Identification of the Appropriate Issues for Cross Institutional Module Sharing

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1   Introduction

This report is intended to present the issues and constraints related to cross institutional module development, sharing and delivery from the perspective of Tallinn University of Technology.

The university's current strategy of internationalisation is first outlined and the status of existing inter-university collaboration is described.

Specific constraints and opportunities for module sharing within the CENEAST project are then discussed and proposals for module sharing are made leading up to the conclusions and recommendations which close the report.

2   Promoting cross institutional module sharing

Tallinn University of Technology (TUT) is a technical university that provides high-level research-led education in engineering, natural and social sciences. It is tightly integrated into international cooperation networks and projects, it collaborates in the creation of the European higher education and research areas and is attractive to international students as well as international teaching staff and researchers.

TUT is actively pursuing a policy of internationalisation. The principal features of this strategy are to expand the enrolment and participation of foreign students and staff at the university and to develop collaborative relationships with foreign universities.

The strategic aims in terms of internationalisation are:

1. To enhance the international scope of education and R&D activities by fostering cooperation with acknowledged education and research institutions around the world.

2. To enhance the quality of education and R&D thus ensuring the university's international visibility and competitiveness.

3. To promote Estonian higher education and culture in the international arena thus supporting intercultural understanding through international cooperation.

Core activities to achieve these strategic aims include:

• Internationalisation of education and research to ensure the competitiveness of education and research and to promote the experience of studying and working in an international environment. Internationally recognised and accredited curricula which reflect both local and international developments and priorities in higher education and research. Highly qualified teaching staff and researchers and a modern learning and working environment.

• Managing international cooperation to broaden the scope of internationalisation into all core activities by developing partnerships with international organisations and cooperation networks, and higher education and R&D institutions around the world.

• Creating a supportive environment for internationalisation with the aim of developing a modern and effective support system characterised by infrastructure, high administrative capability and the availability of supportive structures and services for non-Estonian speakers.

• Fostering international recognition as a reliable partner and enhancing the reputation and attractiveness of TUT education and R&D activities.

This suggests a generally supportive policy context for projects such as CENEAST which focus on inter-university cooperation.

2.1   Cross institutional partnerships and collaborations

Currently about 1000 international students from more than 65 countries study at TUT with a further approximately 500 new international students starting their studies in the autumn of 2012. This makes TUT the most international university as well the most international organisation in Estonia.

At present, TUT offers 16 Master level and 3 Bachelor level study programmes in English for international students.

TUT has established international centres in Silicon Valley, US and in Shanghai, China.

Existing cooperation, particularly with European universities tends to be focused on curricula development, project cooperation and networking with student and staff mobility in Europe mainly being organised under the Erasmus programme.

TUT has existing partnerships with the following foreign universities:

BEALRUS

- Belarusian State Technological University
- Yanka Kupala State University of Grodno

CANADA

- Mount Saint Vincent University

CHINA

- University of Shanghai for Science and Technology
- Qingdao University of Science and Technology
- University of Science and Technology Beijing
- China University of Petroleum, Beijing
- Macau University of Science and Technology

DOMINICAN REPUBLIC

- Universidad Dominicana O&M

FINLAND

- Aalto University School of Science and Technology

GEORGIA

- Caucasus University

GERMANY

- Brandenburg University of Technology Cottbus

ITALY

- University of Bologna

JAPAN

- The University of Electro-Communications

KOREA

- Sun Moon University of Korea
- Korea Polytechnic University
- Kyungpook National University
- Hallym University

LATVIA

- Riga Technical University

LITHUANIA

- Kaunas University of Technology
- Šiauliai University
- Vilnius Gediminas Technical University

MEXICO

- Center for Research and Advanced Studies of the National Polytechnic Institute

NORWAY

- University of Oslo

RUSSIA

- Bauman Moscow State Technical University (BMSTU)
- Kaliningrad State Technical UniversityMoscow State University of Civil Engineering
- Moscow State Industrial University
- Saint-Petersburg State University of Engineering and Economics
- Saint-Petersburg State Polytechnical University
- St. Petersburg National Research University of Information Technologies, Mechanics and Optics

SINGAPORE

- National University of Singapore

SPAIN

- Fundesem Business School
- Universidad Politècnica de València

SWEDEN

- Linköping University
- Lund University
- Royal Institute of Technology (KTH)

TAIWAN

- Southern Taiwan University of Science and Technology
- National Taiwan University of Science and Technology (Taiwan Tech)

TURKEY

- Istanbul Technical University

UKRAINE

- National Technical University of Ukraine
- National Technical University "Kharkiv Polytechnic Institute"

UNITED KINGDOM

- University of Salford

UNITED STATES

- Stanford University
- The University of California, Berkeley
- Southern Utah University
- The University of New Mexico

Along with partnership relations with universities and research institutions abroad, TUT participates in numerous international cooperation networks and organisations and this helps to ensure academic quality at TUT while also enabling TUT to play its part in shaping the European higher education environment. TUT currently collaborates in the following international networks:

- <u>ANDROID</u> Erasmus academic network for Disaster Resilience
- <u>CESAER</u> Conference of European Schools for Advanced Engineering Education and Research
- <u>SEFI</u> European Society for Engineering Education
- <u>UNICA</u> Network of Universities from the Capitals of Europe
- <u>BALTECH</u> University Consortium in Science and Technology
- <u>EUA</u> European University Association
- <u>Campus Europae</u> student exchange network

Under the TUT internationalisation strategy, increased numbers of international students and staff, international study programmes in English, international centres, university partnerships and participation in international networks are all being pursued.

2.2   Existing inter-university joint programme and module sharing arrangements

The BALTECH project which has been operational now for more than a decade, was set up to promote cooperation between universities in the Baltic Sea Region within the area of natural sciences, technology and industrial management.

BALTECH partner universities are:

Kaunas University of Technology;

Linköping University

Lund University

Riga Technical University

Royal Institute of Technology

Tallinn University of Technology

Vilnius Gediminas Technical University

BALTECH activities include joint master programs among other initiatives (such as conferences, mobility of teachers and students, scholarships, etc.) In particular joint masters programmes in Industrial Engineering and Management (started 1999), and Environmental Management and Cleaner Production (started 2002) have materialised.

Under this initiative, TUT's Civil Engineering Faculty provides the international Master of Environmental Management and Cleaner Production programme. The programme offers an integrated approach toward current and long-term environmental issues, focusing on technologies and concepts in environmental planning and management.

Whereas this provides an indication of the administrative and organisational willingness and capacity to engage in such joint, inter-university programmes, this particular study programme has already been jointly established within the BALTECH project framework, and since it is not the exclusive property of TUT, it is therefore not available for sharing beyond the BALTECH partner institutions.

2.3 Opportunities for module development, sharing and delivery in the CENEAST project

Outside of the BALTECH project's international Masters programme, only 2 elective course modules within the Faculty of Civil Engineering are taught in English:

- Project Management in Construction; and,
- Construction Investments

Of these, the English version of the Construction Investments course is currently under development and, therefore, is the only TUT built environment-related course which could be conveniently adapted to suit the CENEAST project module requirements.

The Construction Investments course is a 3 ECT credit points and covers the following topics in approximately 12 lectures:

Capital investment principles; Public investments; Financial decisions for capital Investment; Investment project composition; Indicators of investment efficiency (calculation methods); Investment appraisal - discounting methods; Capital budgeting; Tax and inflation impact on investment efficiency; Risk identification and analysis methods; Investment selection under uncertainty; Cash flow types and their characteristics; Social evaluation of projects.

3 Readiness of the university for cross institutional module sharing

As evidenced by the BALTECH project described above, inter-university cooperation and joint taught programmes are already in existence at TUT, indicating a general capacity to cooperate closely with other institutions at least at the high level. However, practical constraints to module sharing are also apparent as below.

3.1 Language and culture

The official language of instruction at TUT is Estonian. This represents a change from the Soviet-era policy of teaching in both Russian and Estonian languages and, as indicated in the Estonian Higher Education Strategy 2006-2015, this is part of a commitment to ensure that the Estonian higher education system plays its full role in the preservation and development of the Estonian language and culture and thus contributes to guaranteeing Estonia's continued national existence.

However, under the strategy of internationalisation, an increasing number of study programmes and courses are being made available in English. In terms of modules within the field of the built environment, however, only 2 English language modules are currently available (as indicated above) and only one of these (Construction Investments) is currently under development so that it could allow adjustment to meet agreed CENEAST standards / requirements.

3.2 Administrative constraints

From the point of view of incorporating additional courses into TUT curricula, we have 3 types of modules within any study programme – compulsory, elective and free. Both compulsory and elective modules must be approved

for inclusion into a study programme. This approval occurs at the level of the University Council and the approval process is rigorous. In effect, this limits the sharing of modules (for use in teaching at TUT) to free modules which students may take if they wish but they could not be expected to pay for them.

3.3   Defining common assessment criteria

Common assessment criteria would indeed have to be defined by recipient universities. From the point of view of TUT should it adopt such a shared module (as a free module as described above), then the assessment criteria for the module would need to comply with TUT assessment criteria.

In terms of the number of credits (ECTs), this is calculated on the basis of teaching hours so that each ECT represents 26,67 hours of teaching.

3.4   Ability to share resources

To the extent that the resources in question amount to information and lecturers' time input, then there are no constraints to sharing these (at least while the CENEAST project is ongoing and lecturers' time input is partially compensated by the project).

3.5   Intellectual Property

We are not aware of any intellectual property barriers - it appears to be up to the author of the material, however, this situation needs further clarification. From the point of view of material originating from TUT it seems obvious that author's rights would be expected to be honoured by other users of the teaching materials.

3.6   Access to state of the art technology

TUT uses the Moodle environment for e-Learning and the Construction Investments course is largely numerical therefore not relying upon specialist software beyond Microsoft Excel or a similar spread sheet application. Since most other institutions / individuals have access to both Moodle and Microsoft Excel, no difficulties in terms of technological requirements are anticipated.

3.7   Sustainability

It is unclear how a shared module could be maintained beyond the CENEAST project funding period. Without continuous updating and maintenance, shared modules would quickly become obsolete. A sustainable funding model for the shared modules would have to be developed and this would likely ultimately rely upon the beneficiary institutions to which the learners belong paying for modules to be kept up-to-date and maintained.

4   Conclusions & Recommendations

TUT is committed to an internationalisation strategy which encompasses developing closer cooperation with other universities. At a policy level, this suggests general support for inter-university collaboration of the form proposed in the CENEAST project.

However, constraints do exist to the practicalities of module sharing. The single greatest constraint relates to the language of instruction being Estonian for all but a few study programmes and elective modules which are delivered in English. In terms of built environment-related modules, there is in effect only a single module – Construction Investments – which could conveniently be developed into a shared module for the CENEAST project.

It remains unclear how such a module could be kept up-to-date and maintained beyond the CENEAST project funding period.

5   Bibliography

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