



Review team's report on FINHEEC's Engineering Programme Review of

Degree programme in Logistics Engineering, JAMK University of Applied Sciences, Jyväskylä, Finland

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1. Description of the review process and of the programme

1.1. Aim of the review

The aim of FINHEEC's Engineering Programme Reviews is to support enhancement of quality in engineering programmes and to provide higher education institutions with the means to decide if an engineering study programme provides its graduates with the academic qualifications necessary for a career in the engineering profession.

The aim of the review is: to assess the way an engineering degree programme is planned, delivered and developed to ensure that the students reach the programme outcomes; to assure that the assessed programme outcomes are aligned with the programme outcomes set for engineering programmes in the Standards and Procedures for FINHEEC's Engineering Programme Review document¹ (the review manual). The programme outcomes describe the knowledge, skills and competencies that engineering students should have acquired by the time they have completed a degree programme in engineering.

The review evaluates the extent to which the set standards for programme's organisation, implementation and development are met

1.2 The review process

The review was conducted in accordance with the principles set in the review manual. The schedule of the review process was the following:

- The review team was appointed by the FINHEEC Committee for Engineering Education on 5 November 2013.
- JAMK University of Applied Sciences (JAMK) submitted the self-evaluation report on 5 December 2013.

¹ http://www.finheec.fi/files/1961/FINHEEC_engineering_programme_review_manual.pdf

- A review visit to JAMK was conducted on 21-22 January 2014. The programme of the visit is illustrated in figure 1.
- Decision making meeting of FINHEEC Committee for Engineering Education scheduled for 5 March 2014.
- Decision of FINHEEC Committee for Engineering Education confirmed by the FINHEEC Council on 25 March 2014.

	1 st day	2 nd day
9.00–10.20	Interview of the management of the HEI and of the programme	Interview of external stakeholders (former students, employers / industry / representatives of professional engineering organisations, maximum of 8 persons)
10.30-11.50	Interview of the academic staff of the programme (maximum of 8 members of the academic staff, representing both junior and senior staff)	Interview of students (8 students, representing students at different stages in their studies)
12–13	<i>Lunch</i>	<i>Lunch</i>
13.00–13.50	Interview of support staff members of the programme (maximum of 8 support staff members, representing the key support functions of the programme)	Study of evidence provided by the programme
14.00–14.50	Evaluation visit to the relevant facilities (The team visits the most relevant facilities, such as laboratories, libraries, etc.)	Private meeting of the review team
15.00–15.50	Study of evidence provided by the programme (Relevant material provided by the programme such as: Thesis works that represent the whole scale of grade evaluation, Project works, Assessed project reports, Examination papers, Continuous assessment, Other assessed coursework, Entrance examinations, Recent research publications relevant to the programme)	
16.00–17.00		Final interview with preliminary feedback to the management

Figure 1. Programme of the review visit.

1.3 Degree programme in Logistics Engineering at JAMK University of Applied Sciences

The engineering programme under review is the Degree Programme in Logistics Engineering at JAMK, located in the city of Jyväskylä in central Finland.

The degree awarded from the programme is a Bachelor of Engineering delivering a total of 240 ECTS credits over 4 years of full-time study. The annual intake for the programme is about 30 students. The programme intake is international with over half of the students from countries other than Finland, and it is fully conducted in English.

The students on the programme specialise in the field of life cycle support and/or logistics management. According to the self-evaluation report, a logistics engineer plans, implements and controls the efficient and effective flow and storage of goods, services and related information in the supply chain in order to meet customer requirements; and the programme prepares the students for careers in the logistics industry, trade and logistics service businesses.

2. Evaluation of the programme's organisation

1. Needs, objectives and outcomes

requirement 1: Needs of the interested parties (students, industry, trade unions, etc.) should be identified.

The review team evaluates the fulfilment of the requirement to be **acceptable**.

The strengths of the programme regarding the requirement are:

Labour market relevance of the programme is strong.

The recommendations for further development are:

The ways of getting feedback from alumni should be formalised. There should be greater emphasis on tracking graduates in order to increase the number of graduates' responses in the surveys which are conducted one year after graduation. Valuable information can be obtained by including in the survey alumni graduated in the past 5 (or longer) year period.

The evaluation is based on the following evidence:

Self-evaluation report, interviews of the management, students, alumni and Advisory Board members.

requirement 2: Educational objectives of the programme, which describe the educational task and purpose of the programme, should be consistent with the mission of the higher education institution and with the needs of the interested parties.

The review team evaluates the fulfilment of the requirement to be **acceptable**.

The evaluation is based on the following evidence:

Self-evaluation report and interviews of the management, the academic staff and the support staff.

requirement 3: Programme outcomes should cover the programme outcomes for review

The review team evaluates the fulfilment of the requirement to be ***acceptable***.

The evaluation is based on the following evidence:

Self-evaluation report and interviews of the management, the academic staff, students, alumni and Advisory Board members.

requirement 4: Programme outcomes should be consistent with the programme's educational objectives.

The review team evaluates the fulfilment of the requirement to be ***acceptable***.

The evaluation is based on the following evidence:

Self-evaluation report and interviews of the management, the academic staff, students, alumni and Advisory Board members.

II. Educational process

requirement 1: The curriculum should ensure the achievement of the programme outcomes.

The review team evaluates the fulfilment of the requirement to be ***acceptable with the following prescriptions:***

In their current form, the syllabi are not fully developed and the course descriptors are not satisfactory. Course descriptors are meant to elucidate how the courses contribute towards the overall programme outcomes: it was noted that the descriptors are lacking detailed information and therefore it is required that they are developed with the aim of explaining clearly how the learning outcomes are met. For each course, the learning outcomes should be linked to specific elements of the course syllabus. The syllabus should be developed in all its parts, with a clear identification of the taught elements.

The strengths of the programme regarding the requirement are:

The learning outcomes are met in practice as shown by the current and graduated student cohorts. Strong links with industry and workplace are achieved through industrial placement.

The good practices regarding the requirement are:

Students are aware of the requirements and of the hours of study required for each course and able to link that to the credit allocation.

The evaluation is based on the following evidence:

Syllabi, curriculum and curriculum analysis.

requirement 2: Teaching should be delivered according to planning.

The review team evaluates the fulfilment of the requirement to be ***acceptable***.

The strengths of the programme regarding the requirement are:

Teaching plans are agreed and discussed with students.

The good practices regarding the requirement are:

Feedback system informs the planning effectively.

The recommendations for further development regarding the requirement are:

Feedback from students is taken on board and changes to the teaching are made accordingly. Often this seems to imply that courses change very often, usually from one year to the successive. This is good practice; however attention should be paid to the risk that too many changes might alter the ultimate learning outcomes specified for the given course.

The evaluation is based on the following evidence:

Teaching material scrutinised and interview with staff and students.

requirement 3: Counselling and support workload that is offered to the students should be adequate to support the students in achieving the specific learning outcomes of the courses.

The review team evaluates the fulfilment of the requirement to be *acceptable*.

The strengths of the programme regarding the requirement are:

Good mentoring scheme.

The good practices regarding the requirement are:

Mechanisms are in place to assure that the students are referred to the relevant bodies, when in need of support.

The evaluation is based on the following evidence:

Interviews of teaching staff, support staff and students.

requirement 4: Examinations, projects and other assessment methods should be designed to evaluate the extent to which students can demonstrate that they have mastered the learning outcomes for individual courses and the programme outcomes, respectively, throughout the programme and at its conclusion.

The review team evaluates the fulfilment of the requirement to be *acceptable*.

The strengths of the programme regarding the requirement are:

Industrial experience offers the students a possibility to see what the real working life is like.

The recommendations for further development regarding the requirement are:

It is suggested that more novel and varied methods of assessment are devised, which effectively develop the learning outcome experience of students. Exams and other classical ways of assessing students can be complemented with methods that enhance the transferable skills, for instance.

The evaluation is based on the following evidence:

Evaluation and scrutiny of the assessment methods, based on written material and interview with teaching staff.

III. Resources and partnerships

requirement 1: The academic staff should be sufficient in number and qualification to accomplish the programme outcomes.

The review team evaluates the fulfilment of the requirement to be *acceptable*.

The evaluation is based on the following evidence:

Self-evaluation report and interviews of the academic staff and students.

requirement 2: The technical and administrative support staff should be sufficient in number and qualification to accomplish the programme outcomes.

The review team evaluates the fulfilment of the requirement to be *acceptable*.

The evaluation is based on the following evidence:

Self-evaluation report and interviews of the support staff and students.

requirement 3: The classrooms, computing facilities, laboratories, workshops, libraries and associated equipment and services should be sufficient to accomplish the programme outcomes.

The review team evaluates the fulfilment of the requirement to be *acceptable*.

The strengths of the programme regarding the requirement are:

Computing facilities are up-to-date and also sufficient in number.

The evaluation is based on the following evidence:

Self-evaluation report, evaluation visits and interviews of students.

requirement 4: The financial resources should be sufficient to accomplish the programme outcomes.

The review team evaluates the fulfilment of the requirement to be *acceptable*.

The evaluation is based on the following evidence:

Self-evaluation report and interviews of the management, the academic staff and the support staff.

requirement 5: The partnerships that the HEI and the programme have with external parties should contribute to accomplishing the programme outcomes and facilitate the mobility of the students.

The review team evaluates the fulfilment of the requirement to be *acceptable*.

The strengths of the programme regarding the requirement are:

The program and the staff are well connected with the business life.

The good practices regarding the requirement are:

Teacher's knowledge is kept up-to-date by R&D projects which are done together with companies solving real-life problems.

The evaluation is based on the following evidence:

Self-evaluation report and interviews of the management, the academic staff, the external stakeholders and students.

IV. Assessment of the educational process

requirement 1: The students admitted to the programme should have the right prerequisite knowledge and attitudes to achieve the programme outcomes in the expected amount of time.

The review team evaluates the fulfilment of the requirement to be *acceptable*.

The strengths of the programme regarding the requirement are:

When comparing the number of applicants to the available study places it can be concluded that the programme is popular among the student candidates. This allows to keep the entrance criteria high and to select candidates with the right prerequisite knowledge and attitude to achieve the programme outcomes in the expected amount of time. However, the applicants to study places ratio has been decreasing for last few years.

A multinational student body enables sharing knowledge and experiences. That well prepares the graduates to work in an international and intercultural environment.

The recommendations for further development regarding the requirement are:

Strengthening promotional activities to better inform about the programme and to increase the popularity of the programme among the possible candidates from Finland and abroad.

The evaluation is based on the following evidence:

Summary of the number of applicants 2008-2013, 'Applicant's Guide', self-evaluation report and information gathered during interviews with students and alumni.

requirement 2: Students' career choices should attest to the extent to which the students achieved the programme outcomes in the expected amount of time.

The review team evaluates the fulfilment of the requirement to be *acceptable*.

The good practices regarding the requirement are:

Students create a personal learning plan (PLP) which is updated as personal career plans develop.

Each group of students has a career tutor who introduces them to university studies and monitors their activities. They meet regularly and discuss the academic progress.

The recommendations for further development regarding the requirement are:

Developing formal ways of support for students by helping in finding companies for co-operation to accomplish practical training periods and internships.

Enabling access for students to detailed and accurately described learning outcomes for each course.

Developing forms of assistance to students in finding open vacancies in companies.

The evaluation is based on the following evidence:

Information gathered during meetings with students, external stakeholders and graduates and the self-evaluation report.

requirement 3: The graduates should enter an occupation corresponding to their qualification.

The review team evaluates the fulfilment of the requirement to be *acceptable*.

The strengths of the programme regarding the requirement are:

Students have good contact with industry during internship and the well working informal relationships between students and teachers help in finding and selecting appropriate companies for their internships.

Due to the involvement of representatives from industry in creating curriculum (participation in the Advisory Board) and the positive attitude of the management towards the needs of external stakeholders, qualifications of graduates from the programme are relevant to the current work market.

High consistency of work and education obtained in the university. In 2011, 82% of graduates reported that their current working field corresponds to their education at JAMK.

The good practices regarding the requirement are:

Activity of the Advisory Board in planning the programme; together with the involvement of external stakeholders and students in the Advisory Board.

The recommendations for further development regarding the requirement are:

According to the inquiry for graduates, greater attention should be paid to learning and career guidance and working life projects.

Opportunities for foreign students to learn the Finnish language should be increased to help international students to find jobs from Finland.

The evaluation is based on the following evidence:

Inquiry for the graduates in 2012 (OPALA 2012), one year after graduation placement follow-up and interview with alumni.

requirement 4: The stakeholders (graduates, employers, etc.) should confirm that the programme achieves its educational objectives.

The review team evaluates the fulfilment of the requirement to be *acceptable*.

The strengths of the programme regarding the requirement are:

According to opinions on the degree and education, above 80% of surveyed alumni either fully agree or partly agree with the following statements:

1. My degree corresponds to my professional goals,
2. My competencies are relevant in terms of the employers' expectations,
3. I can utilise the learning outcomes in my work.

Alumni and external stakeholders appreciate the modern and practical knowledge acquired by the students.

The good practices regarding the requirement are:

The institution puts emphasis on modern and well-equipped laboratories.

The institution has a contact with the representatives of the employers through the activities of the Advisory Board.

The evaluation is based on the following evidence:

Inquiry for the graduates in 2012 (OPALA 2012) and the one year after graduation placement follow-up. Interviews with external stakeholders, alumni and management.

V. *Management system*

requirement 1: HEI's and the programme's organisation and decision-making processes should be fit to accomplish the programme outcomes.

The review team evaluates the fulfilment of the requirement to be *acceptable*.

The evaluation is based on the following evidence:

Self-evaluation report and interviews of the management and the academic staff.

requirement 2: HEI's and the programme's quality assurance systems should be effective enough to ensure that the students achieve the programme outcomes.

The review team evaluates the fulfilment of the requirement to be *acceptable*.

The good practices regarding the requirement are:

Mid-term course feedback which seems to bring fruitful results.

The recommendations for further development regarding the requirement are:

The programme would benefit from developing ways of collecting information on graduates' placement after 5 years of graduation.

The evaluation is based on the following evidence:

Self-evaluation report and interviews of the management the academic staff and students.

requirement 3: The results for the delivery process, students and graduates should be analysed and used to promote the continuous improvement of the programme.

The review team evaluates the fulfilment of the requirement to be *acceptable*.

The evaluation is based on the following evidence:

Self-evaluation report and interviews of the management, the academic staff and students.

requirement 4: Needs, objectives and outcomes, the educational process, resources and partnerships, and the management system should be periodically re-examined.

The review team evaluates the fulfilment of the requirement to be *acceptable*.

The evaluation is based on the following evidence:

Self-evaluation report and interviews of the management and the academic staff.

3. Overall evaluation of the programme

According to the review team's view it is recommended that *the programme pass the review with the following prescription:*

In their current form, the syllabi are not fully and coherently developed and the course descriptors are not satisfactory. Course descriptors are meant to elucidate how the courses contribute towards the overall programme outcomes: it was noted that the descriptors are not detailed and therefore it is required that they are developed with the aim of explaining clearly how the learning outcomes are met. For each course, the learning outcomes should be linked to specific elements of the course syllabus. The syllabus should be developed in all its parts, with a clear identification of the taught elements.

The prescription should be met by August 2015.

Upon reviewing the programme, the team notes the following key strengths:

- Industrial experience offers the students a possibility to see what the real working life is like.
- Labour market relevance of the programme is strong.

The team would like to highlight the following good practices of the programme:

- Teacher's knowledge is kept up-to-date by R&D projects which are done together with companies solving real-life problems of the companies.
- Mid-term course feedback which seems to bring fruitful results.

The team has the following recommendations for further development of the programme:

- The ways of getting feedback from alumni should be formalised.
- The programme would benefit from developing ways of collecting information on graduates' placement after 5 years of graduation.

- It is suggested that more novel and varied methods of assessment are devised, which effectively develop the learning outcome experience of students.