methodology worked out in the project Euro-Inf should be used to improve evaluation of the study programmes in informatics. Next step could be improvement of the all system of quality assurance of study programmes using the experience in informatics.

Questionnaire
for Evaluation Commission Experts for the evaluation of study programmes
(Supplement to the reports)

The filled in questionnaire expert must **add to the reports – individual and joint**. It is recommended to evaluate each of aspects listed below by a mark according to the following scale and to add a short comment. In case of assessment lower than 4 the comment is desirable, in case of negative assessment (mark 1) – very desirable. It is recommended to add short description about each quality aspect: strengths, weaknesses, opportunities and threats. It is possible to leave without mark a question, about which expert is not competent. *This questionnaire can also be used as a plan for the evaluation report.* The scale for the assessment:
4 (excellent), 3 (good), 2 (satisfactory), 1 (unsatisfactory).
Expert's name, surname: ...
Evaluated higher education institution and study programme: ...
The date of site visit: ...

The assessment of study programmes
(6 main aspects and 16 questions)

I Aims and objectives
Assessment: ....
Comment: ....

1. Possibility to understand, to reach and to control the aims, objectives and learning outcomes of the study programme. Coincidence of the accepted learning outcomes with the content and organization of the studies.
Assessment: ....
Comment: ....

2. Ability of the study programme to achieve the four main goals of the higher education: personal development, support for democracy, creation and dissemination of knowledge, correspondence to the demands of the labour market. Conformity and synergy of the strategy and the aims of studies within the framework of the study programme. Realization of the vision and mission of studies with strategy, according to the opinions of main stakeholders – students, employers and professional organizations.
Assessment: ....
Comment: ....

II The content and organization of the studies.
Assessment: ....
Comment: ....

3. Compliance of the content of studies with the requirements for the degree and / or qualification, conformity with the European and national qualification framework. Compliance of the content of studies with the aims and objectives defined by the study programme.
Correspondence of the practice to the theory. Individual approach, recognition of prior learning and experience.
Assessment: ....
Comment: ....

4. Consistency of the study programme and its parts with the demands to create the common European education space, including the comparison (benchmarking) with at least two study programmes from EU countries. Compliance with the requirements of the legislation.
Assessment: ………
Comment: ………

5. Qualification and professionality of the academic staff members.
Assessment: ………
Comment: ………

III Assessment of teaching and learning.
Assessment: ………
Comment: ………

6. Modern methodology of teaching, a clear statement of results to be expected, problem solving, use of computers, internet, audiovisual and multi media equipment.
Assessment: ………
Comment: ………

7. Counselling and guidance for students, academic supervision and consultations of the teaching staff, increasing of the students' motivation to study.
Assessment: ………
Comment: ………

8. Methods to assess the knowledge, skills and attitudes (acquired in the course of studies possibility to solve problems), their objectivity, conformity with learning outcomes, use to improve the studies. Comparison of the experts assessment of the level of the students' achievements with the prescribed in the study programme level of the students' achievements.
Assessment: ………
Comment: ………

IV The management and support of the studies
Assessment: ………
Comment: ………

9. Respect of the principles of democracy, clear definition of the relations among representatives of the administration, academic staff and students;
Assessment: ………
Comment: ………

10. Cooperation with other higher education establishments, research institutions, international organizations; exchange of staff and students with other higher education establishments.
Assessment: ………
Comment: ………

11. Methodological, informational and technical resources and facilities of the study programme.
Assessment: ………
Comment: ………

V Research (creative) activities of the staff and the students
Assessment: ………
Comment: ………

12. Involvement of the academic staff in the research (creative) activities, up to date character and connection with the content of the study programme, publication of the results of research in recognized international editions (including exhibitions, performances etc.) and / or practical use, innovative activities.
Assessment: ………
Comment: ………

13. Involvement of the students in the research (creative) activities, up to date character and connection with the aims and learning outcomes of the study programme, involvement of the students in national and international research and creative (art) activities (projects).
Assessment: ………
Comment: ………

VI Quality assessment and mechanisms to ensure it
Assessment: ………
Comment: ………

14. Annual self-assessment of the study programme, evaluation of the strengths and weaknesses, changes, plans and possibilities for the development, continuously action of the system of self-evaluation and quality improvement. Compliance of the internal quality assurance system with ENQA Standards and Guidelines.
Assessment: ………
Comment: ………

15. Perspectives (potential possibilities) of successful work of graduates according to their acquired qualification.
Assessment: ………
Comment: ………

16. Readiness of students to further education and personal development. Opportunities and financial guarantees to continue studies in the case of closure of the programme, its re-organization or other changes.
Assessment: ………
Comment: ………

PROFESSIONAL STANDARD

Registration number PS 0227

Profession	**Programming engineer**
Level of qualification	**5**
Description of the employment:	**Programming engineer works in organizations occupied with elaboration, implementation or maintenance of software. Programming engineer can design software according to the terms of functionality, quality and resource capacity, can organise and conduct the work group of programmers, and he/she systematically improves one's knowledge and skills.**

Responsibilities and tasks

Responsibilities	Tasks
1. Coding.	1.1. Read and understand the descriptions of software design; 1.2. Analyse data input and output; 1.3. Configure development environment; 1.4. Write program code according to the design and coding guidelines; 1.5. Construct algorithms; 1.6. Read and analyse texts of other programs; 1.7. Create users interface; 1.8. Debug programs and perform item testing; 1.9. Analyse and optimise the program execution time; 1.10. Document code; 1.11. Create software installation; 1.12. Create the built-in support system; 1.13. Process the modification requirements and problem reports.
2. Design.	2.1. Read and understand the specifications of software requirements; 2.2. Acquaint oneself with the standards of program design description; 2.3. Create and describe the software architecture; 2.4. Analyse different technical solutions and choose the most appropriate; 2.5. Create the conceptual and physical data model; 2.6. Create the realization model (class and/or function hierarchy); 2.7. Construct and describe algorithms; 2.8. Design the users interfaces; 2.9. Prepare the description document of software design.
3. Software maintenance	3.1. Read and understand the documentation and code of the system to be maintained; 3.2. Process the modification requirements and problem reports; 3.3. Make the analyses of modification impacts; 3.4. Make modifications in the software; 3.5. Perform the configuration management of the software to be maintained; 3.6. Systematize the support information, accumulated during the maintenance works; 3.7. Consult the software users.
4. Implementation of the software.	4.1. Prepare the environment for the software installation; 4.2. Perform data swapping; 4.3. Perform the installation and parameterisation of the software; 4.4. Get acquainted with the users documentation; 4.5. Give consultation during the software implementation.
5. Software testing.	5.1. Prepare the testing plan; 5.2. Prepare the testing specification; 5.3. Analyse the program code; 5.4. Prepare the test examples; 5.5. Prepare the testing environment; 5.6. Perform the test examples; 5.7. Put down the process of testing and prepare problem reports; 5.8. Analyse error sources (requirement specifications; design description, etc.); 5.9. Reproduce the errors detected by the user; 5.10. Prepare the testing overview document.
6. Software specification	6.1. Get acquainted with the existent software of the client; 6.2. Analyse the possibilities to implement the requirements.

7.	Preparation of user's documentation.	7.1. Get acquainted with the standards of user's documentation; 7.2. Get acquainted with the user's business terminology; 7.3. Write and process texts of user's documentation; 7.4. Coordinate user's documentation with the built-in support system.
8.	Planning the software project.	8.1. Forecast the labour intensity and the execution time of the task; 8.2. Perform the planning and control of individual work; 8.3. Take part in the discussions on the project execution process; 8.4. Elaborate the programming guidelines.

Special factors, creating the working environment:
Organizational factors – work is performed individually or in a work group. In the framework of a work group can lead other specialists of 3 and 4 professional qualification levels.

Skills

Common skills in the sphere	General skills/capabilities	Specific skills in the profession
• Use standards of IT sphere; • Use IT terminology in English and Latvian languages; • Use operating systems; • Use text and graphic editors, other office software; • Take part in the management of projects.	• Code and debug programs; • Use projection schemes and diagrams; • Project algorithms and data structures; • Choose appropriate means for carrying out the tasks; • Perform activities for data protection and safety; • Configure the work place and tools; • Use the tools for software development; • Analyse program code; • Implement the user's interfaces; • Use the language of data request; • Measure the software performance; • Follow the good programming style; • Use software testing methods; • Perform system projection.	• Communication skills; • Work in a team (group); • Perform the work individually; • Plan the tasks to be executed and state the priorities; • Use the means of finding and sorting information; • Prepare presentation materials and presentations, conduct the presentations; • Convince others and motivate one's opinion; • Process business documents; • Follow the principles of business ethics; • Observe the requirements on work hygiene and safety; • Be able to communicate in Latvian and English languages.

Knowledge

Knowledge	Level of knowledge		
	Notion	Understanding	Usage
English language			
Mathematics			
Economics and business			
Communication and professional ethics			
Work safety and ergonomics			
Software classification and use			
Programming languages			
Classification and use of operating systems			
Database technologies			
Structure and functioning of computer systems			

Computer network technologies			
Legal basis and standards in IT sphere			
Software engineering			
Software development technologies			
Object-oriented programming			
Data structures and algorithms			
Internet technologies			
Management of software development projects			

Work group members of the professional standard:

- Valdis Lauks – director of software development department, "Microlink";
- Ivo Odītis – deputy manager of information systems administration, the Bank of Latvia;
- Uldis Suhovskis – head of laboratory, Riga Information Technology Institute;
- Anna Zalucka – programming engineer, joint stock company "Exigen Latvia";
- Darja Žukova – Project manager, "IT Alise".

Experts in the sub-board of trilateral cooperation on the questions of professional education and employment:

- Juris Borzovs, chairman of Professional Education Board of Information Technologies, Telecommunications and Electronics, member of Employment and Professional Education Experts Committee under the Latvian Employer's Confederation.

Peer review reports about study programmes in informatics in Latvia

Higher Education Quality Evaluation Center of Latvia

Evaluation Commission's Final Report

Daugavpils University

Accreditation assessment final report regarding professional bachelor's study programme

Information technologies

Visit date: 22 – 23 April, 2009

Evaluation commission members:

Professor Aleksandras Targamadzė, Kaunas University of Technology, Lithuania, team leader

Professor Jānis Grundspeņķis, Riga Technical University, Latvia

Professor Pēteris Rivža, Agriculture University, Latvia

The Accreditation Task

The Evaluation Commission visited the Daugavpils University (hereinafter called "University") on Wednesday and Thursday, 22 – 23 April, 2009. The team of experts met the staff responsible for the programme. It also conducted interviews with a group of undergraduate's students. The Evaluation Commission was also provided with the opportunity to have a discussion with several representatives from local IT companies.

This assessment is based on the study programme self-evaluation report, internal documents provided by the authorities of the University and oral information given by the leading staff of the University, including those responsible for the programme, a group of undergraduates and representatives of employers. The material on study programmes was presented fully, clearly and sufficiently for full-time student. There are not part-time students.

Assessment of professional bachelor's study programme "Information technologies"

_____

I. Aims and objectives

1. Possibility to understand, to reach, and to control the aims and objectives defined by the study program.

Assessment: Highly satisfactory

Comment: The aims of the study programme are formulated clearly. The study programme seeks to train competitive specialists for regional market and oriented mainly to software engineering field. Commission recommends expanding part of study programme, targeted to hardware and interfaces as well as all life cycle of software engineering.

II. The content and organization of the studies.

Assessment: Highly satisfactory

Comment: The study process is well organized and monitored.

2. Compliance with the aims and objectives defined by the study programme, with Standards and Guidelines for Quality Assurance in the European Higher Education Area, accepted by European Association for Quality Assurance in Higher Education (ENQA Standards and Guidelines), with the requirements and recommendations of the European Union, and with the regulations of the Republic of Latvia.

Assessment: Highly satisfactory

Comment: The study programme is prepared according to the State academic education standard and after the analysis of few study programmes from Latvian and foreign universities.

3. Consistency of the study programmes and its parts with the demands to create the common European education space, including the comparison with at least two study programmes from the EU countries.

Assessment: Highly satisfactory

Comment: The study programme is harmonized with the principles of the EU open education space and provides possibilities for students and the staff to participate in academic exchange programmes. This possibility is used not enough.

The comparison of this study programme with 3 study programmes from other universities (1 Latvian and 2 foreign universities) demonstrates that conceptually this study programme includes all necessary components, which need to be present in typical study programmes in other universities.

The programme is internationally oriented and ready to be delivered in the Latvian, Russian and English (several courses) languages. This enables students to study in the global academical space of the European Union.

4. Qualification and professionality of the academic staff members.
Assessment: Highly satisfactory
Comment: The study programme is realized by a qualified staff. The majority of teachers have scientific degrees or/and academic titles. However the number of teachers with scientific degrees in IT field is small.
There is a good mix of young and experienced teachers. These are good indicators. We could come to the conclusion that the higher education establishment staff is rather well qualified.
Department has good relations with industry. However the number of orders for joint projects from industry is rather low. It shows that pedagogical staff does not have enough practical experience. We suggest inviting some people as lectures from industry.

III. Assessment of teaching and learning.

Assessment: Excellent
Comment: Students were satisfied with the programme.

5. Modern methodology of teaching, a clear statement of results to be expected, problem solving, use of computers, internet, audiovisual and multi media equipment.
Assessment: Excellent
Comment: The evaluation commission observed a good beginning of e-learning method usage in the University. It uses e-learning and video conference systems. After the introduction of such modern e-learning elements in all the professional specialization courses the University will have a modern study system.
There is a good combination of traditional teaching methods with new approaches such as group work. The majority of teachers use slides. Simulation software and some kind of special software packages are used in a study process.

6. Counseling and guidance for students, academic supervision and consultations of the teaching staff, increasing of the students' motivation to study.

Assessment: Excellent
Comment: This situation was assessed to be better than normally while comparing with other universities in Europe.

7. Methods to assess knowledge, skills and attitudes, their objective use to improve the studies.
Assessment: Satisfactory
Comment: The knowledge of students is evaluated in conformity with the documents, issued by the Latvian Ministry of Education and Science according 10-points system. This seems to vary depending on teachers or supervisors, but on the whole it seems to be carried out in a systematic way.
The evaluation commission found that a survey on the programme taught, completed by students, was provided regularly and systematically and the results of the survey were analyzed. The evaluation commission cannot found that a survey on the courses was provided regularly.

IV The management and support of the studies

Assessment: Highly satisfactory
Comment: The study process of the programme is well managed.

8. Respect of the principles of democracy, clear definition of the relations among representatives of the administration, academic staff and students.

Assessment: Highly satisfactory
Comment: The interviews with students as well as with the staff did not reveal any deficiencies in this sense. During the meeting with the students they were active and their positive opinions about the University came out. However, the attempt to find out the problems was not so successful. The patriotic feeling they feel for the school where they study is probably a good thing, but a bit more impartial attitude could forward the improvement of the study process.

Students have a potential possibility to influence the study process.

9. Cooperation with other higher education establishments, research institutions, international organizations; exchange of staff and students with other higher education establishments.
Assessment: Satisfactory
Comment: International cooperation with the higher education establishments is in the process. In the self-assessment report the University marks only cooperation with 2 Latvian and 4 foreign universities (only 1 from Spain, others are from post-Soviet countries). It is not sufficient. The mobility of students has not started at all. The number of teachers, who participated in exchange programmes, is insufficient too. The University could employ the practice of sending teachers to companies more often.

10. Methodological, informational and technical resources and facilities of the study programme.
Assessment: Highly satisfactory
Comment: Methodological, informational and technical resources and facilities of the study programme are sufficient. Library resources should be wider.
Computer basis is fully sufficient.

V Research (creative) activities of the staff and the students
11. The involvement of the academic staff and the students in research (creative) activities, up to date character and connection with the content of the study programme.

Assessment: Satisfactory
Comment: The large part of teachers carries out their own scientific research and participates in national and international projects. Students also take part in these investigations, working out course papers. But there aren't enough scientific papers in IT in the prestigious periodical journals, especially included in the databases.
The number of orders from industry is not enough.

VI Quality assessment and mechanisms to ensure it
Assessment: Highly satisfactory
Comment: Programme evaluation by students is carried out systematically and regularly.

12. Annual self-assessment of the study programme, evaluation of the strengths and weaknesses, changes, plans and possibilities for the development, continuously action of the system of self-evaluation and quality improvement. Compliance of the internal quality assurance system with the ENQA Standards and Guidelines.
Assessment: Highly satisfactory
Comment: The University has well organized, regular and systematic procedures, developed and implemented on their own. The process of administrating study programmes is monitored. Programme evaluation completed by students has a systematic character.

13. Perspectives (potential possibilities) of successful work of graduates according to their qualification.
Assessment: not applicable
Comment: There are no graduates of this study programme. Year 2009/2010 will be the first year of graduation.
From the discussions with employers the evaluation commission gets the impression that potentially graduates of this study programme will have good perspectives of successful work accordingly to their qualification.

14. Opportunities to continue studies and financial guarantees in case of closure of the programme, its re-organization and other changes.
Assessment: Excellent
Comment: The University's students can continue their studies in the others state Universities in case the programme is closed.

Concluding remarks

The commission was satisfied with the programme presented. It was also satisfied with the professional competence and qualifications presented by the staff of the University. The students showed a serious determination toward their studies and a mature attitude regarding the importance of higher education.
Potentially graduates of this study programme will have good perspectives of successful work accordingly to their qualification.
The University successfully started to implement modern e - learning methods in the study process. There is good combination of traditional methods of teaching and new approaches such as group work and the usage of slide presentations by the majority of teachers.
However, the study programme oriented mainly to software engineering field. Commissions recommend expanding part of study programme, targeted to hardware and interfaces as well as all life cycle of software engineering.
The number of students and teachers in the exchange programs is insufficient. The University must send teachers to practice in companies more often.
The number of orders from industry is low.
Library resources should be wider.

Recommendation for accreditation

The commission has the following recommendations regarding the study programme evaluated:

 Professional Bachelor's study programme Information technologies **can be accredited for** six years.

Daugavpils, 23 April, 2009

Aleksandras Targamadzė   **Jānis Grundspeņķis**   **Pēteris Rivža**

Higher Education Quality Evaluation Center of Latvia
Information Systems Management Institute
Individual Report of Evaluation Commission Member Regarding Professional Master Study Programme "Computer Systems"
Visit date: 09 – 10 June, 2008
Evaluation commission member Prof. Aleksandras Targamadzė, Kaunas University of Technology
Expert's name, surname: Prof. Aleksandras Targamadzė, Dean of the Faculty of Informatics, Kaunas University of Technology.
Evaluated higher education institution and study programme: Information Systems Management Institute (ISMI), Study Programme "Computer Systems" for professional Master Degree (Code 46481).
The date of site visit: June 09 -10, 2008.
The Accreditation Task
The Evaluation Commission visited Information Systems Management Institute (hereinafter called "Institute") on Monday and Tuesday, June 09 – 10, 2008. The expert's team met with the administration of the Institute: the Rector, Prof. M.Zivitere, the President Prof. R.Djakons and the leading staff of the Institute, including individuals, responsible for the programme. The team interviewed a group of undergraduates and graduates as well. At the end of the visit, the Evaluation Commission met with the academic staff of the Institute and highlighted some strengths and weaknesses of the programmes under the review. The Evaluation Commission also has given the opportunity to discuss with several representatives from Latvian industry.
The assessment of the study programme
This assessment is based on the Study Programme „Computer Systems" for Professional Master Degree (Code 46481) Self-Evaluation Report, internal documents provided by the authorities of the Institute and the oral information given during the meetings with the leading staff of the Institute, a group of students (undergraduates and graduates) and the academic staff. The material, presented on study programmes was full, clear and sufficient.
I.   Aims and objectives
1. Possibility to understand, reach and control the aims and objectives defined by the study programme.
Assessment: satisfactory
Comment: The aim of the study programme is too wide. From one side, the study programme is oriented to train specialists - programmers, from the other side – to prepare high-level scientists-analysts. That is rather difficult to harmonize within one programme.
There are several courses (Operation Systems Conceptions, Philosophy of Science Development, C++ and Java Object-Oriented Programming, Information Society) that look like general and are more suitable for a Bachelor's level.
For such a number of students (currently – 9) there are too many specializations (Computer Systems Administration and Security, Telecommunication Systems, Intelligent Teaching Systems, Applied Computer Modeling Systems, WEB Technologies Information Systems, Applied Electronics Computational and Information Systems). Specializations are wide and do not possess enough credit points (8) to reveal its subject-matter. Courses are usually small and neighbouring courses could be combined into larger modules.
II.   The content and organization of the studies
Assessment: highly satisfactory
2. Complying with the professional and education standards, legislation of the Republic of Latvia and with the requirements and standards of the European Union.
Assessment: highly satisfactory Comment:
The study programme is prepared according Professional higher education state standard, Profession standard PS 0067 'System Analyst' and after the analysis of many study programmes from Latvian and foreign universities. The analysis could be more analytic. It is insufficient to show differences or similarities and reasons should be explained as well.
International standards were analyzed too, but the study programme is not prepared according them.

3.   Consistency of the study programme and its parts with the demands to create the common European education space, including the comparison with at least two study programmes from EU countries.

Assessment: highly satisfactory

Comment: Study programme "Computer systems" is harmonized with the principles of the EU open education space and provides possibilities for students and the staff to participate in academic exchange programmes.

The comparison of the study programme with 12 study programmes from other universities (5 Latvian universities and 7 foreign universities) demonstrates that this study programme includes all necessary components conceptually, which are present in typical study programmes defined as „Computer Systems" in other universities.

The programme is internationally oriented and ready to be presented in the Latvian, Russian and English languages. This provides students with possibilities to study within the global information space.

4.   Qualification and professionalism of the academic staff members.

Assessment: highly satisfactory

Comment:

Study programmes are realized by a qualified staff. The absolute majority of all the teachers has research degrees or/and academic titles and work in the main workplaces. It is a good mix of young and experienced teachers. These are good indicators. We could come to the conclusion that the higher education establishment staff is rather well qualified.

However, there are not enough of orders from industry. It shows that pedagogical staff does not have substantial practical experience. Professional studies need that and I would offer to invite some people - lectures from the industry.

III.   Assessment of teaching and learning

Assessment: satisfactory

5.   Modern methodology of teaching, a clear statement of results to be expected, problem solving, use of computers, internet, audiovisual and multimedia equipment.

Assessment: satisfactory Comment: Modern methodology of teaching could be introduced more widely.

6.   Counseling and guidance of students, academic supervision and consultation of the teaching staff, increasing of the student's motivation to study.

Assessment: excellent

Comment: This situation was assessed better in comparison to other universities in Europe. I could not present any remarks regarding this issue.

7.   Methods to assess the knowledge, skills and attitudes, their objective use to improve the studies.

Assessment: satisfactory

Comment: The student's knowledge is evaluated according the Order N208 of 14.04.1998 of the Latvian Ministry of Education and Science according 10-points system. This seems to vary depending on the teacher or supervisor, but on the whole it seems to be carried out in a systematic way.

The evaluation commission found, however, that a regular survey of the courses given and completed by students is missing.

IV.   The management and support of the studies

Assessment: highly satisfactory

8.Respect of the principles of democracy, clear definition of relations among representatives of the administration, academic staff and students.

Assessment: highly satisfactory

Comment: Interviews with students as well as with staff did not reveal any deficiencies in this sense. During the meeting with the students they were active and expressed very good opinions about the Institute. However, it was rather difficult to find out the problems they see and face. The patriotic feeling for their school where they study could be regarded as a good thing; however more impartial attitude could forward the improvement of the study process.

Students have a possibility to influence the study process. The administration includes students when solving different problems.

9. Cooperation with other higher education establishments, research institutions, international organizations; exchange of staff and students with other higher education establishments.

Assessment: highly satisfactory Comment:

Study programme development is foreseen in the cooperation with Rostock University (Germany) and Vilnius Gediminas Technical University (Lithuania). This provides students with possibilities to use the study personnel of 3 higher schools while seeking to obtain wider possibilities and perspectives in their profession. In connection with the collaboration process and with the strategic plans of programme development correspondingly, courses in the English and German languages are planned. This provides possibilities for teacher development, student exchange programmes and various international contacts.

However, the number of students and teachers who participated in exchange programs is currently insufficient. The Institute could use the opportunities of sending teachers to practice in companies more often.

10.Methodological, informational and technical resources and facilities of the study programme.

Assessment: satisfactory Comment:

Computer basis consists of personal computers and servers; there are enough of computer classes (6). All software is licensed. But there is still a need to establish more workstations with specific software. There is a lack of laboratories for getting acquainted with peripheral equipment and interfaces.

The Institute has a library. But a lack of new literature was observed; widely subscribe databases of full-text documents should be used and consulted.

V. Research (creative) activities of the staff and the students

11.Involvement of the academic and general staff in the research (creative) activities, up to date character and connection with the content of the study programme.

Assessment: highly satisfactory

Comment:

This issue seemed to be well taken care of and monitored. A group of teachers carries out their own scientific researches and participates in national and international projects. Students also participate in such investigations, preparing course papers and Master Thesis. But a number of orders from the industry are still insufficient.

VI. Quality assessment and mechanisms to ensure it

Assessment: highly satisfactory

12. Annual self-assessment of the study programme, evaluation of the strengths and weaknesses, changes, plans and possibilities for the development, continuously action of the system of self-evaluation and quality improvement.

Assessment: highly satisfactory

Comment:

The quality of the study programme is provided by the regular programme survey and the analysis in the departments and Senate. Regular student and graduate surveys, examining the quality of the study programme, student interests as well as the quality of teachers' work and labor market demands are conducted and reviewed. The Student Self-government helps to find decisions when the administration invites them.

However, a regular survey on courses given, completed by students is missing.

13.   Successful   work   of   graduates   according   to   their   qualification.
Assessment:N/A

Comment:

There are no graduates yet.

14.   Opportunities to continue studies and financial guarantees in the case of closure of the programme, its re-organization and other changes.

Assessment: Highly satisfactory.

Comment:

An agreement is made between Riga's Technical University and the Institute in case the Programme in the Institute is discontinued.

Recommendation for accreditation

I agree with the conclusions of the Evaluation Commission and I recommend accrediting the study programme "Computer Systems" for professional master degree studies (Code 46481) for 6 years.
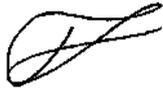
Prof. Aleksandras Targamadzė

Higher Education Quality Evaluation Centre of Latvia
Information Systems Management Institute
Evaluation Commission Member's Individual Report
Individual Accreditation Assessment Report Regarding
the Study Programme
Computer Systems
for Professional Master Degree
(Code 46481)
Visit date: June 9-10, 2008
Evaluation commission member: JOfi KihO, University of Tartu, Estonia

Overview

The Higher Education Quality Evaluation Centre of Latvia has invited three university experts from Latvia, Lithuania, and Estonia to review and make an accreditation recommendation for the study programme *Computer Systems* for Professional Master Degree (code 46481). An observer proposed by the Latvian Student Union, Madara Tora joined the group of experts. The Evaluation Commission visited Information Systems Management Institute (ISMI), Natural Sciences and Computer Technologies Department (hereinafter Department) during June 9 and 10.

First, the commission met leading staff ISMI, the President, prof Roman Dyackon and the Rector, prof Marga Zhivitere. Next an overview of the programme under evaluation was presented to the commission by the Head of the programme, prof Yuri Shunin (Vice-Rector ISMI for Innovative Issues). After that, a short meeting with the staff of Department took place. The commission had possibility to observe two Computer Systems Master thesis preliminary defenses at the department. At a supplementary meeting with department staff, more detailed issues about the programme were discussed between commission and department staff. The commission conducted interviews with Master students (2 out of 9); a number (15) of Information Systems Bachelor students participated also in this interview-session. The commission visited the computer company *SIA KOMLAIN,* which is one of the organizations for practical placements ISMI computer systems students. At the conclusion of the visit, the Evaluation Commission conducted a meeting with staff of the Department and some students, and highlighted the strengths and weaknesses of the programmme under review. The accreditation recommendation elaborated by the Evaluation Commission were revealed at this final meeting.

The findings of mine as a member of the Evaluation Commission are reflected in the supplement below. The self-evaluation report submitted by Department, the observations made at the time of the visit, and the supplementary material received during the visit form the basis of these assessments.

In conclusion, I support the following recommendation:

Computer Systems for Professional Master Degree (Code 46481) -

accreditation for 6 years.

SUPPLEMENT

Expert: JUri Kiho

Higher Education Institution: Information Systems Management Institute

Study Programme: Computer Systems for Professional Master Degree

Note: Due to a small number of students (less than 10 all together) in the programme, the evaluation assessments II - VI below arc derived mainly at the institutional level, taking into consideration quality of the whole study process involving also Bachelor-level study programme *(Information Systems)* run by the Department.

Assessment

I Aims and objectives 1. Possibility to understand, to reach, and to control the aims and objectives defined by the study program.

Assessment: Unsatisfactory (1)

Comment: the aims and objectives of the programme are not clearly specified. Therefore it is not possible to understand, to reach, and to control the aims and the objectives. In particular, objectives for the 6 specializations arc not given, it is impossible to decide whether the offered choices of courses for the specializations are adequate or not.

In course descriptions, prerequisites (nor obligatory neither recommended) are not clearly stated. The paragraph in course descriptions named "Preliminary courses" cannot be considered as a substitute for prerequisites.

It would be **desirable to have also learning outcomes defined** for each of the course. Some of the courses have essential **overlaps with similar Bachelor-level courses** (e.g. IN4004 *Operating Systems Concepts).*

As a general deficiency of the programme content an excessive fragmentation can be observed: amount most of the courses constitute only 2 credits.

The programme content description needs to be redesigned.

Ⅱ   The   content   and   organisation   of   the   studies

Assessment: Highly satisfactory (3)

Comment:

2.   Complying with the professional and education standards, legislation of the Republic of Latvia and with the requirements and standards of the European Union.

Assessment: Consistent

Comment: I am not aware of any problems in this respect.

3.   Consistency of the study programs and its parts with the demands to create the common European education space, including the comparison with at least two study programs from EU countries.

Assessment: Consistent

Comment: I am is not aware of any problems in this respect.

4.   Qualification and professional standard of the academic staff members.

Assessment: Highly satisfactory (3)

Comment: Academic qualifications of teachers and supervisors are quite adequate for implementing the programme.

Ⅲ   Assessment   of   teaching   and   learning

Assessment: Satisfactory (2)

Comment: Some improvements would be necessary.

5.   Modern methodology of teaching, a clear statement of results to be expected, problem solving, use of computers, internet, audiovisual and nudti media equipment.

Assessment: Satisfactory (2)

Comment: Department seemed well equipped for the need of students. However, modern methodology of teaching could be introduced more widely.

6. Counselling and guidance for students, academic supervision and consultations of the teaching staff, increasing of the students' motivation to study.

Assessment: Excellent (4)

Comment:

7. Methods to assess the knowledge, skills and attitudes, their objectivity use to improve the studies.

Assessment: Satisfactory (2)

Comment: A regular and systematic evaluation, made by students of courses given is missing.

IV The management and support of the studies *Assessment:* Highly satisfactory (3)

Comment: This issue seems to be well attended and managed.

8. Respect of the principles of democracy, clear definition of the relations among representatives of the administration, academic staff and students:

Assessment: Excellent (4)

Comment: This issue seems to be well attended and managed.

9. Cooperation with other higher education establishments, research institutions, international organizations; exchange of staff and students with other higher education establishments.

Assessment: Satisfactory (2)

Comment: The Department's record of international projects and collaboration is satisfactory.

10. Methodological, informational and technical resources and facilities of the study program.

Assessment: Satisfactory (2)

Comment: Library resources as well as spectrum of software packages should to be more adequate and up-to-date, better satisfying the needs of the programme.

V Research (creative) activities of the staff and the students

11. Involvement of the academic and general staff in the research (creative) activities, up to date character and connection with the content of the study program.

Assessment: Highly satisfactory (3)

Comment: The research and publication record in the topic areas of the programme is sufficient.

VI Quality assessment and mechanisms to ensure it

Assessment: Satisfactory (2)

Comment: Course evaluation by students is not carried out systematically or regularly

12. Annual self-assessment of the study programs, evaluation of the strengths and weaknesses, changes, plans and possibilities for the development, continuously action of the system of self-evaluation and quality improvement.

Assessment: Satisfactory (2)

Comment: More regular and systematic procedures must be developed and implemented.

13. Successful work of graduates according to their qualification. Assessment: Not applicable

Comment: No graduates exist yet.

14. Opportunities to continue studies and financial guarantees in the case of closure of the program, its re-organization and other changes.

Assessment: Excellent (4)
Comment: An agreement exists with RTU.

Higher Education Quality Evaluation Centre of Latvia

Evaluation Commission's Report

LATVIA UNIVERSITY OF AGRICULTURE
FACULTY OF INFORMATION TECHNOLOGIES

Accreditation assessment report regarding

PROFESSIONAL BACHELOR'S STUDY PROGRAMME **PROGRAMMING**

and
MASTER'S ACADEMIC STUDY PROGRAMME
INFORMATION TECHNOLOGIES

Visit date: 22 - 23 September, 2005

Evaluation commission members:

Professor em. Jānis Bubenko jr, Royal Institute of Technology, Stockholm, Sweden

Professor Jānis Grundspenkis, RTU, Latvia

Professor Jüri Kiho, Tartu University, Estonia

The Accreditation Process - an overview

The accreditation commission visited Latvia University of Agriculture and Information Technology Faculty (ITF) during the 22nd and 23rd September 2005. The Evaluation Commission was well received by the Faculty. The visit was professionally arranged, and the commission had possibility to get acquainted with faculty, staff, students, library, programs, and with the teaching facilities.

The commission first met leading staff of the Faculty, including those responsible for the programs. The faculty and the program of the master study program in "Information Technologies" was presented by the Dean Associate Professor Irina Archipova. Next the professional bachelors program in "Programming" was presented by Associate Professor Uldis Smilts. The commission also had the possibility to attend some lectures, seminars and laboratory exercises and to observe the performance of both students and the faculty. The Latvia University of Agriculture, its history and vision was presented by the rector Juris Skujans. A quick tour to the Fundamental Library was also made.

In the afternoon the commission conducted interviews with a group of students (about 40 students of the professional bachelors program and about 10 students of the masters program). Then a group of about 20 faculty members from all departments of ITF were interviewed. A meeting was also arranged with a group of 14 potential employers of future graduates of the programs. The employers represented organisations such as Jelgavas Dome, Zemgales attistibas agentura, Dati Exigen Group, Microsoft, Microlink and several more.

On Friday the 23rd the commission attended further lectures and laboratory exercises. The Electronic Learning System (ELS) was demonstrated. The commission had full access to all supplementary materials of the study programs, as well as to publications of the teaching staff. Publications of the staff, teaching material, as well as theses written by the students were examined.

At the end, the accreditation commission conducted an informal meeting with members and students of the Faculty and highlighted some of the strengths and weaknesses of the programs under review. Recommendations for accreditation were presented.
The accreditation process has been, in our opinion, a positive and constructive experience for the Faculty. The high quality (correctness and completeness) of the presented self-evaluation reports as well as other supplementary material should be noted. The process of preparing the self-evaluation reports must have generated many new ideas and insights within the Faculty.

This is the final report of the commission. It is structured as follows.

First we present our assessment of the ITF and the study programs following the questionnaire of HEQEC. Next we give some suggestions for improvement including critical remarks. Finally we present our suggestion concerning accreditation of the two programmes.

The following study programs were evaluated:

1.   PROFESSIONAL   BACHELOR'S   STUDY   PROGRAMME
"PROGRAMMING"

2. MASTER'S ACADEMIC STUDY PROGRAMME **"INFORMATION TECHNOLOGIES"**

Assessment of professional Bachelors study program "PROGRAMMING"
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I Aims and objectives

1. Possibility to understand, to reach, and to control the aims and objectives defined by the study program.
Assessment. Excellent
Comment: The objectives are clearly stated. Most of them are measurable.

II The content and organisation of the studies.

Assessment: Highly satisfactory
Comment: The program seems consistent with what is considered as good international standard in the area of "Programming".

2. Complying with the professional and education standards, legislation of the Republic of Latvia and with the requirements and standards of the European Union.
Assessment: Consistent
Comment: The commission is not aware of any problems in this respect.

3. Consistency of the study programs and its parts with the demands to create the common European education space, including the comparison with at least two study programs from EU countries.
Assessment: Consistent
Comment: The commission is not aware of any problems in this respect. .
4. Qualification and professional standard of the academic staff members.
Assessment: Highly satisfactory
Comment: The staff is relatively young. The number of international, reviewed publications could, however, have been larger.

III Assessment of teaching and learning.

Assessment: Highly satisfactory
Comment: The Electronic Learning System seemed to be an excellent tool to support teaching as well as examining students.

5. Modern methodology of teaching, a clear statement of results to be expected, problem solving, use of computers, internet, audiovisual and multi media equipment.
Assessment: Excellent
Comment:

6. Counselling and guidance for students, academic supervision and consultations of the teaching staff, increasing of the students' motivation to study.

Assessment: Highly satisfactory

Comment: Some students expressed a wish of more time for consultation with teachers.

7. Methods to assess the knowledge, skills and attitudes, their objectivity use to improve the studies.
Assessment: Highly satisfactory
Comment:

IV The management and support of the studies

Assessment: Highly satisfactory
Comment: On the whole, this issue was well handled.

8. Respect of the principles of democracy, clear definition of the relations among representatives of the administration, academic staff and students;
Assessment: Highly satisfactory
Comment:

9. Cooperation with other higher education establishments, research institutions, international organizations; exchange of staff and students with other higher education establishments.
Assessment: Highly satisfactory
Comment

10. Methodological, informational and technical resources and facilities of the study program.
Assessment: Highly satisfactory
Comment:

V Research (creative) activities of the staff and the students

11. Involvement of the academic and general staff in the research (creative) activities, up to date character and connection with the content of the study program.

Assessment: Highly satisfactory
Comment: As pointed out earlier, the number of international, reviewed publications of staff in the area of "Programming" during the last 3-5 years could have been larger.

VI Quality assessment and mechanisms to ensure it

Assessment: Satisfactory
Comment: The experts did not get much concrete information about quality management.

12. Annual self-assessment of the study programs, evaluation of the strengths and weaknesses, changes, plans and possibilities for the development, continuously action of the system of self-evaluation and quality improvement.
Assessment: Satisfactory
Comment: The statistical quality of the student surveys is not clear. There did not seem to exist a systematic follow-up of course evaluations and questionnaires to students.

13. Successful work of graduates according to their qualification.
Assessment: Excellent

Comment:

14. Opportunities to continue studies and financial guarantees in the case of closure of the program, its re-organisation and other changes.
Assessment: Excellent
<div align="center">Comment:</div>
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Assessment of Master's academic study program "INFORMATION TECHNOLOGIES"

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I Aims and objectives

1. Possibility to understand, to reach, and to control the aims and objectives defined by the study program.
Assessment. Satisfactory
Comment: Goals and tasks of the program are not sufficiently clear. Goals and tasks of the different three directions should be further elaborated.

II The content and organisation of the studies.

Assessment: Satisfactory
Comment: This program is designed to include three directions of specialisation 1) production computer control systems, 2) system analysis, and 3) information technologies in biosystems. Currently no student has selected the third specialisation. While the commission is in general positive about developing new directions such as "bioinformatics", it feels that further work is needed in order to sufficiently well define the directions. Hence, the commission has the opinion that the goals, content, and working skills of the three specialisations should be described more explicitly and clearly. Arguments for choosing the specialisations should be presented.

2. Complying with the professional and education standards, legislation of the Republic of Latvia and with the requirements and standards of the European Union.
Assessment: Consistent
Comment: The commission is not aware of any problems in this respect.

3. Consistency of the study programs and its parts with the demands to create the common European education space, including the comparison with at least two study programs from EU countries.
Assessment: Consistent
Comment: The commission is not aware of any problems in this respect.

4. Qualification and professional standard of the academic staff members.
Assessment: Satisfactory
Comment: Research and international, reviewed publishing in topics related to the masters program should be intensified.

III Assessment of teaching and learning.

Assessment: Highly satisfactory
Comment: As for the bachelors program, teaching and learning in the masters program seemed to be well managed.

5. Modern methodology of teaching, a clear statement of results to be expected, problem solving, use of computers, internet, audiovisual and multi media equipment.
Assessment: Highly satisfactory
Comment:

6. Counselling and guidance for students, academic supervision and consultations of the teaching staff, increasing of the students' motivation to study.

Assessment: Highly satisfactory
Comment:

7. Methods to assess the knowledge, skills and attitudes, their objectivity use to improve the studies.
Assessment: Highly satisfactory
Comment:

IV The management and support of the studies

Assessment: Highly satisfactory
Comment:

8. Respect of the principles of democracy, clear definition of the relations among representatives of the administration, academic staff and students;
Assessment: Highly satisfactory

Comment:
9. Cooperation with other higher education establishments, research institutions, international organizations; exchange of staff and students with other higher education establishments.
Assessment: Highly satisfactory
Comment
10. Methodological, informational and technical resources and facilities of the study program.
Assessment: Highly satisfactory
Comment:

V Research (creative) activities of the staff and the students

11. Involvement of the academic and general staff in the research (creative) activities, up to date character and connection with the content of the study program.

Assessment: Satisfactory
Comment: Research and publications in the topic areas of the masters program should be intensified by faculty as well as by the students.

VI Quality assessment and mechanisms to ensure it

Assessment: Satisfactory
Comment: The experts did not get much concrete information about quality management.
12. Annual self-assessment of the study programs, evaluation of the strengths and weaknesses, changes, plans and possibilities for the development, continuously action of the system of self-evaluation and quality improvement.
Assessment: Satisfactory
Comment: The statistical quality of the student surveys is not clear. There did not seem to exist a systematic follow-up of course evaluations and questionnaires to students.
13. Successful work of graduates according to their qualification.

Assessment: NA

Comment: No graduates exist yet.

14. Opportunities to continue studies and financial guarantees in the case of closure of the program, its re-organisation and other changes.

Assessment: Satisfactory

Comment: Formally an agreement exists with RTU, but in case of closure of the program, students of some directions of the program will not be able to change location without loss.

Concluding remarks

In conclusion we offer the following remarks and suggestions for improvement:

Positive remarks

Good infrastructure (computers, lecture rooms, laboratories, library)

The Electronic Learning System (ELS) is very much appreciated by the students. The ELS seems a very useful system

The professional bachelors program seems well designed and well operated. The aims and goals of the program are concrete and clear

The number of international projects and activities is impressive

The staff is enthusiastic and relatively young

The students are motivated, enthusiastic and satisfied with their environment and studies

The employers are pleased with the knowledge and attitude of the graduates of the bachelor program.

Issues for improvement

The masters program, its goals, directions, and content must be reconsidered, clearly reformulated and redesigned.

Research and international, reviewed publishing in topics related to the programs should be intensified

Steps should be considered in order to increase the number of students in the master program

Quality control using feedback from students should be carried out systematically for all courses

LLU should attract highly qualified staff in the areas of the master program

Recommendation for accreditation

The commission has the following recommendations regarding the two study programs evaluated.

1. Professional Bachelors Study Program "Programming": Accreditation for 6 (six) years

2. Master's Academic Study Program "Information Technologies": Accreditation for 2 (two) years

Jelgava, 23 September, 2005

Jānis Bubenko jr   **Jānis Grundspenkis**   **Jüri Kiho**

Higher Education Quality Evaluation Centre of Latvia

Evaluation Commission's Final Report

LATVIA UNIVERSITY OF AGRICULTURE

FACULTY OF INFORMATION TECHNOLOGIES

Final accreditation assessment report regarding

DOCTORAL STUDY PROGRAMME

"Information Technologies"

Visit date: 23 November, 2007

Evaluation commission members:

Professor em. Jānis Bubenko jr, Royal Institute of Technology, Sweden
Professor em. Jüri Kiho, Tartu University, Estonia

Professor Juris Borzovs, University of Latvia, Latvia

The Evaluation Process - an overview

The accreditation commission visited Latvia University of Agriculture (LUA) and the Information Technology Faculty (ITF) on 23rd November, 2007. The Evaluation Commission was well received by the Faculty. The visit was professionally arranged, and the commission had a good possibility to get acquainted with faculty, staff, students, and with the teaching material and facilities.

The commission first met leading staff of the Faculty, including those responsible for the program. A presentation of Post-Graduate Studies at LUA was given by Ausma Markevica, Head of the Department of Post-Graduate Studies of LUA. The IT Faculty was presented by the Dean, Professor Irina Arhipova. The particular doctoral program "Information Technologies" was presented by Pēteris Rivža, head of the program.

The commission had full access to all supplementary materials of the study programs, as well as to publications of the teaching staff and works by the students. Publications of the staff, teaching material, as well as theses written by the students were examined.

At the end, the commission conducted an informal meeting with members and PhD students of the Faculty and highlighted some of the strengths and weaknesses of the program under review. Recommendations for accreditation were presented.

The accreditation process has been, in our opinion, a positive and constructive experience for the Faculty. The high quality (correctness and completeness) of the presented self-evaluation reports as well as other supplementary material should be noted.

This is the preliminary evaluation report of the commission. It is structured as follows: First we present our assessment of the ITF and the study program following the questionnaire of HEQEC. Next we give some suggestions for improvement including critical remarks. Finally we present our suggestion concerning accreditation of the programme.

The following study program was evaluated: Doctoral Study Program "Information Technologies"

Assessment of doctoral study program "INFORMATION TECHNOLOGIES"

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I Aims and objectives

1. Possibility to understand, to reach, and to control the aims and objectives defined by the study program.

Assessment. Highly satisfactory (3)
Comment: Goals and tasks of the program are sufficiently clear..

II The content and organisation of the studies.

Assessment: Highly satisfactory (3)
Comment: The content and organisation of the studies seemed well managed.

2. Complying with the professional and education standards, legislation of the Republic of Latvia and with the requirements and standards of the European Union.

Assessment: *Consistent*
Comment: The commission is not aware of any problems in this respect.

3. Consistency of the study programs and its parts with the demands to create the common European education space, including the comparison with at least two study programs from EU countries.

Assessment: *Consistent*
Comment: The commission is not aware of any problems in this respect.

4. Qualification and professional standard of the academic staff members.

Assessment: Highly satisfactory (3)
Comment: Practically all teachers of the programme were fully employed by LUA. Their academic qualifications were quite satisfactory.

III Assessment of teaching and learning.

Assessment: Satisfactory (2)
Comment: On the whole, this issue was sufficiently managed. Some improvements are, however, suggested.

5. Modern methodology of teaching, a clear statement of results to be expected, problem solving, use of computers, internet, audiovisual and multi media equipment.

Assessment: Highly satisfactory (3)
Comment: Faculty seemed well equipped for the need of students.

6. Counselling and guidance for students, academic supervision and consultations of the teaching staff, increasing of the students' motivation to study.

Assessment: Satisfactory (2)
Comment: The Faculty should pay more attention to the role of a clear formulation of students' research problem as early as possible.

7. Methods to assess the knowledge, skills and attitudes, their objectivity use to improve the studies.

Assessment: Satisfactory (2)
Comment: This issue seems to be well attended and managed. However, the Faculty should consider better ways of reporting PhD student progress.

IV The management and support of the studies

Assessment: Highly satisfactory (3)
Comment: This issue seems to be well attended and managed.

8. Respect of the principles of democracy, clear definition of the relations among representatives of the administration, academic staff and students;

Assessment: Highly satisfactory (3)
Comment: This issue seems to be well attended and managed.

9. Cooperation with other higher education establishments, research institutions, international organizations; exchange of staff and students with other higher education establishments.

Assessment: Highly satisfactory (3)
Comment: the Faculty's record of international projects and collaboration as well as participation in scientific conferences is good.

10. Methodological, informational and technical resources and facilities of the study program.

Assessment: Highly satisfactory (3)
Comment: This issue seems to be well attended and managed

V Research (creative) activities of the staff and the students
11. Involvement of the academic and general staff in the research (creative) activities, up to date character and connection with the content of the study program.

Assessment: Highly satisfactory (3)
Comment: The research and publication record in the topic areas of the Doctor's program is good.

VI Quality assessment and mechanisms to ensure it
Assessment: Highly Satisfactory (3)
Comment: This issue seems to be well attended and managed

12. Annual self-assessment of the study programs, evaluation of the strengths and weaknesses, changes, plans and possibilities for the development, continuously action of the system of self-evaluation and quality improvement.

Assessment: Highly satisfactory (3)
Comment: This issue seems to be well attended and managed

13. Successful work of graduates according to their qualification.

Assessment: Not Applicable
Comment: No graduates exist yet.

14. Opportunities to continue studies and financial guarantees in the case of closure of the program, its re-organisation and other changes.

Assessment: Excellent (4)
Comment: An agreement exists with RTU.

Concluding remarks
In conclusion we offer the following remarks and suggestions for improvement:
Positive remarks

Good infrastructure (computers, lecture rooms, laboratories, library)
The number of international projects and activities is impressive
The staff is enthusiastic
Students are satisfied with interaction with supervisors. Supervisor availability for consultation is high
The program is under continuous monitoring and improvement
The students are motivated, enthusiastic and in general satisfied with their environment and studies

Issues for improvement
The Faculty should pay more attention to the role of a clear formulation of students' research problem as early as possible
The Faculty should consider better ways of reporting PhD student progress
Effort should be made in order to attract more students to the Doctoral program
The Faculty should make further efforts to attract highly qualified staff in the areas of the Doctoral program

Recommendation for accreditation

The commission has in general a very positive view of the Doctoral program and the Faculty's possibilities to present it to students as well as to develop it in the future. The commission has the following recommendation regarding the study program evaluated.

Doctoral Study Program "Information Technologies":

Accreditation for 6 years

Jelgava, 23 November, 2007

Jānis Bubenko jr   Jüri Kiho   Juris Borzovs

Higher Education Quality Evaluation Centre
of Latvia
Evaluation Commission's Final Report
LATVIA UNIVERSITY OF AGRICULTURE
FACULTY OF INFORMATION TECHNOLOGIES
Accreditation assessment report regarding
ACADEMIC MASTER'S STUDY PROGRAMME
"Information Technologies"
Visit date: 21 - 22 September, 2007
Evaluation commission members:
Professor em. Jānis Bubenko jr, Royal Institute of Technology, Sweden Professor
Juris Borzovs, University of Latvia Professor Jānis Grundspeņķis, RTU, Latvia

The Evaluation Process - an overview

The accreditation commission visited Latvia University of Agriculture and the Information Technology Faculty (ITF) during the 21st and 22nd September 2007. The Evaluation Commission was well received by the Faculty. The visit was professionally arranged, and the commission had a good possibility to get acquainted with faculty, staff, students, employers, library, laboratories, the program, and with the teaching facilities.

The commission first met leading staff of the Faculty, including those responsible for the programs. The faculty and the program of the master study program in "Information Technologies" was presented by the Dean, Associate Professor Irina Arhipova. The E-study system of the Faculty was presented by Ģirts Kazainis. It was followed by visits to a number of laboratories at the Faculty of Engineering (TF) guided by Ainārs Galinš. A quick tour to the Fundamental Library was also made.

In the afternoon a group of 11 faculty members from all departments of ITF were interviewed. A meeting was also arranged with a group of five employers of graduates of the program. The employers represented the following organisations: the Ministry of Traffic, Jelgavas Dome, Dati Exigen Group, IBS Solutions, and LLU ISD group.

On Saturday the 22nd the commission attended a lecture on "Fundamental Algorithms and Data Structures" presented by S. Arhipovs. The commission had full access to all supplementary materials of the study programs, as well as to publications of the teaching staff and works by the students. Publications of the staff, teaching material, as well as theses written by the students were examined.

At the end, the commission conducted an informal meeting with members and students of the Faculty and highlighted some of the strengths and weaknesses of the program under review. Recommendations for accreditation were presented.

The accreditation process has been, in our opinion, a positive and constructive experience for the Faculty. The high quality (correctness and completeness) of the presented self-evaluation reports as well as other supplementary material should be noted. The process of preparing the self-evaluation reports must have generated many new ideas and insights within the Faculty.

This is the final evaluation report of the commission. It is structured as follows:

First we present our assessment of the ITF and the study programs following the questionnaire of HEQEC. Next we give some suggestions for improvement including critical remarks. Finally we present our suggestion concerning accreditation of the programme.

The following study program was evaluated: Academic Master's Study Program "Information Technologies"

Assessment of academic master's study program "INFORMATION TECHNOLOGIES"

I   Aims and objectives

1.   Possibility to understand, to reach, and to control the aims and objectives defined by the study program.

Assessment. Excellent (4)

Comment: Goals and tasks of the program are sufficiently clear. Goals and tasks of the different three directions are clearly defined**.**

II   The content and organisation of the studies.

Assessment: Highly satisfactory (3)

Comment: This program is designed to include three specialisation 1) production computer control systems, 2) system analysis, and 3) information technologies in bio-systems. Currently no student has completed the third specialisation. While the commission is in general positive about developing new specialisations such as "bioinformatics", it feels that further work is needed in order to sufficiently well explain the specialisation in order to attract more students.

2.   Complying with the professional and education standards, legislation of the Republic of Latvia and with the requirements and standards of the European Union.

Assessment: *Consistent*

Comment: The commission is not aware of any problems in this respect**.**

3.   Consistency of the study programs and its parts with the demands to create the common European education space, including the comparison with at least two study programs from EU countries.

Assessment: *Consistent*

Comment: The commission is not aware of any problems in this respect.

4.   Qualification and professional standard of the academic staff members.

Assessment: *More   than   satisfactory   (2-3)*

Comment: *Research and international, reviewed publishing in topics related*

to the masters program, as well as partnership in international projects and programs are highly satisfactory. Not all courses of the program are held by lecturers with a PhD degree, but the situation is quickly improving. There are 8 doctoral students. Many of them are working as teachers.

III Assessment of teaching and learning. **Assessment**: Highly satisfactory (3)

Comment: As for the Masters program, teaching and learning in the masters program seemed to be well organised and managed.

5. Modern methodology of teaching, a clear statement of results to be expected, problem solving, use of computers, internet, audiovisual and multi media equipment.

Assessment: Highly satisfactory (3)

Comment: Thanks to the possibility to invest project funds in infrastructure and computers, the Faculty seemed well equipped for the need of students. However, since students are using more and more own computing resources (laptops), the Faculty should consider alternative ways of arranging computer laboratories.

6. Counselling and guidance for students, academic supervision and consultations of the teaching staff, increasing of the students' motivation to study.

Assessment: Highly satisfactory (3)

Comment: This issue seems to be well attended and managed.

7. Methods to assess the knowledge, skills and attitudes, their objectivity use to improve the studies.

Assessment: Highly satisfactory (3)

Comment: This issue seems to be well attended and managed.

IV The management and support of the studies

Assessment: Highly satisfactory (3)

Comment: This issue seems to be well attended and managed.

8. Respect of the principles of democracy, clear definition of the relations among representatives of the administration, academic staff and students;

Assessment: Highly satisfactory (3)

Comment: This issue seems to be well attended and managed.

9. Cooperation with other higher education establishments, research institutions, international organizations; exchange of staff and students with other higher education establishments.

Assessment: More than satisfactory (2-3)

Comment: the faculty's record of international projects and collaboration as well as participation in scientific conferences is impressive.

10. Methodological, informational and technical resources and facilities of the study program.

Assessment: Highly satisfactory (3)

Comment: This issue seems to be well attended and managed

V Research (creative) activities of the staff and the students

11. Involvement of the academic and general staff in the research (creative) activities, up to date character and connection with the content of the study program.

Assessment: Highly satisfactory (3)

Comment: Research and publications in the topic areas of the masters program has improved considerably by the faculty as well as by the students.

VI Quality assessment and mechanisms to ensure it

Assessment: Highly Satisfactory (3)

Comment: This issue seems to be well attended and managed

12. Annual self-assessment of the study programs, evaluation of the strengths and weaknesses, changes, plans and possibilities for the development, continuously action of the system of self-evaluation and quality improvement.

Assessment: Highly satisfactory (3)

Comment: The statistical quality of the student surveys seems acceptable. There seems to exist a systematic follow-up of course evaluations and questionnaires to students.

13. Successful work of graduates according to their qualification.
Assessment: *Highly satisfactory (3)*
Comment: *Employers expressed great satisfaction with the qualities of the*
graduates.
14. Opportunities to continue studies and financial guarantees in the case of closure of the program, its re-organisation and other changes.
Assessment: Excellent (4)
Comment: An agreement exists with RTU. The content and volume of the study courses has been harmonised with the study program "Computer Systems" of the Faculty of Computer Science and Information Technology of RTU.
Concluding remarks
In conclusion we offer the following remarks and suggestions for improvement:
Positive remarks
Good infrastructure (computers, lecture rooms, laboratories, library)
The number of international projects and activities is impressive
The staff is enthusiastic and relatively young
Students are very satisfied with interaction with teachers. Teacher availability for consultation and supervision is high
The program is under continuous monitoring and improvement
The students are motivated, enthusiastic and in general satisfied with their environment and studies
The employers are pleased with the knowledge and attitude of the graduates of the Masters program
Issues for improvement
The masters program and its specialities, its goals, directions, and content must be made more comprehensible to potential students as well as to employers. In particular the speciality "IT in bio-systems" should be better explained to interested parties.
Effort should be made in order to attract more students to the specialities "computerized production control systems" and "information technologies in bio-systems" of the programme.
Quality control using feedback from students should be carried out systematically for all courses
The Faculty should continue to attract highly qualified staff (lecturers with a PhD degree) in the areas of the master program
Information about all relevant objects, plans, events, teaching material for all courses, and individual study results in the faculty should be made electronically available to all students
Students have expressed a wish for a larger set of courses in the elective C-part of the program. Possibilities to choose courses from other faculties or universities should be considered
Students have expressed a wish for cooperation with other faculties in development of particular courses
Students have expressed a need for a permanent room for own social interaction and discussions.
Students have expressed concerns about the efficiency and quality of the students' dining facilities
Other concerns expressed by students include
o There seems to be some overlap of Bachelors and Masters
programs o The library should be enriched with English text-books in topic
areas relevant to the faculty o There is a need for education in professional and scientific
communication in English o Wardrobe facilities the whole week should be made available

Recommendation for accreditation
The commission has the following recommendations regarding the study program evaluated.
Academic Master's Study Program "Information Technologies": Accreditation for 6 years
Jelgava, 22 September, 2007
Jānis Bubenko jr   Juris Borzovs   Jānis Grundspeņķis

Higher Education Quality Evaluation Center of Latvia
Evaluation Commission's Final Report
Liepaja University
Faculty of Natural and Social Sciences
Accreditation assessment final report regarding
Second Level Professional Higher Education Master Study Programme in
INFORMATION TECHNOLOGY Code (46 481)
Visit date: 30 - 31 October, 2008
Evaluation commission members:
Professor em. Jānis Bubenko jr, Royal Institute of Technology, Stockholm, Sweden
Professor Jānis Grundspeņķis, Riga Technical University, Latvia Professor Pēteris Rivža,
Latvia University of Agriculture, Latvia

The Evaluation Process

The Evaluation Commission visited the Faculty of Natural and Social Sciences at the Liepaja University, Thursday and Friday, October 30 and 31, 2008. The master professional study program "Information Technology" (Code 46481, 100 cr.p.) was evaluated.

The evaluation commission first met the administration of the program (I. Ozola, M. Zeltiņa, and J. Rimšāns) who presented an overview of the Faculty of Natural and Social Sciences at the Liepaja University as well as of the particular program to be evaluated. Certain general objectives and issues of the program were discussed. After that the evaluation commission met most of the teaching staff involved in and responsible for courses in the programme (J. Rimšāns, Dz. Tomsons, K. Dobelis, A. Jansone, and others). The goals, content, and structure of the professional programme were presented by Dz. Tomsons and discussed. After this the Evaluation Commission also inspected a number of computer laboratories. Introduction to the material and technical base of the program was presented by J. Rimšans, Dz. Tomsons, and A. Kairēna. The equipment seemed advanced and adequate.

The Evaluation Commission also conducted interviews with students (7 first year, 4 second year, and 2 third year students). The main points of the discussion concerned the students' opinion of which kinds of courses were more or less relevant for the professional program, and the reasons for the relatively weak student interest in international mobility and exchange. In general, the students were very positive about the content of the programme. Some students indicated a need for more realistic cases in their project-work.

The Evaluation Commission also met with representatives of employers. 3 representatives were present from organisations: Liepajas Dome, SIA www.grafika.lv, and EXIGEN Services Latvia. These representatives were satisfied about the programme and quite interested in a more intensive co-operating with the institute regarding implementation of the program, including practical work.

At the conclusion of the visit, the Evaluation Commission conducted a meeting with the academic staff of the institute and highlighted some of the strengths and weaknesses of the programme under review. The accreditation recommendations elaborated by the Evaluation Commission were offered at this final meeting.

I Assessment of the study program "Information Tecnology"

Scale of the assessment:

4 (excellent), 3 (highly satisfactory), 2 (satisfactory), 1(unsatisfactory)

I Aims and objectives

1. Possibility to understand, to reach and to control the aims and objectives defined by the study programme.

Assessment: 2

Comment: The program on the whole seems to be satisfactorily designed. However, the goals of the two directions are not well focused.

II   The content and organisation of the studies.

Assessment: 2-3

Comment: The content seems adequate. The program on the whole seems well designed and organised.

2.   Complying with the professional and education standards, legislation of the Republic of Latvia   and   with   the   requirements   and   standards   of   the   European   Union.

Assessment: 3

Comment: The report describes how the programme corresponds to the professional standards PS 0170 and PS 0227. The correspondence seems highly satisfactory.

3.   Consistency of the study programme and its parts with the demands to create the common

European education space, including the comparison with at least two study programmes from EU   countries.

Assessment: 2

Comment: The comparison is not particularly elaborated. An analysis of the differences is lacking.

4. Qualification and professionalism of the academic staff members. Assessment: 3

Comment: The staff is comparatively young. A few dissertations are expected relatively shortly. Students expressed a wish for more visiting lecturers from practice.

III   Assessment of teaching and learning

Assessment: 2-3

Comment: This aspect seems to be handled in a satisfactory way.

5. Modern methodology of teaching, a clear statement of results to be expected, problem solving, use of computers, internet, audiovisual and multi media equipment. Assessment: 3

Comment: The commission was shown how modern methodology, using internet technology, was applied and to what extent this was done.

Counselling and guidance for students, academic supervision and consultations of the teaching staff, increasing of the students' motivation to study. Assessment: ....3 Comment: Most students seemed to be satisfied with the supervision.

Methods to assess the knowledge, skills and attitudes, their objectivity use to improve the studies.

Assessment: 2

Comment: Quality control of the program and its courses should be performed more systematically and regularly. Furthermore, the experts feel most courses should be completed by regular examinations instead of pass/fail marks.

IV   The management and support of the studies

Assessment: 3

Comment: On the whole, the situation seemed to be highly satisfactory.

8. Respect of the principles of democracy, clear definition of the relations among representatives of the administration, academic staff and students; Assessment: 3

Comment: Relations between students and the staff seem personal and positive. The students are satisfied and do not seem aware of any problems in this respect.

9. Co-operation with other higher education establishments, research institutions, international

organisations; exchange of staff and students with other higher education establishments. Assessment: 2

Comment: Cooperation with RTU and LieU exists. Regarding the students, however, international mobility and exchange seems to be marginal and should be improved.

10. Methodological, informational and technical resources and facilities of the study programme.

Assessment: 3-4

Comment: These resources seem to be excellent for the purpose of the program under evaluation.

V   Research (creative) activities of the staff and the students

11. Involvement of the academic and general staff in the research (creative) activities, up to date character and connection with the content of the study programme. Assessment: 2

Comment: Some of the members of the department seem active in regular research and publishing of works at international as well as national journals and conferences. However, most of the research work seems to exist in areas not directly related to the programme.

VI   Quality assessment and mechanisms to ensure it

Assessment: 3

Comment: Annual quality control in terms of a questionnaire exists. Courses are not yet evaluated, but it is planned to do so. It is, however, not clear how the results of questionnaires may or will affect the management of the programme.

Annual self-assessment of the study programme, evaluation of the strengths and weaknesses, changes, plans and possibilities for the development, continuously action of the system of self-evaluation and quality improvement. Assessment: ………3 Comment: This aspect seems to be handled in a competent way.

Successful work of graduates according to their qualification. Assessment: ………NA Comment: Not applicable (NA). There are no graduates yet.

Opportunities to continue studies and financial guarantees in the case of closure of the programme, its re-organisation and other changes. Assessment: ………4

Comment: There is a good "back-up" in the institute's academic program.

Strong and weak points

The Evaluation Commission offers the following concluding assessment.

Strong points

Students are positive, constructive and enthusiastic about the program

Students are very satisfied with scheduling of the lectures

Qualifications of the staff are acceptable.

The reference literature of the courses seemed modern.

The department has a good infrastructure and offices.

Average age of staff is relatively low.

The department is active in participating in EU-supported projects.

The use of IT in operation and management of the programme is significant.

Things that could be improved.

The focus of the program in IT is not clear. It is not clear to the experts in what way the set of courses of the program all contribute to pursuing knowledge in the areas of Software Engineering and in IT project management.

Some of the staff is not very active in performing adequate research in the area of the programme.

Weak international exchange and mobility regarding staff as well as students.

Cooperation with existing and future employers should be more regularly organised.

Students and employers have expressed a wish for more real/world cases in the educational process.

Final recommendation

The evaluation commission recommends the following accreditation:

Professional master's study programme "Information Technology" (Code (46 481), 100 cr.p.):

Accreditation for 6 years

Liepaja, October 31, 2008

| Jānis   Bubenko jr | Jānis Grundspenkis | Pēteris Rivža |

Higher Education Quality Evaluation Centre of Latvia Evaluation Commission's Final Report

RĒZEKNE HIGHER EDUCATION INSTITUTION FACULTY OF ENGINEERING

Accreditation assessment report regarding Professional Higher Education Master Study Program

„COMPUTER SYSTEMS"

Visit date: 24-25 September, 2007

Evaluation commission members:

Professor em. Jānis Bubenko jr, Royal Institute of Technology, Stockholm, Sweden

Professor Juris Borzovs, University of Latvia

Professor Jānis Grundspenkis, Riga Technical University

Rēzekne Higher Education Institution

The Evaluation Process – an overview

The visit started on September 24 with a meeting with leading representatives of Rezekne Higher Education Institution (RHEI) including Rector, vice-Rectors, dean of the Engineering Faculty, director of the study program, and the head of the Computer Science Department. Brief information about RHEI and its programs and activities was presented. Visits were then paid to RA (Rezekna Augstskola) library and the Engineering Faculty Information Technology Centre (ITC). In the afternoon the following meetings were carried out:

Presentations of the Engineering Faculty and program submitted for accreditation (presented by Dean E.Teirumnieka and the director of the study program doc.P.Grabusts)

Meeting with the academic staff for the study programs submitted for accreditation

Meeting with the students of the professional Master study program "Computer Systems"

Meeting with employers (3) of students of the program

A number of questions were asked and issues discussed with all these parties. The commission presented its observations and recommendations for accreditation shortly before noon on September 25.

In the following the commission presents its final report and recommendations regarding accreditation of the Professional Higher Education Master Study Program „COMPUTER SYSTEMS" according to the questionnaire elaborated by "Higher Education Quality Evaluation Center of Latvia".

The scale used for the assessment is:

4 (excellent), 3 (highly satisfactory), 2 (satisfactory), 1(unsatisfactory)

I The assessment of Master Study Program "COMPUTER SYSTEMS"

(6 main aspects and 14 questions)

I   Aims and objectives

1. Possibility to understand, to reach and to control the aims and objectives defined by the study programme.

Assessment: ………2

*Comment: ………*The aims and objectives of the program are reasonably clear but the name "Computer Systems" is a bit misleading. It makes the reader associate the contents of the program with a more electrical engineering type of orientation than it is intended.

II   The content and organization of the studies.

Assessment: ………2-3 Comment: ………See below

Rēzekne Higher Education Institution

2.   Complying with the professional and education standards, legislation of the Republic of Latvia and with the requirements and standards of the European Union.

*Assessment: ………*3

*Comment: ………*The analysis of the self evaluation report shows that the program fairly well conforms to the professional standards of Latvia.

3.   Consistency of the study programme and its parts with the demands to create the

common European education space, including the comparison with at least two study programmes   from   EU   countries.

*Assessment: ………*2

*Comment: ………*Comparisons with universities of Dublin and Sheffield have been made but it is difficult to draw any substantial conclusions from these rather superficial studies.

4.   Qualification and professional standard of the academic staff members.

*Assessment: ………*1-2

*Comment: ………*Not all staff members have a PhD degree. The intensity of international publishing during the last 5 years is not impressive for all staff members. Furthermore, the commission observes that many staff members pursue their research in areas disjoint from the program being evaluated. It also seems that many staff

members are heavily loaded with work in private IT-companies. Very few of the IT-lecturers do actually live and work in Rezekne.

III Assessment of teaching and learning.

Assessment: ....2-3 Comment: ....

5. Modern methodology of teaching, a clear statement of results to be expected, problem solving, use of computers, internet, audiovisual and multi media equipment. *Assessment: ...*3 *Comment: ......* The ITC seems well aimed at the program.

6. Counselling and guidance for students, academic supervision and consultations of the teaching staff, increasing of the students' motivation to study.

Assessment: 2

*Comment: ....*The students have expressed some concern about this.

7. Methods to assess the knowledge, skills and attitudes, their objectivity use to improve the studies.

Assessment: 3

*Comment: ....*This issue seems to be well managed.

IV The management and support of the studies

Assessment: 3

Comment: .... This issue seems to be well managed

Rēzekne Higher Education Institution

8. Respect of the principles of democracy, clear definition of the relations among representatives of the administration, academic staff and students;

Assessment: 3

Comment: .... This issue seems to be well managed

9. Cooperation with other higher education establishments, research institutions, international organizations; exchange of staff and students with other higher education
establishments.

Assessment: 3

*Comment: ....*Student and staff exchange seems excellent, however cooperation with other higher research institutes could be improved.

10. Methodological, informational and technical resources and facilities of the study programme.

Assessment: 3

Comment: .... This issue seems to be well managed

V Research (creative) activities of the staff and the students

11. Involvement of the academic and general staff and the students in the research (creative) activities, up to date character and connection with the content of the study programme.

Assessment: **1-2**

*Comment: ....*The commission had little explicit information about the involvement of students in research. Few members of the staff seem to perform research in the area of the program.

VI Quality assessment and mechanisms to ensure it

Assessment: 2

Comment: .... This issue seems to be managed in an acceptable fashion

12. Annual self-assessment of the study programme, evaluation of the strengths and weaknesses, changes, plans and possibilities for the development, continuously action of the system of self-evaluation and quality improvement. *Assessment: *2

*Comment: ....*A quality control and evaluation system does exist. However, the system includes indicators which are difficult to measure. The commission was not presented any information about quality control and evaluation system development plans.

13. Successful work of graduates according to their qualification. *Assessment: ....*NA

Rēzekne Higher Education Institution

Comment: ....Not applicable – there are no graduates of the program yet.

14. Opportunities to continue studies and financial guarantees in the case of closure of the programme, its re-organization and other changes.

Assessment: 2

Comment: ....An agreement exists between RHEI and RTU to regulate this matter. The agreement is from RHEI point of view not very strong.

Concluding remarks

The accreditation commission had, in general, a mixed impression of RHEI and the program. There was a constructive attitude about the future of the program. , but there existed also less positive aspects. The accreditation commission would, therefore, like to present the following comments of the RHEI and the program.

Strong points

The infrastructure of RHEI is excellent satisfying the needs of the program

Students seem enthusiastic and determined

The course schedule conforms to the needs of students working full time

Students are satisfied with counselling and the use of small groups

International exchange regarding teachers as well as students is highly satisfactory

Things that could be improved

There is some overlap of course content between the Bachelors program in "Software Engineering" and the Masters program (see for instance the courses on project management, object-oriented system modelling, and IT standards, etc.)

Faculty involved in the Masters program regarding IT topics do not seem to pursue own research in the areas of the program

Courses presented in the program do not all seem relevant to the ambitions of the program, e.g. the courses "Advanced telecommunication Technologies" and "Intelligent Networks and Computer Telephony"

There should be a larger elective part in the program (only 4 credits now)

The commission is concerned about the length of the program. Several of the 2 CR courses could be developed into 4 CR courses, for instance O-O Modelling, Data Protection (and Security), Business Systems Analysis, and others. The commission also feels that some course topic relevant to the program could be added such as Advanced Data Base Technologies, Information Systems Methodologies, Information System and Software Development Tools, Knowledge Management , and Collaborative Work in Software as well as Information Systems Development. IT standards seem to be covered already at the Bachelors level.

The department should be concerned about maintaining a critical mass of teachers and ensure the availability of qualified teachers in a long term perspective.

Rēzekne Higher Education Institution

• The department should be concerned with competence development of staff. Individual competence development plans should be elaborated.

Recommendation for accreditation

The commission has the following recommendation regarding the study program evaluated.

Professional Higher Education Master Study Program „COMPUTER SYSTEMS" - Accreditation for 2 years.

Rēzekne, 25 September, 2007

Jānis Bubenko jr   Juris Borzovs Jānis Grundspenkis

Riga Technical University

Final Evaluation Report of the Joint Commission
for the

Bachelor's Academic Study Program in Computerised Control of Electrical Technologies

Master's Academic Study Program in Computerised Control of Electrical Technologies

Doctoral Study Program in Computerised Control of Electrical Technologies

and

Bachelor's Professional Study Program in Computerised Control of Electrical Technologies
Master's Professional Study Program in Computerised Control of Electrical Technologies (one year and two year programs)

May 10 -11, 2004, Riga

Introduction

Evaluation was initiated by Latvian Higher Education Quality Evaluation Center and conducted by the evaluation commission consisting of prof. Roland Erikson (Sweden, Royal Technical University in Stockholm), prof. Arunas Lukosevicius (Lithuania, Kaunas University of Technology), prof. Mart Min (Tallin Technical University) and prof. Andris Sniders (Latvia University of Agriculture).

Main visit of the commission to Riga Technical University (RTU) during 10-11 of May 2004 was intended to evaluate six study programs – bachelor, master and doctoral – having the common name "COMPUTERISED CONTROL OF ELECTRICAL TECHNOLOGIES" (CCET). Since all programs are closely related commission decided that the evaluation report should have integrated form and consists of the general part, common for all programs and also short motivation and recommendations concerning particular programs.

Evaluation commission was oriented to the Recommendations Concerning Activities of the Assessment of Higher Education Institutions and their Study Programs approved by Ministry of Education and Science of Latvia (order No. 272 5 June 1996), and recommendations of international organisations such and European Council DECS HE 94/25, 95/10. Higher Education Quality Assurance (document ISBN 80-86302-11-3) and others.

The visit started by introductory meeting with RTU Rector prof. I.Knets and other RTU officials, where experts had been informed about latest Latvian legislative documents and RTU decisions regarding study organizing policies and study programs. Main features of transition – balance between professional and academic lines in bachelor and master studies, continuity of studies from college level up to doctoral studies, evolution of former engineering studies - were pointed. It was valuable meeting, since Latvia still is in transition adopting EU principals as well as evolving needs of Latvian economy, therefore evaluation of study programs should take in account this specific context. Main question discussed was mission and realization of two parallel study lines – academic and professional in bachelor and master studies.

Experts appreciate a good organization of visit, sincere assistance and support. Besides explicit self-evaluation reports presented well in advance experts were able to meet students, employers, faculty staff, visit all teaching premises and facilities , to analyze teaching materials, student reports and thesis, have had an informative interviews.

Since professional Bachelor and Master programs are closely interrelated and provided by practically the same RTU divisions, present evaluation is common for both programs. Specific recommendations and conclusions for each program are pointed in the text.

It was taken into account Regulation of the second level professional higher education state standard Nr. 421 and other related documents.

Evaluation of general situation

Programs on CCET are provided in two study lines – academic and professional. Together with doctoral studies and 2 year professional master program they compose cluster of six programs under the same name. This is by caused Latvian and RTU regulations about two study lines

The educational programmes are realised at RTU at the Electrical and Power Engineering Faculty (EPEF), where Institute if Industrial Electronics and Electrical Engineering IEEI is responsible for it. The director of the Institute is the head of the programme.

Profile of CCET programs is close to the electrical engineering branch. Computer control nowadays is an inseparable part of electrical technologies, therefore in principle programs under evaluation could be a specialization of a more general electric engineering program. However CCET programs evolved in a separate bundle of programs with increasing specificity. It seems that system of allocation of financial subsidies in RTU encourages

departments and institutes to have their own programs thus ensuring more stable financial support and sustainability.

From the other side, emerging programs cause a kind of competition and this is sometimes a favourable boosting factor. The present example of CCET programs in RTU shows positive tendencies in improving, adapting and developing the program, especially during past several years. Evaluation commission had no possibility to compare CCET programs with other RTU programs with close thematic; therefore the context of the programs under evaluation is not very comprehensive.

During past two years programs were reorganized with regards of changing RTU rules. Commission especially carefully evaluated the last changes.

3. Goals and aims of the programs

The program builds a solid base in electrical engineering with specialization in the field of industrial electronics and computer control. In 2004 professional standard for electrical engineering was accepted and accordance with CCET is stated.

There is an apparent need for students within the field. Interviews with industry and discussions with the institute staff confirmed a market of at least 50 graduated students per year for the particular field of studies. Demand of the specialists graduated form this program seems to be sufficient in future and competitiveness in the labour market – good. This was pointed out by several industry representatives both from big companies (ABB, Siemens) and smaller and local ones.

Latvian industry is changing rapidly and parallel development of study program is important. Present programs are responding to these needs. CCET as a flexible alternative to the classical power engineering programs in this case can be taken as quite reasonable solution.

Goals and aims of academic and professional programs differ only slightly. In both cases composition of theoretical and practical skills is necessary. Thus two parallel programs seem to be a quite expensive way of education. Harmonization of two – academic and professional branches makes difficulties in shaping two missions of programs, managing possible transitions of students from one to another and also causes problems in understanding the real differences of programs for employers and entering students.

4. Staff competence and teaching facilities

The educational program is realized at RTU by the Electrical and power engineering faculty, where the Institute of Industrial and Electrical Engineering (IEEI) is responsible for it and the director of the institute is also head of the educational program.

The total number of staff of IEEI involved in the study programs is 5 habilitated doctors, 9 docents and two assistants. In addition 19 lecturers from other institutes take part in the teaching of the fundamental subjects.

Qualification of all academic staff corresponds to the aims and objectives of the structural institution (IEEI) to perform the study programs. Competence in research is disclosed in chapter 7 of present report.

Staff has a good links with Latvian (especially Latvian Agriculture Academy, Latvian Maritime Academy) and foreign partners. Prof. I.Rankis cooperates with Tallin and Stokholm universities, Prof. L.Ribickis is a member of Board of European Power Electronic and Motion Control (PEMC). Prof. J. Greivulis keeps contacts with Kharkov State Technological University.

Significant contribution to the program and improve of teaching facilities is from the side of industry. Such enterprises as SIA EK Systems, VAS Latvenergo and SIA ABB Latvia provided IEEI with equipment, modern textbooks for teaching and research laboratories.

Activities during the last two years should be emphasised:

Program was made independent in respect to matriculation of new students and professional branch was introduced. This increased a number of applicants.

Eight modern computers with all necessary equipment were obtained and installed for scientific work and as well as for studies. Six computers are connected to Internet.

New laboratory stands in industrial electronics and automatic control and drives were installed, such as computerized frequency converters ACS600, reversive signal amplifiers, electric drive with double loop system of velocity control as well as controllers for process control.

In methodological work synopsis of lectures in industrial electronics, electrical engineering control theory and electronic devices have been prepared with a total volume of 500 pages

One doctoral thesis has been defended and another is prepared for presentation.

Docent I Galkin was awarded as the best young scientist of the year 2002 by the Latvian Academy of Science for his work on matrix converters.

10 scientific articles have been published in international scientific issues and reports were presented at six international conferences.

These results prove high scientific and teaching activity of the staff during the last year.

The main investigations are connected with elaboration of modern semiconductor electronic converters. In the middle of a year 15 scientific articles are published with involving students of the Bachelor program into this work.

Aivars Vilks defended Bachelor's thesis in investigation of semiconductors application and for this work he obtained Latvenergo award.

International conference PEMC-2004 was organized in September 2004 on the base of IEEI. In the conference about 600 papers were presented including papers from RTU.

5. Structure and division of the study programmes, organization of it's provision

For the assessment the staff of the IEEI was interviewed, the laboratories were visited, textbooks inspected and interviews held with students.

The teaching was well based on the course material of modern international books in the field. However, most of the course material was produced by IEEI. It would be of advantage if some courses were using English textbooks.

The interviewed students were satisfied with the study program and how it was conducted.

Facilities used by the study program in IEEI are sufficient to meet the program requirements.

Quite significant problems arise because of transition of students between academic and professional master studies. Academic bachelor studies last 3 years, but professional – 4 years. To keep total number of years in both cases – 5 - academic master studies last 2 years and professional – one year. After both master studies 3 year doctoral studies are available. In order to join professional master program for students who graduated academic bachelor (3 years) special professional master program for 2 years is prepared. Therefore total number of this program "bundle" for evaluation was 6.

Additional problem is with entering doctoral studies from academic and professional branches. Some equalization there is also needed, since missions of academic and professional master programs differ, but there is no definite position towards "professional doctorate" yet.

Experts can state that 6 programs having the same name and provided in parallel is a quite expensive way to provide studies, especially taking into account limited financing capabilities of the country. It is a long lasting paradox when due to the lack of sufficient financial support provision of programs becomes more expensive than is truly necessary. But this is related with the general policy of financial resource allocations. Obviously subsidies of the department or institute depend on the indicator which is calculated by multiplying the number of students on credit points. This creates a motivation to increase permanently a number of courses, programs and students. Staff salaries are low and insufficient financing is harmful for keeping the integrity, competence and scientific level of

the institute or department. Therefore program multiplication is a problem in many cases. This is a general tendency.

But in the case of particular programs under evaluation expansion occurred not only for that reason. Mainly it was a natural evolvement of the synergy between the electrical engineering and computer control disciplines, quite high level of science provided, competence of staff and real needs of industry.

Situation with RTU rules is transitional and lot of program evaluation problems are related with this unstable legislative environment. Anyway, programs under evaluation are prepared and conducted strictly in accordance with latest RTU decisions, rules and other documents. Authors of programs and staff involved are evidently influenced by transitional character of requirements and this needs additional efforts.

The main contribution to the programs is from IEEI staff, which is strong enough to keep a good control over programs and to coordinate contributions of other departments. During past two years especially IEEI had made progress and is able to ensure a program quality.

6. Educational process and assessment

Educational process is rather classical and well managed. For basic and general technical education courses all necessary RTU resources (laboratories, libraries, lecturers) are used.

International collaboration also has a positive role in educational process. In average two visiting professors from abroad are giving lectures each year. Good links are established with Turine Technical University, Tallin Technical University, Tokyo Denki University.

Studies in a subject are evaluated by responsible lecturer, in the kind of exam or test, with the use of 10 point scale with the least successful mark of the 4 points. Projects also are defended with the commission of lecturers and evaluated with a mark as well.

Defending of a qualification work – Master's thesis – is public, evaluated by the State commission of 8 people defined by RTU Rector, representatives of IEEI, LAS and enterprises participated in the commission. Each Master thesis should be evaluated by an opponent, a supervisor of the paper reports on the work.

Defending of a qualification work – Bachelor's thesis with the engineering project part – is also public, evaluated by a State examination committee (assigned by RTU rector) consisting of 8 people who are also the representatives of IEEI as well as LAS and manufactures. The volume of Bachelor's thesis is approximately 50 computer pages with schemes and figures. It contains theoretical questions of some electrical equipment operation and documentation of the equipment realisation (electrical schematic diagram, its description, calculations, technical and economic assessment). Each Bachelor's thesis should be evaluated by an opponent and reviewed by a scientific adviser. The mark for bachelor's thesis is based on the evaluation of general knowledge and skills.

Criteria for evaluation of knowledge and skills in a particular educational subject are in accordance with the resolution of RTU Senate from 29th January 2001 "About transition to the common evaluation system of studies results".

In parallel with university studies courses for specialists working in the industry were organized. 200 specialists underwent trough those courses in 4 years. This is a challenge for IEEI staff and also a good source of feedback for program from industry.

7. Research, involvement of staff and students

Research involvement is evidenced by participation in projects and international collaboration. Qualification of the academic staff corresponds to the aims and tasks of the Institute (IEEI) for realisation of CCET programme.

In 2001/2002 staff of IEEI is leading projects granted by Latvian Academy of Science: professor Jānis Greivulis, IEEI professor Ivars Raņķis, IEEI professor Leinīds Ribickis (two grants), IEEI docent Anastasija Ziravecka, IEEI asoc. prof. Ilja Galkins. The total volume of financial support of grants is about 8,500Ls per year. This support allows to keep running scientific activities permanently with involvement of other staff members and students.

In addition with these grants there are carried out Latvian Energy Company VAS Latvenergo financed investigations with the annual cost 15,000 Ls, which deal with semiconductor pulse controlled systems and power transmission over single wire. IEEI specialists who are connected with the program every year take part in budget financed investigations with the annual cost 9,000 Ls as well as perform contractual works with the annual cost of about 20,000 Ls. Within last years 3 times more money for research were raised.

During the last 5 years professors of IEEI published a lot of scientific publications in Latvian scientific issues as well as in foreign ones. The largest number of publications has been prepared and published by professor L.Ribickis (totally 40 publications during the last 5 years). Professor I.Rankis has published 5 monographs and 20 articles, professor J.Greivulis has about 35 articles as well as he got a large amount of Latvian patents for technical inventions.

Three teachers from the staff are 35 or younger, leading professor L.Ribickis is 56 years old. Docent I.Galkins has been elected for an associated professor in May 2003. Some actions are taken to attract new lecturers: IEEI engineer Oskars Krievs in 2002 got practice in Turine TU. In 2003/2004 O.Krievs will be involved into teaching work. In 2003 /2004 young M.sc. Ainārs Bikšis will start work on laboratory equipment for microprocessor aided control.

The best students, starting from bachelor studies are involved in above mentioned projects. For example in 2002 Bachelor student Aivars Vilks (now studying since 2003 in Master program) have got an award of Latvenergo for Bachelor's work in the area of thyristor controlled reactors. Active students are also encouraged: Oskars Krievs, Ainars Biksis, Oskars Plataiskalns (the latter is at present at the practice in Turine). Majority dfended IEEI Bachelor's and Master's theses have an element of research.

Main research is connected with development of modern semiconductor electronic converters. 15 scientific publications have been issued in the middle of the year, and the students of the programme were involved into the writing of the publications. Doctoral students are also involved in educational process.

8. Quality assessment mechanisms

Every year self-assessment is made by IEEI and summarised in RTU annual study book. Periodically questioners are use to ask the student anonymous evaluation of particular courses. Students have quite good representation in RTU senate and decision making boards.

Questionaires from Master students about master program were considered for program self evaluation. Experts had an opportunity to meet students and have a program related feedback from them.

Feedback with employers also is obtained. Latvian Association of Electrical Engineering and Electronic Manufactures (LETERA), having about 80 companies included and director I. Cvetkova, Association of Mechanical Engineering Industries (J.Krizbegs), keeps permanent contacts with IEEI and other RTU departments, giving signals about success of graduates and future needs.

Experts have had a sincere discussions with representatives of Latvian employers representing 10 enterprises in the power engineering and electronics field. Employers from SIEMENS, Latvenergo, Danfos Latvia, Dambis, ELVO, FESTO, Livani, ABB and other expressed their estimates of CCET study programs and qualifications of graduates they have employed.

In general estimates are positive and it seams that enterprises are interested in getting graduates from CCET program. Survey provided by LETERA have shown, that at present in Latvian industry there is a 10 % lack of specialists in the field (in absolute values this is about 200 specialists). In the year 2007 this shortage is anticipated to be 20%.

Feedback from industry shows interest towards professional education, and rather limited interest is for doctors and academic education graduates. But at the same time creative

specialist able to innovate, design new products and create new companies and working places is needed in reviving Latvia, was pointed as well. Academic branch and Research is needed also, (Livani fiber glass (Japan) in Latvia express this need for example).

Quality of study process is also discussed in professional association of electrical engineers and professional standards for graduate qualifications is under development.

9. Strong and week points of programs

There a commission will point only main strong and week points of the program. (See the text for more details and recommendations).

Strong points

Responsiveness to the Latvian needs and good collaboration with professional associations and industry

Staff is active in research and international collaboration

Involvement in program of best RTU facilities and competences

Friendly relations with students, response to their wishes and needs

Week points

Transient situation in balancing academic and professional lines of education

Staff ageing

Insufficient equipment facilities for basic and advanced courses and research

Insufficient supply of modern teaching materials particularly by the use of digital communication technologies "virtual university"

General notes and recommendations

For evaluation commission it would be better to accredit all similar programs in RTU (and probably in Latvia) and have a broad context for explicit evaluation. (for example experts had lack of information on similar programs in RTU for comparison, e.g. "Electrical Engineering" (MSc in CCET programs are different, while BSc are 50 per cent overlapping).

The inclusion of two programs (CCET and Power and Electrical Engineering in RTU) with a major part of electrical engineering but focus on different needs of the industry has a positive effect since the industry and society needs are met and the students applying to the program have a clear picture of its content and what it will lead to. Also the group of students will be well defined through the bachelor and master programs. On the other hand the splitting up may hamper the students if they later during their studies would like to change direction.

The present program was in principle included in the previous evaluation of the Academic and professional programs in 'Electrical and power engineering' which now has been reformulated in to the present program and a program on 'Electric power engineering'. Therefore several conclusions are the same as for the previous evaluation. The reorganisation of the studies has considered the recommendations made. The program of "Computerised control of electrical technologies" contains one focused direction.

Programs on professional line are new: no possibilities to evaluate outcome, because there are no graduates.

The scope of the programme is a translation from Latvian which may not be fully successful. A direct translation would give: 'Electrical engineering and computer control', which seems to be a better English description. However, also other titles could have been chosen. The scope falls well with that of the IEEE Industrial electronics society and a title 'Industrial electronics and computer control' is an obvious alternative choice of title.

Study program evaluation is being done in the situation of legislative changes in Latvia and in circumstances of RTU management to cope with those changes and to optimise university structure and functions. Therefore it was additional challenge for evaluation commission to take into account all transient effects in study programs (academic, professional, transition programs, standards that came and so on) . The position of commission is to concentrate on the essential values of the program rather than on the changes in outside situation.

Rising the role of RTU institutes in managing study programs is positive because this ensure closer links with research and industry and institute is freer in interdisciplinary fields. In the same time it's important to balance the rights and responsibilities,

Two parallel branches of programs – academic and professional if it is rational? This question should be put for further discussions.

It is recommended to discuss a following scheme of programs: broad intake, equal courses during first two years and specialization later.

There should be more free elective courses to ensure necessary flexibility in the study program and possible specialisation lines. In majority of programs free choice is only 4-6 CP, it is too little concerning a diverse situation in Latvian industries and rapidly changing qualification needs in particular working places. (Students are already working in many cases and can formulate their own special knowledge needs).

A rapid change in Latvian industry and technologies used imposes the study programs to be flexible and responsive to the environment. Therefore it must be special mechanisms to meet this challenge. Student's freedom to choose their own composition of courses, creating of possibilities to make "learning by doing" in industry, involvement of professional associations in shaping programs and course contents are among the possible solutions. Students are in many cases forced to work and study because of tough economic situation. Therefore study process suffers. Special measures should be taken to respond the needs of working students in terms of time tables and facilities on one hand and to involve industry in creating environment for studying (in terms of project themes, supervising, information materials etc.)

There is a great attention (especially in professional programs) to the practice: 26 CP for professional Bachelor and additionally 6 CP for professional Master practices. This is a big time recourse, but effectiveness of the use is not sufficient. Supervisors in the industry are not paid; there is a lack of practical placements.

Good modern books in English are in one volume in IEEI of each good book. This means that still a problem with modern teaching materials is actual. There is not enough to rely on efforts of IEEI staff. Students (mainly form abroad complain that in Latvia English textbooks are more expensive to compare with other countries).

There is a urgent need for a new equipment for teaching and research. Lack of sufficient financial support leads to diversification of equipment (e.g. controllers and processors) which is donations of various sponsors. (The efforts of RTU to submit for EU structural funds are very important there).

In all programs it is recommended to strengthen distinctive feature of the program: computer control. The essential program part is dealt with computer science, control and informatics. This line is of increasing importance and also is a distinctive feature of the program. Institute is covering about 30 per cent of this field together with other institutes and faculties. Specific courses in this area should be strengthened and developed. First steps made towards modern digital control devices are already made in last two years.

It is advisable to have clear methodical line of digital methods and software programs throughout the whole study program – from mathematical courses up to the advanced courses of non-linear dynamic system simulations.

There is still an ageing problem of staff. Special means should be taken to attract young lecturers and researchers.

PhD studies are of rising level, good international links, good resource for ageing problem. Academic Master Program is essential step for doctoral studies and also for development and creative work. Although industry doesn't manifest a strong need for high academic level of specialists, in the long run evolvement of Latvian industry will depend on high competence and creativity of specialists.

University mechanisms of financial support of the institute should encourage to look for effective provision of programs and also to ensure favourable environment in the university for teaching and research. Cooperation of faculties, departments, institutes and divisions

should be more motivated by proper financing scheme. It seems that a university body, which gets money for a program, are not motivated to cooperate with other bodies and include courses from these.

It would be desirable to involve permanently industry bodies and associations into decision-making on study programs. Especially this is important in the case of new program, which is in this case of evaluation.

In context of a good research done in the IEEI and extensive international collaboration there should be initiated more international projects both in teaching and in research.

Summary and final conclusions for particular study programs
Academic Bachelor study program on COMPUTERISED CONTROL OF ELECTRICAL TECHNOLOGIES to be accredited for 6 years

Motivation and recommendations to the program

   The goal for the bachelor program is to provide basic academic education in the field of electrical engineering and computer control and training for continued studies. Comparison with similar study programs in Finland, Hungary and Sweden and discussion with employees of Latvian institutions and industries has shown that the goal is achieved.

The evaluated program computerized control of electrical technologies was developed for preparation of specialists in industrial electronics, electric drives and automatic control for such areas like machine building, metallurgy, transport, light industry, wood working industry and civic economy with directions to optimisation of power consuming as well as use and control of alternative sources of energy

Program is quite new and should define and declare it's clear mission in context of existent ones. Emphasis on advanced and emerging technologies and computer control in electric power engineering are to be distinctive features. Therefore core issues of informatics, control, digital methods and simulation of complex dynamic systems should be further developed in program and particular courses using the best competences of RTU.

Students are offered sufficient basic and applied courses. The number of credits for mathematics is lower than the compared programs in western universities. Also the number of credits in control theory and signal processing seems quite low. Apparently more emphasis is put on the applications than on basic knowledge although this is an academic line of studies. However, the mathematical and other fundamental matters are included within other courses. Such a method of linking basic and applied studies seems acceptable but it is advisable also to bring in basic competences from other Institutes of RTU in the program.

Number of free choice subjects seems to be low taking into account diversified Latvian industry and needs to adapt individually to the labour market.

Academic Master study program on COMPUTERISED CONTROL OF ELECTRICAL TECHNOLOGIES to be accredited for 6 years

Motivation and recommendations to the program

The goal for the academic master program is to give a deeper knowledge in the field of industrial electronics and computer control and prepare the students for scientific and teaching work. Comparison with similar study programs in Finland and Norway and discussion with employees of Latvian institutions and industries has shown that the goal is achieved.

Scientific competence of the staff and practical experience is sufficient for providing of master program. Publications, patents and projects are suitable basis for advanced teaching.

A direct comparison with the programs in Finland and Norway is not possible since these countries don't have a separate master program rather they integrate the bachelor and master studies into one program. It would be of value if the program also included possible choices of advanced control theory and signal processing.

Excluding some projects, courses, free choices and practice makes transformation of the program form 3 to 2 years. Those changes should be in near future carefully harmonised with bachelor program and new requirements for the content of master thesis.

Employers also express the need to develop skills of graduates in engineering design and project leadership of power and drive systems.

Specific advanced courses on computerised control of industrial systems occupy about 6 credit points. It seems too low number for the master program of computerised control of industrial systems in context of courses on industrial electronics and electronic devices which occupy 33 credit points.

Professional Bachelor study program on COMPUTERISED CONTROL OF ELECTRICAL TECHNOLOGIES to be accredited for 6 years

Motivation and recommendations to the program

This is a new 4 years 160 CP program which received a license and has been started in academic year 2003/4 therefore it was difficult to evaluate it with regards of all education process and outcome. 4 years bachelor will have practice, project and practical skills.

Program is provided using a good potential of IEEI and other RTU departments, also a solid work of applied research carried out in projects with industry and under LSA grants. It can be encouraged the more active use of research potential for study projects work. (8 projects are foreseen in the program).

It can be foreseen some uncertainty in choosing academic and professional bachelor programs by students: industry is more for professional program, there are no clear differences in study programs. If professional and academic lines will persist in parallel, great care should be taken to balance them. In other case it would be reasonable to reconsider a rationale of professional and academic lines (see general notes and recommendations above).

In response to Latvian industry needs three separate blocks of speciality subjects were introduced each with 20 CP in following fields: industrial electronics and electrical technologies; surface electrical transport; railway automation and computer control. Experts evaluate positively this specialization.

Program meets the Latvian standard of profession "Engineer electrician" with the 5th qualification level.

Although 6 CP for free elective courses fit into RTU requirements, it seems that this number is too little.

In order to have full advantages from 26 CP of practice, it should be organized with great care towards proper placements, supervision, reporting and tracking of student's working time.

Profesional Master study program on COMPUTERISED CONTROL OF ELECTRICAL TECHNOLOGIES (one year program) to be accredited for 6 years

Motivation and recommendations to the program
Studies have been started in 2003/4 with the acceptance of the students for the full time and transition groups with Bachelor academic degree in electrical engineering.
So the program is new and evaluation is without outcome analysis also without analysis of full study process and competence of graduates.

This one year master program is a continuation of a professional Bachelor studies with the same title and is well matched in between. Program is provided using a good potential of IEEI and other RTU departments, also a solid work of applied research carried out in projects with industry and under LSA grants.

Since one year is very short time (many of western universities have longer period) to provide a good professional competence and prepare to enter doctoral studies, special care must be taken to define clear requirements for accepting students.

Individual and problem oriented approach, close collaboration with practice institutions, involvement students in projects with industry is especially recommended.

Profesional Master study program on COMPUTERISED CONTROL OF ELECTRICAL TECHNOLOGIES (two year program) to be accredited for 6 years

Motivation and recommendations

This program is for those who enter the program from 3 year Academic Bachelor studies also from Bachelor studies other relevant specialities. This is a result of differences in academic and professional lines of education discussed above in the report. In order to ensure a freedom of choice after Bachelor studies new program was necessary to establish.

It is too new program to evaluate it in action. It is based on the potential of IEEI and other related programs, therefore can be estimated positively.

Doctoral study program on COMPUTERISED CONTROL OF ELECTRICAL TECHNOLOGIES to be accredited for 6 years

Motivation and recommendations to the program

The goal for the doctoral program is to train high-qualified specialists who can solve tasks of scientific novelty and to prepare lecturers for higher education and scientific research institutions in the field of electrical engineering and computer control and training for continued studies.

Good level of studies, international collaborations, 11 students are on the list, 8 are "live", outcome - 3 defendences within 2 years. 28 papers were prepared for conference in Riga EPE-PEMC 2004 in September 2004.

It is recommended to publish more articles in western referred journals, not only in Latvian or Baltic journals.

Demand to publish 5 papers during doctoral studies is too high. Instead at least 1 paper should be published in well internationally recognized (peer reviewed) journal. (3 years are too short time for 5 papers to be published).

The program has a great potential. This e.g. demonstrated by Docent I Galkin's award as the best young scientist of the year 2002 by the Latvian Academy of Science.

No comparison has been made with similar programs in other countries. It is known that the doctoral programs around the world show quite a variety. However it is recommended to select some international institutions and to carry out a bench marking with some foreign institutions. An important issue is the ratio of course work and the scientific project. It is important that sufficient time is given for the scientific work. The course work should be limited or could even be omitted as e.g. in U.K.

The high number of 11 registered Ph.D. students to the program confirms the attractiveness of the field. However, only 2 of these Ph.D. students are full time active at the university. The majority has a part time employment. This will certainly distract the students from their research which is best done at the institute and it will significantly prolong their studies. Also their contribution to the creative environment at the institute will be lost. Its is recommended to try to establish sponsored research positions for the Ph.D. students at the institute.

Potential of IEEI allows recommending more international research projects to be prepared   with possible involvement of all staff.

On behalf of Evaluation Commission

Prof. Arunas Lukosevicius

2002-05-28

Higher Education Quality Evaluation Center of Latvia

Evaluation of the
Academic Study Programmes in
Computer Management, Information and Electronic Systems of Transport
RTU, March 21-22, 2005

JOINT ACCREDITATION REPORT

regarding

Bachelor's Study Program
Master's Study Program
Doctoral Study Program

Evaluation commission members

Professor Mart Min, Tallinn Technical University, Estonia

Assoc. Prof. Lars Olsson, Lund University, Sweden
Professor Peteris Rivza, Agriculture University, Latvia

Introductory summary

Two members of the present evaluation commisson, Professors Peteris Rivza and Lars Olsson, took part in the evaluation process also two years ago, when the same study programs were accreditated only for 2 years.

Prof. Olsson concluded two years ago that "…the academic programmes can probably not be run in an economic fashion, without extensive rationalisation. The programs on electronics and computer engineering must be incorporated in the ordinary programs of RTU, possibly with an extended elective part of the programme preparing for the specific problems of transportation."

Further from this report: "The usual remark regarding the very many small courses is repeated here again. Too many of the credit points are spent on these. In the fast changing world for engineers of today, a solid and broad basis, on which relevant new knowledge and skills can be built, is far more relevant. The reason for the existence of the very short courses is again history, which has generated so many problems. This problem must be dealt with in the near future."

Now, two years later, the both professors mention: "It has made a great impression to see the changes that have taken place after the evaluation two years ago. The professional program has been abandoned, and the academic programs for Bachelor's and Master's degree have been renovated much according to the recommendations given at that time. Still, though, it is claimed that the deep specialisation in the existing equipment and procedures for, above all, the railway, is needed to such a degree that a separate programme is needed". The professors have made a conclusion that during the last two-year period of reshaping the programs, the Faculty has been very successful. It has, though, not been successful in recruiting younger staff and in enhancing international cooperation and student and teacher exchange.

The head of the commission, Prof. Mart Min, was not included into the commission two years ago, and he had not possibility to compare the changes. Therefore, his attitude is more critical. He concludes that "…not all the staff members are aware what the academic study program is, they try to continue professional studies in frames of the new program preparing narrow-focused specialists". He recommends to reduce the number of specialised courses drastically, reducing the number of teachers concurrently.

The commission concluded that the process to merge with other programmes at RTU must continue. Special issues, such as navigation methods, communications in transportation, safety and reliability, radar, localisation etc, which are needed specially for engineers in the transport sector, could be taught as elective courses in the latter part of the education. This way the students may choose this speciality after a few years of study. This would also make the programme more academic and adequate for RTU.

It is very advisable to find a better definition and name for the program, e.g. Telematics, Safety-Critical Systems etc.

Laboratories

The laboratories are fairly well equipped with modern instruments, much of the fundamentals in measurement techniques, circuit theory, electronics, telecommunications, audio etc, are well exercised by the students, completed with computer simulations in some labs. For practical exercises even very old-fashioned equipment seems to be rather relevant and suitable. Of course, the labs are poor for carrying out the experimental research at international level. Performing of doctoral theses suffers as well due to this reason.

Curriculum

The volume of mathematics in the Masters' program is not obviously adequate unless more mathematics is introduced in other courses, when needed. Training in project work and

management, to write reports, and teamwork are still missing. Some new study methods should be included, which prepare the students better for industrial work.

The work to combine some courses with other programmes offering almost the same courses should continue.

Computers

Computers are available to the students at a satisfying rate and access to Internet is open to them and maintained. Some of the laboratories had computer calculation and simulation tools of relevant standards. Whether these are also used for preparing presentations of projects is not known.

Libraries

The students are given adequate access to libraries at the departments and institutions, which up to date regarding both books and journals. Also the scientific library, which is well prepared and administrated, is available to students at all levels. Facilities for searching for literature on the Internet are also available to the students.

Students

The students are very content with their studies and the teachers, who are friendly and helpful. The number of younger teachers is a bit low. Many of the students we met spoke English fairly well, but some did not even understand.

Still the students are not fully aware of their Student's Union.

Teachers

We are impressed by the competence and devotion of the teachers. Theses for Bachelor's and Master's level that were shown to us are adequate and of high quality.

The university will run completely out of teachers within less than ten years, if the conditions for doctoral students are not changed drastically. This is obvious from the self-evaluation reports, and by observations at the meetings with students and teachers.

The research work of staff members carries a local character in most cases, there were almost no publications in the well known international journals and conference proceedings. It can restrain the doctoral studies when the supervisors are not known in European scientific society by their published works.

Interaction with industry

The Master's program is considered to be good for the industry. The engineers are attractive – and there is competition between companies.

Many students still have work part-time during their studies. The employers are willing to adjust working hours to fit their studies.

Conclusions

The good results achieved so far during the past two years make it possible to recommend **six years accreditation for the Bachelor's and Master's programmes**, with a strong focus on reduction of the number of courses. More of them could be taken by the students together with other programmes having similar contents. Specialisation is not as important nowadays as flexibility. At the Master's level a solid basis is more important, that allows rapid adoption to new technologies unknown of today. This is particularly important in the transport area, since the development is fast regarding new logistics and technology. It will be important to put more emphasis into recruiting more BSc students for the MSc level in order to increase the number of PhD students.

Six years accreditation is suggested for the doctoral programme, which has now got more realistic requirements regarding publications. A strong effort is needed to increase the

number of doctoral student, in order to fill out vacancies caused by retirement of older teachers and researchers.

Theses of the preliminary report set up in Riga, March 22, 2005 are given on the next page.
The preliminary report set up in Riga on March 22, 2005 expresses:
better focus on the academic studies – this is not supposed to be a new professional education
the programmes must have a clearly defined administration – where does it actually belong?
Bachelor's and Master's degree studies could be better merged with corresponding studies at RTU
the definition Transport should be rather on exit from the programme, than an entire programme itself
a better definition and name of the programme is needed, that attracts young students, such as Transport Electronics and Telematics, or maybe just Telematics
resources have to be carefully considered – both human and material
the number of PhD students must be increased or coordinated with other PhD programmes at RTU

Mart Min

Head of the Commission

In Tallinn,
May 2, 2005

Higher Education Quality Evaluation Center of Latvia

Evaluation Commission's Final Report

Riga Technical University

Faculty of Computer Science and Information Technology

Accreditation assessment report regarding academic study programs

Automation and Computer Engineering

and

Information Technology

Visit date: 15 – 16 January, 2004

Evaluation commission members:

Professor em. Janis Bubenko jr, Royal Institute of Technology, Stockholm, Sweden

Professor Jüri Kiho, Tartu University, Estonia

Professor Peteris Rivza, Agriculture University, Latvia

The Accreditation Task

The Evaluation Commission visited the Faculty of Computer Science and Information Technology (hereinafter called "Faculty") Thursday and Friday, 15 – 16 January, 2004. The expert team met with the leading staff of the Faculty, including those responsible for the programs. It also conducted interviews with three groups of students (undergraduates and graduates). The Evaluation Commission also met with Rector of RTU, as well as with representatives of employers. At the conclusion of the visit, the Evaluation Commission conducted a meeting with the academic staff of the Faculty and highlighted some of the strengths and weaknesses of the programs under review. The accreditation recommendations elaborated by the Evaluation Commission were offered at this final meeting.

The following study programs were evaluated:

1. Academic Study Program AUTOMATION AND COMPUTER ENGINEERING, Master's degree studies

2. Academic Study Program AUTOMATION AND COMPUTER ENGINEERING, Doctor's degree studies

3. Academic Study Program INFORMATION TECHNOLOGY, Doctor's degree studies

Assessment of study program AUTOMATION AND COMPUTER ENGINEERING, Master's degree studies

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I Aims and objectives

1. Possibility to understand, to reach, and to control the aims and objectives defined by the study program.
Assessment. Satisfactory
Comment: in general it was not obvious to see how the content of the programs contributed to the goals set for the programs, for instance to provide scientific research skills, participation in student organizations, etc.

II The content and organization of the studies.
Assessment: Highly satisfactory
Comment: The studies of the programs are in general well organised and monitored.

2. Complying with the professional and education standards, legislation of the Republic of Latvia and with the requirements and standards of the European Union.
Assessment: Highly satisfactory
Comment: The evaluation commission is not aware of any deviations from the standards and legislation of the Republic of Latvia.
3. Consistency of the study programs and its parts with the demands to create the common European education space, including the comparison with at least two study programs from EU countries.
Assessment: Satisfactory
Comment: Comparisons made with other European universities were not particularly deep nor detailed.

4. Qualification and professional standard of the academic staff members.
Assessment: Excellent
Comment: Some leading senior staff members are close to the age of retirement. Recruiting of younger staff members has been carried out.

III Assessment of teaching and learning.

Assessment: Highly satisfactory
Comment: Students were in general satisfied with the programs and were prepared to recommend the programs to their colleagues and friends.
5. Modern methodology of teaching, a clear statement of results to be expected, problem solving, use of computers, internet, audiovisual and multi media equipment.
Assessment: Highly satisfactory
Comment: The evaluation commission could not detect any notable deficiencies in the infrastructure of the teaching environment. Some complaints were, however, made about the cost of access to scientific literature not available at the local libraries.
6. Counselling and guidance for students, academic supervision and consultations of the teaching staff, increasing of the students' motivation to study.

Assessment: Highly satisfactory
Comment: This situation was assessed to be better than normal compared to other universities in Europe.
7. Methods to assess the knowledge, skills and attitudes, their objectivity use to improve the studies.
Assessment: Satisfactory
Comment: This seems to vary depending on the teacher or supervisor, but on the whole it seems to be carried out in a professional and systematic way. The evaluation commission found, however, that a regular and systematic evaluation, made by students of courses given, was missing.

IV The management and support of the studies

Assessment: Highly satisfactory
Comment: The study processes of the three programs are in general well managed, with the exception of a quality control (e.g. course evaluation) that could be performed more regularly.
8. Respect of the principles of democracy, clear definition of the relations among representatives of the administration, academic staff and students;

Assessment: Highly satisfactory
Comment: Interviews with students as well as with staff did not reveal any deficiencies in this sense.
9. Cooperation with other higher education establishments, research institutions, international organizations; exchange of staff and students with other higher education establishments.
Assessment: SatisfactoryComment: International cooperation within the EU is in the process of being developed.
10. Methodological, informational and technical resources and facilities of the study program.
Assessment: Highly satisfactory
Comment: Interviews with students as well as with staff did not reveal any deficiencies in this sense.

V Research (creative) activities of the staff and the students

11. Involvement of the academic and general staff in the research (creative) activities, up to date character and connection with the content of the study program.

Assessment: Highly satisfactory
Comment: This matter seemed to be well taken care of and monitored.

VI Quality assessment and mechanisms to ensure it

Assessment: Satisfactory
Comment: Course evaluation by students is not carried out systematically nor regularly.
12. Annual self-assessment of the study programs, evaluation of the strengths and weaknesses, changes, plans and possibilities for the development, continuously action of the system of self-evaluation and quality improvement.
Assessment: Satisfactory
Comment: This whole issue should be re/engineered by the faculty and regular and systematic procedures developed and implemented.
13. Successful work of graduates according to their qualification.
Assessment: Satisfactory
Comment: More systematic, regular and frequent contacts with business and industry would improve this situation.
14. Opportunities to continue studies and financial guarantees in the case of closure of the program, its re-organization and other changes.
Assessment: Highly satisfactory
Comment: An agreement exists in case the Masters Program in Automation and Computer Engineering is discontinued.

Assessment of study program AUTOMATION AND COMPUTER ENGINEERING, Doctor's degree studies

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I Aims and objectives

1. Possibility to understand, to reach and to control the aims and objectives defined by the study program.
Assessment. Satisfactory
Comment: in general it was not obvious to see how the content of the programs contributed to the goals set for the programs, for instance to provide scientific research skills, participation in student organizations, etc.

II The content and organization of the studies.

Assessment: Highly satisfactory
Comment: The studies of the programs are in general well organised and monitored.
2. Complying with the professional and education standards, legislation of the Republic of Latvia and with the requirements and standards of the European Union.
Assessment: Highly satisfactory
Comment: The evaluation commission is not aware of any deviations from the standards and legislation of the Republic of Latvia.

3. Consistency of the study programs and its parts with the demands to create the common European education space, including the comparison with at least two study programs from EU countries.
Assessment: Satisfactory
Comment: Comparisons made with other European universities were not particularly deep nor detailed.
4. Qualification and professional standards of the academic staff members.
Assessment: Highly satisfactory
Comment: In the department of Automation and Computer Engineering some leading senior staff members are close to the age of retirement. Recruiting of younger staff members has been done. However, almost half of the PhD candidates are supervised by professors formally employed by other institutes.

III Assessment of teaching and learning.

Assessment: Highly satisfactory
Comment: Students were in general satisfied with the programs and were prepared to recommend the programs to their colleagues and friends.
5. Modern methodology of teaching, a clear statement of results to be expected, problem solving, use of computers, internet, audiovisual and multi media equipment.
Assessment: Highly satisfactory
Comment: The evaluation commission could not detect any notable deficiencies in the infrastructure of the teaching environment. Some complaints were made about the cost of access to scientific literature not available at the local libraries.
6. Counselling and guidance for students, academic supervision and consultations of the teaching staff, increasing of the students' motivation to study.

Assessment: Highly satisfactory
Comment: This situation was assessed to be better than normal compared to universities in Europe. At the doctoral level supervisors do spend 2 - 3 hours/week/student in guiding the student. In an international comparison this is fully satisfactory.
7. Methods to assess the knowledge, skills and attitudes, their objectivity use to improve the studies.
Assessment: Satisfactory
Comment: This seems to vary depending on the teacher or supervisor, but on the whole it seems to be carried out in a professional and systematic way.

IV The management and support of the studies

Assessment: Highly satisfactory
Comment: The study processes is in general well managed, with the exception of quality control that could be done more systematically and regularly.

8. Respect of the principles of democracy, clear definition of the relations among representatives of the administration, academic staff and students;

Assessment: Highly satisfactory
Comment: Interviews with students as well as with staff did not reveal any deficiencies in this sense.
9. Cooperation with other higher education establishments, research institutions, international organizations; exchange of staff and students with other higher education establishments.
Assessment: Satisfactory
Comment: International cooperation is in the process of being developed.

10. Methodological, informational and technical resources and facilities of the study program.
Assessment: Highly satisfactory
Comment: Interviews with students as well as with staff did not reveal any deficiencies in this sense.

V Research (creative) activities of the staff and the students
11. Involvement of the academic and general staff in the research (creative) activities, up to date character and connection with the content of the study program.

Assessment: Highly satisfactory
Comment: This matter seemed to be well taken care of and monitored.

VI Quality assessment and mechanisms to ensure it
Assessment: Satisfactory
Comment: Course evaluation by students is not carried out systematically nor regularly.

12. Annual self-assessment of the study programs, evaluation of the strengths and weaknesses, changes, plans and possibilities for the development, continuously action of the system of self-evaluation and quality improvement.
Assessment: Satisfactory
Comment: This whole issue should be re-engineered by the faculty and regular and systematic procedures developed and implemented.
13. Successful work of graduates according to their qualification.
Assessment: Satisfactory
Comment: Experience with more than one graduate is lacking.
14. Opportunities to continue studies and financial guarantees in the case of closure of the program, its re-organization and other changes.
Assessment: Highly satisfactory
Comment: Such an agreement exists in case of the Doctors Degree Program in Automation and Computer Engineering is discontinued.

Assessment of study program INFORMATION TECHNOLOGY, Doctor's degree studies

_____

I Aims and objectives
1. Possibility to understand, to reach and to control the aims and objectives defined by the study program.
Assessment. Satisfactory
Comment: in general it was not obvious to see how the content of the programs contributed to the goals set for the programs, for instance to provide scientific research skills, etc.

II The content and organization of the studies.
Assessment: Highly satisfactory
Comment: The studies of the programs are in general well organised and monitored.

2. Complying with the professional and education standards, legislation of the Republic of Latvia and with the requirements and standards of the European Union.

Assessment: Highly satisfactory

Comment: The evaluation commission is not aware of any deviations from the standards and legislation of the Republic of Latvia.

3. Consistency of the study programs and its parts with the demands to create the common European education space, including the comparison with at least two study programs from EU countries.

Assessment: Satisfactory

Comment: Comparisons made with other European universities are not particularly deep nor detailed.

4. Qualification and professional standard of the academic staff members.

Assessment: Excellent

Comment: In the department of Information Technology some leading senior staff members are close to the age of retirement. Recruiting of younger staff members has, however, been done.

III Assessment of teaching and learning.

Assessment: Highly satisfactory

Comment: Students were in general satisfied with the programs and were prepared to recommend the programs to their colleagues and friends.

5. Modern methodology of teaching, a clear statement of results to be expected, problem solving, use of computers, internet, audiovisual and multi media equipment.

Assessment: Highly satisfactory

Comment: The evaluation commission could not detect any notable deficiencies in the infrastructure of the teaching environment. Some complaints were made about the cost of access to scientific literature not available at the local libraries.

6. Counselling and guidance for students, academic supervision and consultations of the teaching staff, increasing of the students' motivation to study.

Assessment: Highly satisfactory

Comment: This situation was assessed to be better than normal compared to universities in Europe. At the doctoral level supervisors do spend 2 - 3 hours/week/student in supervising the student.

7. Methods to assess the knowledge, skills and attitudes, their objectivity use to improve the studies.

Assessment: Satisfactory

Comment: This seems to vary depending on the teacher or supervisor, but on the whole it seems to be carried out in s professional and systematic way. The evaluation commission found, however, that a regular and systematic evaluation by students of courses presented, was missing.

IV The management and support of the studies

Assessment: Highly satisfactory

Comment: The study processes of the three programs are in general well managed, with the exception of a quality control that could be done more regularly.

8. Respect of the principles of democracy, clear definition of the relations among representatives of the administration, academic staff and students;

Assessment: Highly satisfactory

Comment: Interviews with students as well as with staff did not reveal any deficiencies in this sense.

9. Cooperation with other higher education establishments, research institutions, international organizations; exchange of staff and students with other higher education establishments.

Assessment: Excellent

Comment: International cooperation and exchange is intense and well developed.

10. Methodological, informational and technical resources and facilities of the study program.

Assessment: Highly satisfactory

Comment: Interviews with students as well as with staff did not reveal any deficiencies in this sense.

V Research (creative) activities of the staff and the students

11. Involvement of the academic and general staff in the research (creative) activities, up to date character and connection with the content of the study program.

Assessment: Highly satisfactory

Comment: This matter seemed to be well taken care of and monitored.

VI Quality assessment and mechanisms to ensure it

Assessment: Satisfactory

Comment: Course evaluation by students is not carried out systematically nor regularly.

12. Annual self-assessment of the study programs, evaluation of the strengths and weaknesses, changes, plans and possibilities for the development, continuously action of the system of self-evaluation and quality improvement.

Assessment: Satisfactory

Comment: This whole issue should be re-engineered by the faculty and regular and systematic procedure developed and implemented.

13. Successful work of graduates according to their qualification.

Assessment: Highly satisfactory

Comment: The working situation of graduates seems good. Some have returned to the institute as well. This ensures continued staffing of high quality of the institute.

14. Opportunities to continue studies and financial guarantees in the case of closure of the program, its re-organization and other changes.

Assessment: Highly satisfactory

Comment: Such an agreement exists in case of the Doctors Degree Program in Information Technology.

Concluding remarks

The commission was in general satisfied with the programs presented. It was also satisfied with the competence and qualifications shown by the staff of the departments. The master and doctoral students showed a serious determination toward their studies and a mature attitude regarding the importance of higher education. The employers of students found the qualifications of students starting their employment in general good.

Very good contacts are being kept with the graduates from earlier years, most of whom have become employers of more recent Faculty graduates. The Faculty has monitored the outcome and performance activities of its graduates from the program; consequently, it can use such information to improve the quality of the programs. The Faculty receives information about the working career of its graduates, information regarding employers' satisfaction with the level, knowledge, and skills taught within the Faculty. The subject area

is rapidly evolving and it is important that the Faculty monitors its activities so it can respond to a changing intellectual, commercial, and cultural environment.

There seems also to be good co-operation between the Faculty and Latvian government agencies, business, and IT companies.

The commission would, however, like to recommend explicit education and training in scientific methodology and in scientific communication, e.g. writing and reviewing of scientific publications and project proposals, such as for example project proposals to be funded by the European Commission. Such an activity will further enhance the international cooperation of the Faculty.

In conclusion, the commission would like to stress that during the last two-year period of running the programs the Faculty has gained further improvements. It has had success in recruiting younger staff and in enhancing international cooperation and student exchange. Also, the forecast for output from the Doctor's degree programs for the next two years seems promising indeed.

Recommendation for accreditation

The commission has the following recommendations regarding the three study programs evaluated.

1. Academic Study Program AUTOMATION AND COMPUTER ENGINEERING, Master's degree studies
Accreditation for six years.

2. Academic Study Program AUTOMATION AND COMPUTER ENGINEERING, Doctor's degree studies
Accreditation for six years.

3. Academic Study Program INFORMATION TECHNOLOGY, Doctor's degree studies
Accreditation for six years.

Riga, 16 January, 2004
     Janis Bubenko jr   Jüri Kiho
                            Peteris Rivža

     On behalf of the evaluation commission

     Janis Bubenko jr
     Chair of commission

Higher Education Quality Evaluation Center of Latvia

Evaluation of the
Academic Study Programmes in
Computer Management, Information and Electronic Systems of Transport
RTU, March 21-22, 2005

JOINT ACCREDITATION REPORT

regarding

Bachelor's Study Program
Master's Study Program
Doctoral Study Program

Evaluation commission members

Professor Mart Min, Tallinn Technical University, Estonia

Assoc. Prof. Lars Olsson, Lund University, Sweden
Professor Peteris Rivza, Agriculture University, Latvia

Introductory summary

Two members of the present evaluation commisson, Professors Peteris Rivza and Lars Olsson, took part in the evaluation process also two years ago, when the same study programs were accreditated only for 2 years.

Prof. Olsson concluded two years ago that "...the academic programmes can probably not be run in an economic fashion, without extensive rationalisation. The programs on electronics and computer engineering must be incorporated in the ordinary programs of RTU, possibly with an extended elective part of the programme preparing for the specific problems of transportation."

Further from this report: "The usual remark regarding the very many small courses is repeated here again. Too many of the credit points are spent on these. In the fast changing world for engineers of today, a solid and broad basis, on which relevant new knowledge and skills can be built, is far more relevant. The reason for the existence of the very short courses is again history, which has generated so many problems. This problem must be dealt with in the near future."

Now, two years later, the both professors mention: "It has made a great impression to see the changes that have taken place after the evaluation two years ago. The professional program has been abandoned, and the academic programs for Bachelor's and Master's degree have been renovated much according to the recommendations given at that time. Still, though, it is claimed that the deep specialisation in the existing equipment and pro- cedures for, above all, the railway, is needed to such a degree that a separate programme is needed". The professors have made a conclusion that during the last two-year period of reshaping the programs, the Faculty has been very successful. It has, though, not been successful in recruiting younger staff and in enhancing international cooperation and student and teacher exchange.

The head of the commission, Prof. Mart Min, was not included into the commission two years ago, and he had not possibility to compare the changes. Therefore, his attitude is more critical. He concludes that "...not all the staff members are aware what the academic study program is, they try to continue professional studies in frames of the new program preparing narrow-focused specialists". He recommends to reduce the number of specialised courses drastically, reducing the number of teachers concurrently.

The commission concluded that the process to merge with other programmes at RTU must continue. Special issues, such as navigation methods, communications in transportation, safety and reliability, radar, localisation etc, which are needed specially for engineers in the transport sector, could be taught as elective courses in the latter part of the education. This way the students may choose this speciality after a few years of study. This would also make the programme more academic and adequate for RTU.

It is very advisable to find a better definition and name for the program, e.g. Telematics, Safety-Critical Systems etc.

Laboratories

The laboratories are fairly well equipped with modern instruments, much of the fundamentals in measurement techniques, circuit theory, electronics, telecommunications, audio etc, are well exercised by the students, completed with computer simulations in some labs. For practical exercises even very old-fashioned equipment seems to be rather relevant and suitable. Of course, the labs are poor for carrying out the experimental research at international level. Performing of doctoral theses suffers as well due to this reason.

Curriculum

The volume of mathematics in the Masters' program is not obviously adequate unless more mathematics is introduced in other courses, when needed. Training in project work and

management, to write reports, and teamwork are still missing. Some new study methods should be included, which prepare the students better for industrial work.
The work to combine some courses with other programmes offering almost the same courses should continue.

Computers
Computers are available to the students at a satisfying rate and access to Internet is open to them and maintained. Some of the laboratories had computer calculation and simulation tools of relevant standards. Whether these are also used for preparing presentations of projects is not known.

Libraries
The students are given adequate access to libraries at the departments and institutions, which up to date regarding both books and journals. Also the scientific library, which is well prepared and administrated, is available to students at all levels. Facilities for searching for literature on the Internet are also available to the students.

Students
The students are very content with their studies and the teachers, who are friendly and helpful. The number of younger teachers is a bit low. Many of the students we met spoke English fairly well, but some did not even understand.
Still the students are not fully aware of their Student's Union.

Teachers
We are impressed by the competence and devotion of the teachers. Theses for Bachelor's and Master's level that were shown to us are adequate and of high quality.
The university will run completely out of teachers within less than ten years, if the conditions for doctoral students are not changed drastically. This is obvious from the self-evaluation reports, and by observations at the meetings with students and teachers.
The research work of staff members carries a local character in most cases, there were almost no publications in the well known international journals and conference proceedings. It can restrain the doctoral studies when the supervisors are not known in European scientific society by their published works.

Interaction with industry
The Master's program is considered to be good for the industry. The engineers are attractive – and there is competition between companies.
Many students still have work part-time during their studies. The employers are willing to adjust working hours to fit their studies.

Conclusions
The good results achieved so far during the past two years make it possible to recommend **six years accreditation for the Bachelor's and Master's programmes**, with a strong focus on reduction of the number of courses. More of them could be taken by the students together with other programmes having similar contents. Specialisation is not as important nowadays as flexibility. At the Master's level a solid basis is more important, that allows rapid adoption to new technologies unknown of today. This is particularly important in the transport area, since the development is fast regarding new logistics and technology. It will be important to put more emphasis into recruiting more BSc students for the MSc level in order to increase the number of PhD students.
Six years accreditation is suggested for the doctoral programme, which has now got more realistic requirements regarding publications. A strong effort is needed to increase the

number of doctoral student, in order to fill out vacancies caused by retirement of older teachers and researchers.

Theses of the preliminary report set up in Riga, March 22, 2005 are given on the next page.
The preliminary report set up in Riga on March 22, 2005 expresses:

better focus on the academic studies – this is not supposed to be a new professional education
the programmes must have a clearly defined administration – where does it actually belong?
Bachelor's and Master's degree studies could be better merged with corresponding studies at RTU
the definition Transport should be rather on exit from the programme, than an entire programme itself
a better definition and name of the programme is needed, that attracts young students, such as Transport Electronics and Telematics, or maybe just Telematics
resources have to be carefully considered – both human and material
the number of PhD students must be increased or coordinated with other PhD programmes at RTU

Mart Min

Head of the Commission

In Tallinn,
May 2, 2005

Higher Education Quality Evaluation Center of Latvia

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JOINT ACCREDITATION REPORT

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Mart Min

Head of the Commission

In Tallinn,
May 2, 2005

Riga Technical University

Final Evaluation Report of the Joint Commission
for the

Bachelor's Academic Study Program in Computerised Control of Electrical Technologies

Master's Academic Study Program in Computerised Control of Electrical Technologies

Doctoral Study Program in Computerised Control of Electrical Technologies

and

Bachelor's Professional Study Program in Computerised Control of Electrical Technologies
Master's Professional Study Program in Computerised Control of Electrical Technologies (one year and two year programs)

May 10 -11, 2004, Riga

Introduction

Evaluation was initiated by Latvian Higher Education Quality Evaluation Center and conducted by the evaluation commission consisting of prof. Roland Erikson (Sweden, Royal Technical University in Stockholm), prof. Arunas Lukosevicius (Lithuania, Kaunas University of Technology), prof. Mart Min (Tallin Technical University) and prof. Andris Sniders (Latvia University of Agriculture).

Main visit of the commission to Riga Technical University (RTU) during 10-11 of May 2004 was intended to evaluate six study programs – bachelor, master and doctoral – having the common name "COMPUTERISED CONTROL OF ELECTRICAL TECHNOLOGIES" (CCET). Since all programs are closely related commission decided that the evaluation report should have integrated form and consists of the general part, common for all programs and also short motivation and recommendations concerning particular programs.

Evaluation commission was oriented to the Recommendations Concerning Activities of the Assessment of Higher Education Institutions and their Study Programs approved by Ministry of Education and Science of Latvia (order No. 272 5 June 1996), and recommendations of international organisations such and European Council DECS HE 94/25, 95/10. Higher Education Quality Assurance (document ISBN 80-86302-11-3) and others.

The visit started by introductory meeting with RTU Rector prof. I.Knets and other RTU officials, where experts had been informed about latest Latvian legislative documents and RTU decisions regarding study organizing policies and study programs. Main features of transition – balance between professional and academic lines in bachelor and master studies, continuity of studies from college level up to doctoral studies, evolution of former engineering studies - were pointed. It was valuable meeting, since Latvia still is in transition adopting EU principals as well as evolving needs of Latvian economy, therefore evaluation of study programs should take in account this specific context. Main question discussed was mission and realization of two parallel study lines – academic and professional in bachelor and master studies.

Experts appreciate a good organization of visit, sincere assistance and support. Besides explicit self-evaluation reports presented well in advance experts were able to meet students, employers, faculty staff, visit all teaching premises and facilities , to analyze teaching materials, student reports and thesis, have had an informative interviews.

Since professional Bachelor and Master programs are closely interrelated and provided by practically the same RTU divisions, present evaluation is common for both programs. Specific recommendations and conclusions for each program are pointed in the text.

It was taken into account Regulation of the second level professional higher education state standard Nr. 421 and other related documents.

Evaluation of general situation

Programs on CCET are provided in two study lines – academic and professional. Together with doctoral studies and 2 year professional master program they compose cluster of six programs under the same name. This is by caused Latvian and RTU regulations about two study lines

The educational programmes are realised at RTU at the Electrical and Power Engineering Faculty (EPEF), where Institute if Industrial Electronics and Electrical Engineering IEEI is responsible for it. The director of the Institute is the head of the programme.

Profile of CCET programs is close to the electrical engineering branch. Computer control nowadays is an inseparable part of electrical technologies, therefore in principle programs under evaluation could be a specialization of a more general electric engineering program. However CCET programs evolved in a separate bundle of programs with increasing specificity. It seems that system of allocation of financial subsidies in RTU encourages departments and institutes to have their own programs thus ensuring more stable financial support and sustainability.

From the other side, emerging programs cause a kind of competition and this is sometimes a favourable boosting factor. The present example of CCET programs in RTU shows positive tendencies in improving, adapting and developing the program, especially during past several years. Evaluation commission had no possibility to compare CCET programs with other RTU programs with close thematic; therefore the context of the programs under evaluation is not very comprehensive.

During past two years programs were reorganized with regards of changing RTU rules. Commission especially carefully evaluated the last changes.

3. Goals and aims of the programs

The program builds a solid base in electrical engineering with specialization in the field of industrial electronics and computer control. In 2004 professional standard for electrical engineering was accepted and accordance with CCET is stated.

There is an apparent need for students within the field. Interviews with industry and discussions with the institute staff confirmed a market of at least 50 graduated students per year for the particular field of studies. Demand of the specialists graduated form this program seems to be sufficient in future and competitiveness in the labour market – good. This was pointed out by several industry representatives both from big companies (ABB, Siemens) and smaller and local ones.

Latvian industry is changing rapidly and parallel development of study program is important. Present programs are responding to these needs. CCET as a flexible alternative to the classical power engineering programs in this case can be taken as quite reasonable solution.

Goals and aims of academic and professional programs differ only slightly. In both cases composition of theoretical and practical skills is necessary. Thus two parallel programs seem to be a quite expensive way of education. Harmonization of two – academic and professional branches makes difficulties in shaping two missions of programs, managing possible transitions of students from one to another and also causes problems in understanding the real differences of programs for employers and entering students.

4. Staff competence and teaching facilities

The educational program is realized at RTU by the Electrical and power engineering faculty, where the Institute of Industrial and Electrical Engineering (IEEI) is responsible for it and the director of the institute is also head of the educational program.

The total number of staff of IEEI involved in the study programs is 5 habilitated doctors, 9 docents and two assistants. In addition 19 lecturers from other institutes take part in the teaching of the fundamental subjects.

Qualification of all academic staff corresponds to the aims and objectives of the structural institution (IEEI) to perform the study programs. Competence in research is disclosed in chapter 7 of present report.

Staff has a good links with Latvian (especially Latvian Agriculture Academy, Latvian Maritime Academy) and foreign partners. Prof. I.Rankis cooperates with Tallin and Stokholm universities, Prof. L.Ribickis is a member of Board of European Power Electronic and Motion Control (PEMC). Prof. J. Greivulis keeps contacts with Kharkov State Technological University.

Significant contribution to the program and improve of teaching facilities is from the side of industry. Such enterprises as SIA EK Systems, VAS Latvenergo and SIA ABB Latvia provided IEEI with equipment, modern textbooks for teaching and research laboratories.

Activities during the last two years should be emphasised:

Program was made independent in respect to matriculation of new students and professional branch was introduced. This increased a number of applicants.

Eight modern computers with all necessary equipment were obtained and installed for scientific work and as well as for studies. Six computers are connected to Internet.

New laboratory stands in industrial electronics and automatic control and drives were installed, such as computerized frequency converters ACS600, reversive signal amplifiers, electric drive with double loop system of velocity control as well as controllers for process control.

In methodological work synopsis of lectures in industrial electronics, electrical engineering control theory and electronic devices have been prepared with a total volume of 500 pages

One doctoral thesis has been defended and another is prepared for presentation.

Docent I Galkin was awarded as the best young scientist of the year 2002 by the Latvian Academy of Science for his work on matrix converters.

10 scientific articles have been published in international scientific issues and reports were presented at six international conferences.

These results prove high scientific and teaching activity of the staff during the last year.

The main investigations are connected with elaboration of modern semiconductor electronic converters. In the middle of a year 15 scientific articles are published with involving students of the Bachelor program into this work.

Aivars Vilks defended Bachelor's thesis in investigation of semiconductors application and for this work he obtained Latvenergo award.

International conference PEMC-2004 was organized in September 2004 on the base of IEEI. In the conference about 600 papers were presented including papers from RTU.

5. Structure and division of the study programmes, organization of it's provision

For the assessment the staff of the IEEI was interviewed, the laboratories were visited, textbooks inspected and interviews held with students.

The teaching was well based on the course material of modern international books in the field. However, most of the course material was produced by IEEI. It would be of advantage if some courses were using English textbooks.

The interviewed students were satisfied with the study program and how it was conducted.

Facilities used by the study program in IEEI are sufficient to meet the program requirements.

Quite significant problems arise because of transition of students between academic and professional master studies. Academic bachelor studies last 3 years, but professional – 4 years. To keep total number of years in both cases – 5 - academic master studies last 2 years and professional – one year. After both master studies 3 year doctoral studies are available. In order to join professional master program for students who graduated academic bachelor (3 years) special professional master program for 2 years is prepared. Therefore total number of this program "bundle" for evaluation was 6.

Additional problem is with entering doctoral studies from academic and professional branches. Some equalization there is also needed, since missions of academic and professional master programs differ, but there is no definite position towards "professional doctorate" yet.

Experts can state that 6 programs having the same name and provided in parallel is a quite expensive way to provide studies, especially taking into account limited financing capabilities of the country. It is a long lasting paradox when due to the lack of sufficient financial support provision of programs becomes more expensive than is truly necessary. But this is related with the general policy of financial resource allocations. Obviously subsidies of the department or institute depend on the indicator which is calculated by multiplying the number of students on credit points. This creates a motivation to increase permanently a number of courses, programs and students. Staff salaries are low and insufficient financing is harmful for keeping the integrity, competence and scientific level of the institute or department. Therefore program multiplication is a problem in many cases. This is a general tendency.

But in the case of particular programs under evaluation expansion occurred not only for that reason. Mainly it was a natural evolvement of the synergy between the electrical engineering and computer control disciplines, quite high level of science provided, competence of staff and real needs of industry.

Situation with RTU rules is transitional and lot of program evaluation problems are related with this unstable legislative environment. Anyway, programs under evaluation are prepared and conducted strictly in accordance with latest RTU decisions, rules and other documents. Authors of programs and staff involved are evidently influenced by transitional character of requirements and this needs additional efforts.

The main contribution to the programs is from IEEI staff, which is strong enough to keep a good control over programs and to coordinate contributions of other departments. During past two years especially IEEI had made progress and is able to ensure a program quality.

6. Educational process and assessment

Educational process is rather classical and well managed. For basic and general technical education courses all necessary RTU resources (laboratories, libraries, lecturers) are used.

International collaboration also has a positive role in educational process. In average two visiting professors from abroad are giving lectures each year. Good links are established with Turine Technical University, Tallin Technical University, Tokyo Denki University.

Studies in a subject are evaluated by responsible lecturer, in the kind of exam or test, with the use of 10 point scale with the least successful mark of the 4 points. Projects also are defended with the commission of lecturers and evaluated with a mark as well.

Defending of a qualification work – Master's thesis – is public, evaluated by the State commission of 8 people defined by RTU Rector, representatives of IEEI, LAS and enterprises participated in the commission. Each Master thesis should be evaluated by an opponent, a supervisor of the paper reports on the work.

Defending of a qualification work – Bachelor's thesis with the engineering project part – is also public, evaluated by a State examination committee (assigned by RTU rector) consisting of 8 people who are also the representatives of IEEI as well as LAS and manufactures. The volume of Bachelor's thesis is approximately 50 computer pages with schemes and figures. It contains theoretical questions of some electrical equipment operation and documentation of the equipment realisation (electrical schematic diagram, its description, calculations, technical and economic assessment). Each Bachelor's thesis should be evaluated by an opponent and reviewed by a scientific adviser. The mark for bachelor's thesis is based on the evaluation of general knowledge and skills.

Criteria for evaluation of knowledge and skills in a particular educational subject are in accordance with the resolution of RTU Senate from 29th January 2001 "About transition to the common evaluation system of studies results".

In parallel with university studies courses for specialists working in the industry were organized. 200 specialists underwent trough those courses in 4 years. This is a challenge for IEEI staff and also a good source of feedback for program from industry.

7. Research, involvement of staff and students

Research involvement is evidenced by participation in projects and international collaboration. Qualification of the academic staff corresponds to the aims and tasks of the Institute (IEEI) for realisation of CCET programme.

In 2001/2002 staff of IEEI is leading projects granted by Latvian Academy of Science: professor Jānis Greivulis, IEEI professor Ivars Raņķis, IEEI professor Leinīds Ribickis (two grants), IEEI docent Anastasija Ziravecka, IEEI asoc. prof. Ilja Galkins. The total volume of financial support of grants is about 8,500Ls per year. This support allows to keep running scientific activities permanently with involvement of other staff members and students.

In addition with these grants there are carried out Latvian Energy Company VAS Latvenergo financed investigations with the annual cost 15,000 Ls, which deal with

semiconductor pulse controlled systems and power transmission over single wire. IEEI specialists who are connected with the program every year take part in budget financed investigations with the annual cost 9,000 Ls as well as perform contractual works with the annual cost of about 20,000 Ls. Within last years 3 times more money for research were raised.

During the last 5 years professors of IEEI published a lot of scientific publications in Latvian scientific issues as well as in foreign ones. The largest number of publications has been prepared and published by professor L.Ribickis (totally 40 publications during the last 5 years). Professor I.Rankis has published 5 monographs and 20 articles, professor J.Greivulis has about 35 articles as well as he got a large amount of Latvian patents for technical inventions.

Three teachers from the staff are 35 or younger, leading professor L.Ribickis is 56 years old. Docent I.Galkins has been elected for an associated professor in May 2003. Some actions are taken to attract new lecturers: IEEI engineer Oskars Krievs in 2002 got practice in Turine TU. In 2003/2004 O.Krievs will be involved into teaching work. In 2003 /2004 young M.sc. Ainārs Bikšis will start work on laboratory equipment for microprocessor aided control.

The best students, starting from bachelor studies are involved in above mentioned projects. For example in 2002 Bachelor student Aivars Vilks (now studying since 2003 in Master program) have got an award of Latvenergo for Bachelor's work in the area of thyristor controlled reactors. Active students are also encouraged: Oskars Krievs, Ainars Biksis, Oskars Plataiskalns (the latter is at present at the practice in Turine). Majority dfended IEEI Bachelor's and Master's theses have an element of research.

Main research is connected with development of modern semiconductor electronic converters. 15 scientific publications have been issued in the middle of the year, and the students of the programme were involved into the writing of the publications. Doctoral students are also involved in educational process.

8. Quality assessment mechanisms

Every year self-assessment is made by IEEI and summarised in RTU annual study book. Periodically questioners are use to ask the student anonymous evaluation of particular courses. Students have quite good representation in RTU senate and decision making boards.

Questionaires from Master students about master program were considered for program self evaluation. Experts had an opportunity to meet students and have a program related feedback from them.

Feedback with employers also is obtained. Latvian Association of Electrical Engineering and Electronic Manufactures (LETERA), having about 80 companies included and director I. Cvetkova, Association of Mechanical Engineering Industries (J.Krizbegs), keeps permanent contacts with IEEI and other RTU departments, giving signals about success of graduates and future needs.

Experts have had a sincere discussions with representatives of Latvian employers representing 10 enterprises in the power engineering and electronics field. Employers from SIEMENS, Latvenergo, Danfos Latvia, Dambis, ELVO, FESTO, Livani, ABB and other expressed their estimates of CCET study programs and qualifications of graduates they have employed.

In general estimates are positive and it seams that enterprises are interested in getting graduates from CCET program. Survey provided by LETERA have shown, that at present in Latvian industry there is a 10 % lack of specialists in the field (in absolute values this is about 200 specialists). In the year 2007 this shortage is anticipated to be 20%.

Feedback from industry shows interest towards professional education, and rather limited interest is for doctors and academic education graduates. But at the same time creative specialist able to innovate, design new products and create new companies and working

places is needed in reviving Latvia, was pointed as well. Academic branch and Research is needed also, (Livani fiber glass (Japan) in Latvia express this need for example).

Quality of study process is also discussed in professional association of electrical engineers and professional standards for graduate qualifications is under development.

9. Strong and week points of programs

There a commission will point only main strong and week points of the program. (See the text for more details and recommendations).

Strong points

Responsiveness to the Latvian needs and good collaboration with professional associations and industry

Staff is active in research and international collaboration

Involvement in program of best RTU facilities and competences

Friendly relations with students, response to their wishes and needs

Week points

Transient situation in balancing academic and professional lines of education

Staff ageing

Insufficient equipment facilities for basic and advanced courses and research

Insufficient supply of modern teaching materials particularly by the use of digital communication technologies "virtual university"

General notes and recommendations

For evaluation commission it would be better to accredit all similar programs in RTU (and probably in Latvia) and have a broad context for explicit evaluation. (for example experts had lack of information on similar programs in RTU for comparison, e.g. "Electrical Engineering" (MSc in CCET programs are different, while BSc are 50 per cent overlapping).

The inclusion of two programs (CCET and Power and Electrical Engineering in RTU) with a major part of electrical engineering but focus on different needs of the industry has a positive effect since the industry and society needs are met and the students applying to the program have a clear picture of its content and what it will lead to. Also the group of students will be well defined through the bachelor and master programs. On the other hand the splitting up may hamper the students if they later during their studies would like to change direction.

The present program was in principle included in the previous evaluation of the Academic and professional programs in 'Electrical and power engineering' which now has been reformulated in to the present program and a program on 'Electric power engineering'. Therefore several conclusions are the same as for the previous evaluation. The reorganisation of the studies has considered the recommendations made. The program of "Computerised control of electrical technologies" contains one focused direction.

Programs on professional line are new: no possibilities to evaluate outcome, because there are no graduates.

The scope of the programme is a translation from Latvian which may not be fully successful. A direct translation would give: 'Electrical engineering and computer control', which seems to be a better English description. However, also other titles could have been chosen. The scope falls well with that of the IEEE Industrial electronics society and a title 'Industrial electronics and computer control' is an obvious alternative choice of title.

Study program evaluation is being done in the situation of legislative changes in Latvia and in circumstances of RTU management to cope with those changes and to optimise university structure and functions. Therefore it was additional challenge for evaluation commission to take into account all transient effects in study programs (academic, professional, transition programs, standards that came and so on) . The position of commission is to concentrate on the essential values of the program rather than on the changes in outside situation.

Rising the role of RTU institutes in managing study programs is positive because this ensure closer links with research and industry and institute is freer in interdisciplinary fields. In the same time it's important to balance the rights and responsibilities,

Two parallel branches of programs – academic and professional if it is rational? This question should be put for further discussions.

It is recommended to discuss a following scheme of programs: broad intake, equal courses during first two years and specialization later.

There should be more free elective courses to ensure necessary flexibility in the study program and possible specialisation lines. In majority of programs free choice is only 4-6 CP, it is too little concerning a diverse situation in Latvian industries and rapidly changing qualification needs in particular working places. (Students are already working in many cases and can formulate their own special knowledge needs).

A rapid change in Latvian industry and technologies used imposes the study programs to be flexible and responsive to the environment. Therefore it must be special mechanisms to meet this challenge. Student's freedom to choose their own composition of courses, creating of possibilities to make "learning by doing" in industry, involvement of professional associations in shaping programs and course contents are among the possible solutions. Students are in many cases forced to work and study because of tough economic situation. Therefore study process suffers. Special measures should be taken to respond the needs of working students in terms of time tables and facilities on one hand and to involve industry in creating environment for studying (in terms of project themes, supervising, information materials etc.)

There is a great attention (especially in professional programs) to the practice: 26 CP for professional Bachelor and additionally 6 CP for professional Master practices. This is a big time recourse, but effectiveness of the use is not sufficient. Supervisors in the industry are not paid; there is a lack of practical placements.

Good modern books in English are in one volume in IEEI of each good book. This means that still a problem with modern teaching materials is actual. There is not enough to rely on efforts of IEEI staff. Students (mainly form abroad complain that in Latvia English textbooks are more expensive to compare with other countries).

There is a urgent need for a new equipment for teaching and research. Lack of sufficient financial support leads to diversification of equipment (e.g. controllers and processors) which is donations of various sponsors. (The efforts of RTU to submit for EU structural funds are very important there).

In all programs it is recommended to strengthen distinctive feature of the program: computer control. The essential program part is dealt with computer science, control and informatics. This line is of increasing importance and also is a distinctive feature of the program. Institute is covering about 30 per cent of this field together with other institutes and faculties. Specific courses in this area should be strengthened and developed. First steps made towards modern digital control devices are already made in last two years.

It is advisable to have clear methodical line of digital methods and software programs throughout the whole study program – from mathematical courses up to the advanced courses of non-linear dynamic system simulations.

There is still an ageing problem of staff. Special means should be taken to attract young lecturers and researchers.

PhD studies are of rising level, good international links, good resource for ageing problem. Academic Master Program is essential step for doctoral studies and also for development and creative work. Although industry doesn't manifest a strong need for high academic level of specialists, in the long run evolvement of Latvian industry will depend on high competence and creativity of specialists.

University mechanisms of financial support of the institute should encourage to look for effective provision of programs and also to ensure favourable environment in the university for teaching and research. Cooperation of faculties, departments, institutes and divisions

should be more motivated by proper financing scheme. It seems that a university body, which gets money for a program, are not motivated to cooperate with other bodies and include courses from these.

It would be desirable to involve permanently industry bodies and associations into decision-making on study programs. Especially this is important in the case of new program, which is in this case of evaluation.

In context of a good research done in the IEEI and extensive international collaboration there should be initiated more international projects both in teaching and in research.

Summary and final conclusions for particular study programs
Academic Bachelor study program on COMPUTERISED CONTROL OF ELECTRICAL TECHNOLOGIES to be accredited for 6 years

Motivation and recommendations to the program

The goal for the bachelor program is to provide basic academic education in the field of electrical engineering and computer control and training for continued studies. Comparison with similar study programs in Finland, Hungary and Sweden and discussion with employees of Latvian institutions and industries has shown that the goal is achieved.

The evaluated program computerized control of electrical technologies was developed for preparation of specialists in industrial electronics, electric drives and automatic control for such areas like machine building, metallurgy, transport, light industry, wood working industry and civic economy with directions to optimisation of power consuming as well as use and control of alternative sources of energy

Program is quite new and should define and declare it's clear mission in context of existent ones. Emphasis on advanced and emerging technologies and computer control in electric power engineering are to be distinctive features. Therefore core issues of informatics, control, digital methods and simulation of complex dynamic systems should be further developed in program and particular courses using the best competences of RTU.

Students are offered sufficient basic and applied courses. The number of credits for mathematics is lower than the compared programs in western universities. Also the number of credits in control theory and signal processing seems quite low. Apparently more emphasis is put on the applications than on basic knowledge although this is an academic line of studies. However, the mathematical and other fundamental matters are included within other courses. Such a method of linking basic and applied studies seems acceptable but it is advisable also to bring in basic competences from other Institutes of RTU in the program.

Number of free choice subjects seems to be low taking into account diversified Latvian industry and needs to adapt individually to the labour market.

Academic Master study program on COMPUTERISED CONTROL OF ELECTRICAL TECHNOLOGIES to be accredited for 6 years

Motivation and recommendations to the program

The goal for the academic master program is to give a deeper knowledge in the field of industrial electronics and computer control and prepare the students for scientific and teaching work. Comparison with similar study programs in Finland and Norway and discussion with employees of Latvian institutions and industries has shown that the goal is achieved.

Scientific competence of the staff and practical experience is sufficient for providing of master program. Publications, patents and projects are suitable basis for advanced teaching.

A direct comparison with the programs in Finland and Norway is not possible since these countries don't have a separate master program rather they integrate the bachelor and master studies into one program. It would be of value if the program also included possible choices of advanced control theory and signal processing.

Excluding some projects, courses, free choices and practice makes transformation of the program form 3 to 2 years. Those changes should be in near future carefully harmonised with bachelor program and new requirements for the content of master thesis.

Employers also express the need to develop skills of graduates in engineering design and project leadership of power and drive systems.

Specific advanced courses on computerised control of industrial systems occupy about 6 credit points. It seems too low number for the master program of computerised control of industrial systems in context of courses on industrial electronics and electronic devices which occupy 33 credit points.

Professional Bachelor study program on COMPUTERISED CONTROL OF ELECTRICAL TECHNOLOGIES to be accredited for 6 years

Motivation and recommendations to the program

This is a new 4 years 160 CP program which received a license and has been started in academic year 2003/4 therefore it was difficult to evaluate it with regards of all education process and outcome. 4 years bachelor will have practice, project and practical skills.

Program is provided using a good potential of IEEI and other RTU departments, also a solid work of applied research carried out in projects with industry and under LSA grants. It can be encouraged the more active use of research potential for study projects work. (8 projects are foreseen in the program).

It can be foreseen some uncertainty in choosing academic and professional bachelor programs by students: industry is more for professional program, there are no clear differences in study programs. If professional and academic lines will persist in parallel, great care should be taken to balance them. In other case it would be reasonable to reconsider a rationale of professional and academic lines (see general notes and recommendations above).

In response to Latvian industry needs three separate blocks of speciality subjects were introduced each with 20 CP in following fields: industrial electronics and electrical technologies; surface electrical transport; railway automation and computer control. Experts evaluate positively this specialization.

Program meets the Latvian standard of profession "Engineer electrician" with the 5th qualification level.

Although 6 CP for free elective courses fit into RTU requirements, it seems that this number is too little.

In order to have full advantages from 26 CP of practice, it should be organized with great care towards proper placements, supervision, reporting and tracking of student's working time.

Profesional Master study program on COMPUTERISED CONTROL OF ELECTRICAL TECHNOLOGIES (one year program) to be accredited for 6 years

Motivation and recommendations to the program

Studies have been started in 2003/4 with the acceptance of the students for the full time and transition groups with Bachelor academic degree in electrical engineering.

So the program is new and evaluation is without outcome analysis also without analysis of full study process and competence of graduates.

This one year master program is a continuation of a professional Bachelor studies with the same title and is well matched in between. Program is provided using a good potential of IEEI and other RTU departments, also a solid work of applied research carried out in projects with industry and under LSA grants.

Since one year is very short time (many of western universities have longer period) to provide a good professional competence and prepare to enter doctoral studies, special care must be taken to define clear requirements for accepting students.

Individual and problem oriented approach, close collaboration with practice institutions, involvement students in projects with industry is especially recommended.

Profesional Master study program on COMPUTERISED CONTROL OF ELECTRICAL TECHNOLOGIES (two year program) to be accredited for 6 years

Motivation and recommendations

This program is for those who enter the program from 3 year Academic Bachelor studies also from Bachelor studies other relevant specialities. This is a result of differences in academic and professional lines of education discussed above in the report. In order to ensure a freedom of choice after Bachelor studies new program was necessary to establish.

It is too new program to evaluate it in action. It is based on the potential of IEEI and other related programs, therefore can be estimated positively.

Doctoral study program on COMPUTERISED CONTROL OF ELECTRICAL TECHNOLOGIES to be accredited for 6 years

Motivation and recommendations to the program

The goal for the doctoral program is to train high-qualified specialists who can solve tasks of scientific novelty and to prepare lecturers for higher education and scientific research institutions in the field of electrical engineering and computer control and training for continued studies.

Good level of studies, international collaborations, 11 students are on the list, 8 are "live", outcome - 3 defendences within 2 years. 28 papers were prepared for conference in Riga EPE-PEMC 2004 in September 2004.

It is recommended to publish more articles in western referred journals, not only in Latvian or Baltic journals.

Demand to publish 5 papers during doctoral studies is too high. Instead at least 1 paper should be published in well internationally recognized (peer reviewed) journal. (3 years are too short time for 5 papers to be published).

The program has a great potential. This e.g. demonstrated by Docent I Galkin's award as the best young scientist of the year 2002 by the Latvian Academy of Science.

No comparison has been made with similar programs in other countries. It is known that the doctoral programs around the world show quite a variety. However it is recommended to select some international institutions and to carry out a bench marking with some foreign institutions. An important issue is the ratio of course work and the scientific project. It is important that sufficient time is given for the scientific work. The course work should be limited or could even be omitted as e.g. in U.K.

The high number of 11 registered Ph.D. students to the program confirms the attractiveness of the field. However, only 2 of these Ph.D. students are full time active at the university. The majority has a part time employment. This will certainly distract the students from their research which is best done at the institute and it will significantly prolong their studies. Also their contribution to the creative environment at the institute will be lost. Its is recommended to try to establish sponsored research positions for the Ph.D. students at the institute.

Potential of IEEI allows recommending more international research projects to be prepared   with possible involvement of all staff.

On behalf of Evaluation Commission

Prof. Arunas Lukosevicius

2002-05-28

Higher Education Quality Evaluation Center of Latvia

Evaluation Commission's Final Report

Riga Technical University
Faculty of Computer Science and Information Technology

Accreditation assessment report regarding second level professional higher education study program
"Computer Systems"

Visit date: 24 - 25 November, 2004

Evaluation commission members:

Professor em. Jānis Bubenko jr, Royal Institute of Technology, Stockholm, Sweden

Professor Jüri Kiho, University of Tartu, Estonia

Professor Pēteris Rivža, Latvia University of Agriculture

The Evaluation Process

The Evaluation Commission visited the Faculty of Computer Science and Information Technology, the Institute of Applied Computer Systems (IACS), Wednesday and Thursday, November 24 – 25, 2004. The following study programs were evaluated:

Second level professional higher education study program "Computer Systems"

Professional bachelor's study program (161 cr.p)
Professional master's study program (62 cr.p.)

The evaluation commission first met the program director who presented a good overview of the faculty, the Institute of Applied Computer Systems, as well as of the particular program to be evaluated. Certain general objectives and issues of the program were discussed. After that the evaluation commission met most of the teaching staff involved in and responsible for courses in the programme. The goals, content, and structure of the professional programme was discussed in particular. After this the Evaluation Commission also visited a lecture in modern computer languages, and inspected a number of computer laboratories.

The Evaluation Commission also conducted interviews with students (mainly first year professional master's studies, all three special directions of study). The main points of the discussion concerned the students' opinion of which kinds of courses were more or less relevant for the professional program, and the reasons for the relatively weak student interest in international exchange. About 25 % of the students expressed an interest in continuing their studies at the doctoral level.

The Evaluation Commission also met with representatives of employers. Six representatives were present from companies such as DATI, Rietuma Banka, EXIGEN, Latvenergo, an insurance company, and a USA-based company dealing with Banking and Financial systems. These representatives were enthusiastic about the program and quite interested in co-operating with the institute regarding implementation of the program, including practical work. Most companies were also prepared to support student international exchange.

A visit to RTU technical library indicated steady progress in use of the library and its services. Most students seem to use the library's reference data bases through internet access.

At the conclusion of the visit, the Evaluation Commission conducted a meeting with the academic staff of the institute and highlighted some of the strengths and weaknesses of the program under review. The accreditation recommendations elaborated by the Evaluation Commission were offered at this final meeting.

I The assessment of study programmes
Note: Indication (1) refers to the professional bachelor's program and (2) to the professional master's program. If no indication is given both programs are considered.

I Aims and objectives
1. Possibility to understand, to reach and to control the aims and objectives defined by the study programme.
Assessment: ………3
Comment: The program structure is a bit complicated. Several ways exist to pass the programs. The overall idea looks clear but there seems to be some overlap on the detailed level. The assessment is the same for both programs.

II The content and organisation of the studies.
Assessment: ………3
Comment: The content seems modern and adequate. The programs on the whole seems well organised. The assessment is the same for both programs.

2. Complying with the professional and education standards, legislation of the Republic of Latvia and with the requirements and standards of the European Union.
Assessment: ………4
Comment: ………The professional standards in Latvia are set by the professional worker in this are. RTU participates actively in the standards work.

3. Consistency of the study programme and its parts with the demands to create the common European education space, including the comparison with at least two study programmes from EU countries.
Assessment: ………2
Comment: The European education model (Bologna) does not really correspond to a professional program. The professional programs of IACS are, however, compatible with the Bologna model. The academic study programs of IACS could fully match the Bologna model.

4. Qualification and professionality of the academic staff members.
Assessment: ………4
Comment: The staff is comparatively young but, at the same time, internationally well recognised and qualified. The involvement of organisations and companies in practice is well managed.

III Assessment of teaching and learning

Assessment: ………3
Comment: This aspect seems to be handled with in a competent way.

5. Modern methodology of teaching, a clear statement of results to be expected, problem solving, use of computers, internet, audiovisual and multi media equipment.
Assessment: ………3
Comment: The commission was not shown (due to lack of time and lack of on-going classes) how modern methodology of teaching was applied and to what extent this was done. The commission visited one lecture only. The pedagogical quality of this lecture seemed to be highly satisfactory.

6. Counselling and guidance for students, academic supervision and consultations of the teaching staff, increasing of the students' motivation to study.
Assessment: ………2
Comment: This is a problem of interaction between teachers and students. There seems to be wide difference in how different teachers as well as students utilise the opportunities that exist to day (e.g. by use of internet). Some teachers seem to be extremely active and supportive for the students needs. A general improvement seems, however, to be needed.

7. Methods to assess the knowledge, skills and attitudes, their objectivity use to improve the studies.
Assessment: ………3
Comment: The situation that could be observed seemed to be fairly "normal".

IV The management and support of the studies

Assessment: ………3
Comment: On the whole, the situation seemed to be highly satisfactory.

8. Respect of the principles of democracy, clear definition of the relations among representatives of the administration, academic staff and students;
Assessment: ………2
Comment: All possibilities seem to exist regarding "democratic" relationships between students and teachers. The students, however, do not all seem to be aware of or interested in influencing their study situation and process to any greater degree. The Evaluation Commission would like to see students be "more aggressive" and utilise their possibilities more fully.

9. Co-operation with other higher education establishments, research institutions, international organisations; exchange of staff and students with other higher education establishments.
Assessment: ………3
Comment: The situation regarding the staff of IACS is excellent. Regarding the students, however, international mobility and exchange seems to be marginal and should be improved.

10. Methodological, informational and technical resources and facilities of the study programme.
Assessment: ………3
Comment: These resources seem to be adequate for the purpose of both programs under evaluation.

V Research (creative) activities of the staff and the students

11. Involvement of the academic and general staff in the research (creative) activities, up to date character and connection with the content of the study programme.
Assessment: ………3
Comment: A number of the members of the IACS seems very active in regular research and publishing of works at international as well as national conferences. The IACS has, during the last years, also been extremely active in arranging international conferences in Riga. Furthermore, some students at the professional master's program seem to be highly motivated and interested in pursuing studies at the doctoral level.

VI Quality assessment and mechanisms to ensure it

Assessment: ………2
Comment: Possibilities for improvements exist and should be considered and implemented in co-operation with students, teachers and employers.

12. Annual self-assessment of the study programme, evaluation of the strengths and weaknesses, changes, plans and possibilities for the development, continuously action of the system of self-evaluation and quality improvement.
Assessment: ………2

Comment: This is an issue the institute, and in fact the faculty as a whole, should consider more carefully and make a complete "reengineering" of the quality assurance processes. These processes should involve students, teachers, as well as employers.

13. Successful work of graduates according to their qualification.
Assessment: ………NA
Comment: Not applicable (NA). There are no graduates yet.

14. Opportunities to continue studies and financial guarantees in the case of closure of the programme, its re-organisation and other changes.
Assessment: ………4
Comment: There is a good "back-up" in the institute's academic program.

Strong and weak points
The Evaluation Commission offers the following view.

Strong points
Excellent qualifications of staff
Average age for staff is relatively low
Average age of associated professors is low (48.1 years)
The curriculum is relatively broad and includes elective topics of humanities, languages, management, economics and social sciences.
The action plan for improvement seems both relevant and adequate.

Things that could be improved.
Weak international exchange and mobility regarding students.
The faculty of Computer Science and Information Technology deserves a better infrastructure and offices.
Some of the "general engineering" courses could be replaced by more teaching of mathematics and also of non-technical courses at the bachelors level.
The quality assurance processes of the program should be improved.

Final recommendation

The evaluation commission recommends the following accreditation:

The professional bachelor's study program (161 cr.p.)
Accreditation for 6 years

Professional master's study program (62 cr.p.)
Accreditation for 6 years

Riga, November 25, 2004

Jānis Bubenko jr   Jüri Kiho   Pēteris Rivža

Higher Education Quality Evaluation Center of Latvia
Evaluation Commission's Preliminary Report
Riga Technical University
Faculty of Computer Science and Information Technology
Information Technology Institute
Accreditation assessment report regarding
Master professional study program
"Information Technology"
Visit date: 14 – 15 May. 2007
Evaluation commission members:
Professor em. Jānis Bubenko jr, Royal Institute of Technology, Stockholm, Sweden
Professor Juris Borzovs, University of Latvia
Professor Pēteris Rivža, Latvia University of Agriculture

The Evaluation Process

The Evaluation Commission visited the Faculty of Computer Science and Information Technology, the Institute of Information Technology, Monday and Tuesday, May 14 15, 2007. The master professional study program (100 cr.p.) was evaluated.

The evaluation commission first met the program director who presented a good overview of the faculty, the Institute of Information Technology, as well as of the particular program to be evaluated. Certain general objectives and issues of the program were discussed. After that the evaluation commission met most of the teaching staff involved in and responsible for courses in the programme. The goals, content, and structure of the professional programme was discussed in particular. After this the Evaluation Commission also inspected a number of computer laboratories. The equipment seemed advanced and adequate.

The Evaluation Commission also conducted interviews with students (12 first year and 8 second year students). The main points of the discussion concerned the students' opinion of which kinds of courses were more or less relevant for the professional program, and the reasons for the relatively weak student interest in international exchange. In general, the students were very positive about the content of the program. Some students indicated a need for more realistic cases in their project-work.

The Evaluation Commission also met with representatives of employers. Only three representatives were present from: ministry of Finance, the dtg company, and Advanced Baltic IT Ltd. company. These representatives were satisfied about the program and quite interested in co-operating with the institute regarding implementation of the program, including practical work.

A visit to RTU technical library indicated steady progress in use of the library and its services. Most students seem to use the library's reference data bases through internet access.

At the conclusion of the visit, the Evaluation Commission conducted a meeting with the academic staff of the institute and highlighted some of the strengths and weaknesses of the program under review. The accreditation recommendations elaborated by the Evaluation Commission were offered at this final meeting.

I Assessment of the study program "Information Tecnology"

Scale of the assessment:

4 (excellent), 3 (highly satisfactory), 2 (satisfactory), 1(unsatisfactory)

I Aims and objectives

1. Possibility to understand, to reach and to control the aims and objectives defined by the study programme.

Assessment: ………3

Comment: The program seems to be well designed. However, its conformance with the professional standard PS 0170, was fully appreciated only after an explanation by the director of the programme.

II   The content and organisation of the studies.

Assessment: ………3

Comment: The content seems modern and adequate. The program on the whole seems well organised.

2.   Complying with the professional and education standards, legislation of the Republic of Latvia and with the requirements and standards of the European Union.

Assessment: ………3

Comment: ………The professional standards in Latvia are set by the professional workers in this area. RTU participates actively in the standards work. The report clearly describes how the programme can meet the professional standard PS 0170.

3.   Consistency of the study programme and its parts with the demands to create the common European education space, including the comparison with at least two study programmes from EU   countries.

Assessment: ………2

Comment: The report delivered to the evaluation commission members did not contain a specific section about comparison of the program with at least two study programmes from EU countries. Such a comparison was delivered at the evaluation meeting.

4.   Qualification and professionalism of the academic staff members. Assessment: ………4

Comment: The staff is comparatively young but, at the same time, internationally well recognised and qualified. The involvement of organisations and companies in practice is well managed.

III   Assessment of teaching and learning

Assessment: ………3

Comment: This aspect seems to be handled in a competent way.

5.   Modern methodology of teaching, a clear statement of results to be expected, problem solving, use of computers, internet, audiovisual and multi media equipment. Assessment: ………3

Comment: The commission was shown how modern methodology, using internet technology, was applied and to what extent this was done.

6.   Counselling and guidance for students, academic supervision and consultations of the teaching staff, increasing of the students' motivation to study. Assessment: ………3

Comment: Most students were extremely satisfied with the supervision. However, some students complained about a few lecturers not answering e-mail.

7.   Methods to assess the knowledge, skills and attitudes, their objectivity use to improve the
studies.

Assessment: ………3 Comment: The situation that could be observed seemed to be fairly "normal".

IV The management and support of the studies

Assessment: ………3

Comment: On the whole, the situation seemed to be highly satisfactory.

8.   Respect of the principles of democracy, clear definition of the relations among representatives of the administration, academic staff and students; Assessment: ………3

Comment: Students seem to be very active and participate in quality control of the program. Faculty considers this involvement of students as positive.

9.   Co-operation with other higher education establishments, research institutions, international
organisations; exchange of staff and students with other higher education establishments. Assessment: ………2

Comment: The situation regarding the staff of ITI is excellent. Regarding the students, however, international mobility and exchange seems to be marginal and should be improved.

10.   Methodological, informational and technical resources and facilities of the study programme. Assessment: ………3-4

Comment: These resources seem to be excellent for the purpose of the program under evaluation. However, the location of the RTU library seems quite distant from the students' work place.

V   Research (creative) activities of the staff and the students

11.   Involvement of the academic and general staff in the research (creative) activities, up to date character and connection with the content of the study programme. Assessment: ………3

Comment: A number of the members of the ITI seems very active in regular research and publishing of works at international as well as national journals and conferences. The ITI has, during the last years, also been active in arranging international conferences in Riga.

Furthermore, ITI is also very active in attracting funds for EU-supported projects, and involving students in these activities.

VI   Quality assessment and mechanisms to ensure it

Assessment: ………3

Comment: This aspect seems to be handled in a competent way.

12.   Annual self-assessment of the study programme, evaluation of the strengths and weaknesses, changes, plans and possibilities for the development, continuously action of the system   of   self-evaluation   and   quality   improvement.
Assessment: ………3

Comment: This aspect seems to be handled in a competent way.

13. Successful work of graduates according to their qualification.

Assessment: ………NA

Comment: Not applicable (NA). There are no graduates yet.

14. Opportunities to continue studies and financial guarantees in the case of closure of the programme, its re-organisation and other changes.

Assessment: ………4

Comment: There is a good "back-up" in the institute's academic program.

Strong and weak points

The Evaluation Commission offers the following concluding assessment.

Strong points

Excellent qualifications of staff.

The Institute of Information Technology has a good infrastructure and offices.

Average age for staff is relatively low.

Average age of associated professors is low.

The curriculum is relatively broad and includes elective topics of humanities, languages, management, economics and social sciences.

The ITI is active in attracting funds for EU-supported projects.

The staff is performing adequate research in the area of the programme.

The use of IT in operation and management of the programme is significant.

Things that could be improved.

Weak international exchange and mobility regarding students.

Students have suggested to move lectures to mornings and/or late afternoons due to problems of performing work in parallel.

It would be advantageous to have a library at the Meža-campus.

Cooperation with existing and future employers should be better demonstrated.

Final recommendation

The evaluation commission recommends the following accreditation:

Professional master's study program (100 cr.p.): Accreditation for 6 years

Riga, May 15, 2007

Jānis Bubenko   Juris Borzovs   Pēteris
jr   Rivža

Higher Education Quality Evaluation Center of Latvia

Evaluation Commission's Final Report

Ventspils University College
Faculty of Economics and Business Administration
Information Technologies Department

Final accreditation assessment report regarding the academic Bachelor study programme in Computer Science

Visit date: 7 – 8 March, 2005

Evaluation commission members:

Professor em. Jānis Bubenko jr, Royal Institute of Technology, Stockholm, Sweden

Professor Jüri Kiho, University of Tartu, Estonia

Professor Pēteris Rivža, Latvia University of Agriculture

The Accreditation Task

The Evaluation Commission visited Faculty of Economics and Business Administration
Information Technologies Department (hereinafter called "Faculty") Monday and Tuesday, March
7 – 8, 2005. The Commission first met the leading staff of the Faculty, including those responsible
for the programs. Presentations included

VUC Rector presentation, Janis Vucans
Pro-rector presentation, Mara Leitane and Sergejs Hilkevics
Presentation of head of study department, Egita Udodova
Presentation of head of international relations department, Ruta Zemite
Presentation of head of IT department, Juris Zagars
Presentation of EIC Chair, Romass Pauliks
Presentation of responsible for e-learning, Estere Vitola
Presentation of programme director, Aivars Zemitis

After these presentations, the evaluation commission visited Ventspils city museum and Ventspils
city library. The city library had just moved into a new building with excellent space and modern
facilities.

After this visit the commission had a meeting with approximately 70 students representing all three
years of the programme to be evaluated. The meeting was carried out in an enthusiastic and
constructive atmosphere. The students were in general very positive about the programme both
because its strong mathematical basis and its broader orientation including also topics from
economics and the social sciences.

Next, the commission took part in a learning technologies demonstration, presented by Gints
Neimanis, where the Gigabit/second link to Royal Institute of Technology (KTH) in Stockholm was
demonstrated. A short discussion was carried out "on-line" with Professor Björn Persson of KTH,
Stockholm about the future opportunities and possibilities of this super-link.

At the end of the first day the commission met five potential future employers of the students. They
expressed a very positive attitudes about the programme to be evaluated. A representative of the
municipality of Ventspils, Armands Magone, Ventspils deputy Major, described the efforts and
determination of Ventspils to strengthen the role of IT and IT specialists in the Kurzeme region.
Ventspils has recognised the need for new specialists with a solid IT-competence and
communicated this need to VUC in connection with design of the current programme. Ventspils
city was also actively engaged in creating so called "Competence Centres" in the Kurzeme region.
These centres would maintain specialists that could assist enterprises in the region to improve their
use of IT and other technologies.

Finally the commission had a meeting with the teaching staff where additional educational items
were discussed. Among other items, the need for continued development of the competence of VUC
teaching staff was discussed.

At the conclusion of the visit, the Evaluation Commission conducted a meeting with the academic
staff of the Faculty as well as with the students, and highlighted some of the strengths and
weaknesses of the program under review. The accreditation recommendation elaborated by the
Evaluation Commission was also offered at this final meeting.

The following study program was evaluated: The academic study programme Bachelor of Science
in Computer Science.

I The assessment of study programme Bachelor of Science in Computer Science

I Aims and objectives

1. Possibility to understand, to reach and to control the aims and objectives defined by the study programme.
Assessment: ………Highly satisfactory
Comment: ………The document prepared for the commission was well written and clearly structured.

II The content and organization of the studies

Assessment: ………Highly satisfactory
Comment: ………The general impression of the study programme and process was very satisfactory.

2. Complying with the professional and education standards, legislation of the Republic of Latvia and with the requirements and standards of the European Union.
Assessment: ………Excellent
Comment: ………The commission has no negative remarks on this item.

3. Consistency of the study programme and its parts with the demands to create the common European education space, including the comparison with at least two study programmes from EU countries.
Assessment: ………Highly satisfactory
Comment: ………Comparisons made with other European universities were well worked out.

4. Qualification and professionality of the academic staff members.
Assessment: ………Satisfactory
Comment: ………The qualifications of the staff seem sufficient for offering a Bachelor's degree. A Master level program would, however, need a larger number of locally based lecturers and professors with a Ph.D. degree in Computer Science (or corresponding topic).

III Assessment of teaching and learning

Assessment: ………Highly satisfactory
Comment: ……… The general impression of the teaching and learning was very satisfactory.

5. Modern methodology of teaching, a clear statement of results to be expected, problem solving, use of computers, internet, audiovisual and multi media equipment.
Assessment: ………Excellent
Comment: ………This item was comparable to the best universities in the European Union.

6. Counselling and guidance for students, academic supervision and consultations of the teaching staff, increasing of the students' motivation to study.
Assessment: ………Excellent
Comment: ………This item was comparable to the best universities in the European Union

7. Methods to assess the knowledge, skills and attitudes, their objectivity use to improve the studies.
Assessment: ………Highly satisfactory
Comment: ………This was very well managed, but the commission feels the students could perhaps be a bit more involved in the assessment process.

IV The management and support of the studies

Assessment: ………Excellent
Comment: ……… This item was comparable to the best universities in the European Union

8. Respect of the principles of democracy, clear definition of the relations among representatives of the administration, academic staff and students;
Assessment: ………Excellent
Comment: ……… This item was comparable to the best universities in the European Union

9. Cooperation with other higher education establishments, research institutions, international organizations; exchange of staff and students with other higher education establishments.
Assessment: ………Excellent
Comment: ………Considering that the programme only is in its third year, a good number of co-operative activities have been started and carried out also in an international level. The commission was impressed by the degree of international collaboration demonstrated by the staff as well as by the students.

10. Methodological, informational and technical resources and facilities of the study programme.
Assessment: ………Excellent
Comment: ……… This item was comparable to the best universities in the European Union

V Research (creative) activities of the staff and the students

11. Involvement of the academic and general staff in the research (creative) activities, up to date character and connection with the content of the study programme.
Assessment: ………Highly satisfactory
Comment: ………The situation is under rapid improvement by participation in national and international projects as well as by cooperation with regional enterprises. Also, programs for competence development of the local teaching staff have started.

VI Quality assessment and mechanisms to ensure it

Assessment: ………Satisfactory
Comment: ………Certain improvements could be advised, in particular regarding how students are involved in the quality assessment process.

12. Annual self-assessment of the study programme, evaluation of the strengths and weaknesses, changes, plans and possibilities for the development, continuously action of the system of self-evaluation and quality improvement.

Assessment: ……… Satisfactory
Comment: ………The commission lacks information about self-assessment etc. It is not clear how strengths and weaknesses of the faculty are regularly assessed and how quality improvement is managed.

13. Successful work of graduates according to their qualification.
Assessment: ………Not applicable
Comment: ………No graduates exist yet. The potential is, however, good, according to statements from potential future employers.

14. Opportunities to continue studies and financial guarantees in the case of closure of the programme, its re-organization and other changes.
Assessment: ………Excellent
Comment: ………Agreement with Liepaja Academy of Pedagogy exists.

Strong and weak points

The Evaluation Commission offers the following view of the strong and weak points of this programme.

Strong points

The students are very motivated.
Lecture rooms, computer and communication facilities, and the local network are excellent (Gigabit cable connection to KTH, Stockholm exists)
The average age of staff is relatively low.
The curriculum is well focused and strongly based on mathematics.
Co-operation between VUC, the municipality of Ventspils, and local enterprises is excellent. In particular the municipality of Ventspils has made good moves to ensure future employment of VUC graduates.
The VUC is strongly engaged in rapidly elaborating its international co-operation both at the student and at the teaching and research staff level.

Things that could be improved

The quality assurance process could be further discussed and elaborated
The programme should recruit locally based teachers with a Ph.D. degree in computer science

Final recommendation

The evaluation commission recommends the following accreditation:

The academic Bachelor study programme in Computer Science:
Accreditation for 6 years

Ventspils, March 8, 2005.

Jānis Bubenko jr   Jüri Kiho   Pēteris Rivža

Higher Education Quality Evaluation Center of Latvia

Evaluation Commission's Final Report

Vidzeme University College

Accreditation assessment report regarding professional study program

Information Technology

Professional Bachelor's Degree in Information Technology

Visit date: 22 - 23 April, 2004

Evaluation commission members:

Professor em. Janis Bubenko jr, Royal Institute of Technology, Stockholm, Sweden

Professor Jüri Kiho, Tartu University, Estonia

Professor Janis Grundspenkis, RTU, Latvia

The Accreditation Task

The Evaluation Commission visited the Information Technology department (hereinafter called "Department") Thursday and Friday, 22 - 23 April, 2004. The expert team met with the leading staff of the college, including those responsible for the program. It also conducted interviews with teachers as well as students of the program. The Evaluation Commission also met representatives of employers. The visit also included visits to the library as well as visits to three laboratories (student's' computer room, networking laboratory and electrotechnics laboratory). At the conclusion of the visit, the Evaluation Commission conducted a meeting with the academic staff of the program and highlighted some of the strengths and weaknesses of the program under review. The accreditation recommendation elaborated by the Evaluation Commission was offered at this final meeting.

The following study program was evaluated: **Information Technology**

Assessment of study program "Information Technology"

I Aims and objectives
1. Possibility to understand, to reach, and to control the aims and objectives defined by the study program.
Assessment: **Excellent**
Comment: The commission found the program very well structured and clearly written. The aims and objectives of the program were clearly indicated.

II The content and organization of the studies.
Assessment: Highly satisfactory
Comment: The content of the program is well organised and monitored.

2. Complying with the professional and education standards, legislation of the Republic of Latvia and with the requirements and standards of the European Union.
Assessment: Highly satisfactory

3. Consistency of the study programs and its parts with the demands to create the common European education space, including the comparison with at least two study programs from EU countries.
Assessment: **Satisfactory**
Comment: Comparisons made with comparable programs of other European universities were not particularly deep nor detailed. It was not easy to read why the particular set of universities was selected.

4. Qualification and professional standard of the academic staff members.
Assessment: Satisfactory
Comment: The current set of staff members included young, qualified persons, well motivated for their work at Vidzeme University College. There is, according to the commission, a risk that the situation can change rapidly as many of the lecturers were employed as temporary guest teachers having one or more other jobs.

III Assessment of teaching and learning.
Assessment: Highly satisfactory

Comment: Students were in general satisfied with the program. Some students expressed a particular satisfaction about the good atmosphere at the college and about the ease to get in contact with lecturers and supervisors.

5. Modern methodology of teaching, a clear statement of results to be expected, problem solving, use of computers, internet, audiovisual and multi media equipment.
Assessment: **Satisfactory**
Comment: The evaluation commission could not detect notable deficiencies in the infrastructure of the teaching environment. However, laboratories could be better equipped in order to accommodate needs of computer architecture courses.

6. Counselling and guidance for students, academic supervision and consultations of the teaching staff, increasing of the students' motivation to study.
Assessment: Highly satisfactory
Comment: This situation was assessed to be comparable with other universities in Europe.

7. Methods to assess the knowledge, skills and attitudes, their objectivity use to improve the studies.
Assessment: Satisfactory
Comment: This seems to depend on the teacher or supervisor. On the whole it seems to be carried out in a professional and systematic way.

IV The management and support of the studies

Assessment: Highly satisfactory
Comment: The study process is well managed. However, course evaluation should be performed after each course and students should be better informed about the outcome of the evaluation.

8. Respect of the principles of democracy, clear definition of the relations among representatives of the administration, academic staff and students.

Assessment: Highly satisfactory
Comment: Interviews with students as well as with staff did not reveal deficiencies in this sense.

9. Cooperation with other higher education establishments, research institutions, international organizations; exchange of staff and students with other higher education establishments.
Assessment: Highly satisfactory
Comment: International cooperation within the EU is comparable to activities of a larger university in Latvia.
10. Methodological, informational and technical resources and facilities of the study program.
Assessment: Highly satisfactory
Comment: Interviews with students as well as with staff did not reveal deficiencies in this sense.

V Research (creative) activities of the staff and the students

11. Involvement of the academic and general staff in the research (creative) activities, up to date character and connection with the content of the study program.

Assessment: **Satisfactory**
Comment: The staff's awareness of international research and research communication could be improved in the topic area of the program. Research and publication activities of the staff were acceptable considering the resources available for these tasks.

VI Quality assessment and mechanisms to ensure it

Assessment: **Satisfactory**

Comment: Course evaluation by students should be carried out for all courses. Course evaluation by students were for the time being voluntary and managed by responsible teachers.

12. Annual self-assessment of the study programs, evaluation of the strengths and weaknesses, changes, plans and possibilities for the development, continuously action of the system of self-evaluation and quality improvement.

Assessment: **Satisfactory**

Comment: This whole issue should be re/engineered by the Department. Regular and systematic procedures for planning and quality assurance should be developed and implemented.

13. Successful work of graduates according to their qualification.

Assessment: N/A (not applicable)

Comment: The department has contacts with business and industry but cooperation at this stage is limited mainly to management of internships for students.

14. Opportunities to continue studies and financial guarantees in the case of closure of the program, its re-organization and other changes.

Assessment: **Satisfactory**

Comment: An agreement exists with Ventspils University College. This agreement does, however, not seem to be a realistic alternative if the program is closed in Valmiera. On the other hand collaboration with Ventspils could be a workable alternative in order to re-organise and/or to change the program.

Concluding remarks

The accreditation commission had, in general, a positive impression of the college, its staff, management, and students. There was a constructive and optimistic attitude about the future of the college. The accreditation commission would, however, like to mention the following concerns

The study program should include knowledge about management of collaborative work in software as well as information systems development.

Teachers should pay more attention to interrelationships between courses.

Teachers should pay more attention to pedagogical skills, presentation and lecture style.

The department should be concerned about maintaining a critical mass of teachers and ensure the availability of qualified teachers in a long term perspective.

The department should be concerned with competence development of staff. Individual competence development plans should be elaborated.

The commission recommends the department to further analyze and take into account the questionnaires filled in by students.

Recommendation for accreditation

The commission has the following recommendation regarding the study program evaluated.

Professional study program Information Technology

Accreditation for 6 years.

Valmiera 23 April, 2004

Janis Bubenko jr   Jüri Kiho
Janis Grundspenkis

On behalf of the commission

Janis Bubenko jr

Organization of evaluation of higher education

Accreditation of higher education institutions takes place according to the Law on Higher Education Establishments (LHE), adopted by Saeima on November 2, 1995; article 9 of which stipulates the general accreditation principles of higher education institutions (HEI). Only those higher educational establishments who have received credence (been accredited) and which offer state accredited study programmes have the right to issue certificates of higher education recognised by the state to its graduates. The accreditation proceeds in accordance with the regulations on accreditation approved by the Cabinet of Ministers. Study programmes are accredited no less often than once in six years.

Certificates of higher educational establishments established by legal entities are recognised by the state and they receive the right to use the state crest of the Republic of Latvia on the certificates after the respective higher educational establishment and the programme of studies has been accredited and its statute (satversme) has been approved by the Cabinet of Ministers.

Requirements to the study programmes and HEI as well as the most important organisational aspects related to accreditation are reflected in the Accreditation Regulations for HEI (AREG) approved by the Cabinet of Ministers (first version on November 28, 1995, last version accepted on 03.10.06., nr. 821.). Recommendations for application of these Rules are elaborated by Baltic Higher Education Coordination Committee. Accreditation is a part of the higher education quality assurance system, which, together with self-evaluation and evaluation by outer experts, forms the main stages of a continuous quality assurance process.

The regulations for the higher education quality assurance is the same in the university and non-university sector but the approach should be different. The study programmes should be evaluated according to their specific aims and objectives. The members of the external expert team also should be chosen according to the specific tasks of the evaluation.

The self-assessment is a necessary pre-condition and the first step of the accreditation of the higher education institution. The creation of the permanently acting quality assurance and improvement system, based on the self evaluation, is the main goal of the accreditation.

The self-assessment report not exceeding 30 pages must be prepared by the HEI. Documents describing the premises and facilities of the institution, its long term development plans, financial documents and those certifying the property relations and explaining the governance of the institution can be appended to the self-assessment report, but it is suggested to add a list with names of these documents and information, where, when and how to receive these documents. The CVs of the academic staff and at least short description of all study courses must be appended.

At the stage of preparing the self-evaluation report a steering group should be set up, where the administration, academic staff, and students should be represented.

The decision on accreditation is made by the Council for Higher Education (for higher education institutions' acreditation) or the Accreditation Commission set up by the Ministry for Education and Science (for accreditation of study programmes) after hearing the recommendations of the Evaluation Commission. The foreign members of the Evaluation Commission have to read the self-assessment report that should be handed over in Latvian and in English (or in some other foreign

language) and go for a two days visit to the higher education institution to be accredited. Evaluation committees shall be made up by at least one expert from EU, Estonia, Lithuania or another foreign country and must have at least three experts.

Public discussion of the preliminary report of Evaluation commission report must be organized at the end of expert visit. The precised Evaluation Commission final report and all individuala reports of experts are submitted to Higher Education Council or Accreditation Commission which decide about accreditation. After the decision the Evaluation Commission final report is published at website www.aiknc.lv . All self evaluation reports and Evaluation Commission final reports are available at website of Higher Education Quality Evaluation Centre www.aiknc.lv.

In order to organize the assessment a specific higher educational establishment and study programme a non-profit foundation "Higher Education Quality Evaluation Centre" (HEQEC) in accordance with recommendations of the Council of Rectors as well as in compliance with the requirements of the European Union and in accordance with the recommendations of the respective institutions of the European Union shall form an Evaluation Commission with involvement of Latvian and foreign experts. The founders of HEQEC are Ministry of Education and Science and (according to a decision made by the Council of Rectors) five higher education establishments: University of Latvia, Riga Technical University, Riga Stradins University, Daugavpils University and "School of Business Turiba" . The activities of the HEQEC are supervised by the eight persons strong Board. The day-to-day activities of the HEQEC are entrusted to the Chairman of the Board elected by the meeting of the shareholders - five higher education establishments, mentioned above. Employees of the HEQEC are appointed by the order of the Chairman of the Board. Now the personnel of the HEQEC consists of 3 full time employees, including Chairman of the Board, and 2 part time employees.

According to the Statutes the HEQEC has following objectives:
- to work out and co-ordinate the procedures aimed at quality assessment of higher education institutions and study programmes as well as preparing peer visits in compliance with the Law on Education of the Republic of Latvia and the Law on Higher Education Institutions";
- to organize the quality assessment of higher education institutions and study programme on behalf of the Ministry for Education and Science;
- to set up commissions and working groups responsible for solving problems related to quality assessment and accreditation;
- to invite foreign experts for peer visits to higher education institutions;
- to sum up and to make public the experience obtained as the system of higher education institution and study programme quality assessment is being set up and implemented.
The approved list of accreditation shall be issued by the Minister of Education and Science.

After receipt of the list of accreditation and confirmation of the statute (satversme) and the rector of a higher educational establishment in accordance with the procedure envisaged by the Law on Higher Educational Establishments the higher educational establishment shall be entitled to issue graduation certificates recognised by the state.

Should substantial shortcomings be found in the process of assessment of a higher educational establishment or study programme, they shall be temporarily accredited for two years.

Should the Council of Higher Education and the Accreditation Commission give a negative assessment of a higher educational establishment as well as all the study programmes thereof, it shall be denied accreditation. The following shall qualify as reasons for refusal:
1. the submitted documents do not comply with requirements of laws and other legal acts;
2. the qualifications of the academic staff are not sufficient;

3. the premises are not up to standards advanced for higher educational establishments;
4. the higher educational establishment does not make available study laboratories which would allow the students to master contemporary technologies of work.

In case of a repeated negative evaluation the accreditation refusal shall be final and the Council of Higher Education or the Accreditation Commission shall submit a recommendation to the Minister of Education and Science to either reorganise or liquidate the respective higher educational establishment.

The results of accreditation and the reasons for cancellation of the list of accreditation or accreditation for a study programme are published in the website of Higher Education Quality Evaluation Centre www.aiknc.lv and in the newspapers.

We are using the quality assurance system for the quality improvement and as tool for the reforms in higher education. External experts should be first of all advisers, supporting the creation and activities of internal quality assurance system in higher education establishments.