



FINNISH EDUCATION
EVALUATION CENTRE

ACCREDITATION OF THE DEGREE PROGRAMME IN INTERNATIONAL LOGISTICS AT JAMK UNIVERSITY OF APPLIED SCIENCES

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Finnish Education Evaluation Centre
Publications 8:2020

PUBLISHER Finnish Education Evaluation Centre

BOOK DESIGN Juha Juvonen (org.) & Ahoy, Jussi Aho (edit)
LAYOUT PunaMusta

ISBN 978-952-206-589-6 pdf
ISSN 2342-4184 (pdf)
ISSN-L 2342-4176

PRINTED BY PunaMusta Oy, Helsingfors

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Description of
the accreditation
process and of
the programme

1

1.1 Aim of the accreditation

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

The accreditation assesses the way an engineering degree programme is planned, delivered and developed to ensure that the students reach the programme outcomes and how the programme outcomes align with the reference programme outcomes set in the FINEEC Engineering Programme Accreditations manual. The reference 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 accreditation evaluates the extent to which the set standards for programme's planning, implementation, resources and quality management are met.

1.2 Degree programme in International Logistics

Degree programme in International Logistics belongs to the JAMK University of Applied Sciences (JAMK), that is located in central Finland. Degree programme is a part of the School of Technology at JAMK.

The programme consists of 240 ECTS credits and intended time of completion is 4 years. Programme leads to the Bachelor of Engineering degree. Programme is implemented as full-time studies. Programme offers possibilities for virtual learning. The language of instruction is English. The yearly intake is 25 students. The School of Technology carries out a similar degree programme in Finnish with its own student intake.

The current curriculum of the degree programme has two specialisation areas:

- Purchasing
- Industrial logistics management

Degree programme also offers its students a possibility to choose a module from JAMK’s other degree programmes or from JAMK’s partner universities worldwide.

According to the self-evaluation report, the annual update of the curriculum in 2020 shall rename the programme into ”Purchasing and Logistics Engineering” with mostly the same programme structure and a larger choice of optional minor studies.

1.3 The accreditation process

The accreditation was conducted in accordance with the principles set in the *FINEEC standards and procedures for engineering programme accreditation* document. The schedule of the accreditation was the following:

1. The accreditation team was appointed by the FINEEC Committee for Engineering Education on 16 December 2019.
2. JAMK University of Applied Sciences submitted the self-evaluation report on 7 January 2020.
3. A site visit to the degree programme was conducted on 4–5 February 2020. The programme of the visit is given in table 1.
4. Decision making meeting of FINEEC Committee for Engineering Education on 27 April 2020.

TABLE 1: Site visit programme

Site visit programme	
Wednesday 5 February 2020	Thursday 6 February 2020
08.45–9.00 Short presentation of the evidence room	09.00–9.50 Interview with the external stakeholders
09.00–10.15 Study of the evidence room	10.00–10.40 Interview with the alumni
10.15–11.15 Interview with the management	10.45–12.00 Study of the evidence room
11.30–12.30 Interview with the teaching staff	12.00–13.00 lunch
12.30–13.30 lunch	13.00–13.50 Interview with the students
13.30–14.15 Interview with the support staff	14.00–16.30 Team meeting
14.30–15.45 Visit to the relevant facilities	16.30–17.15 Preliminary feedback to the management
15.45–17.00 Study of the evidence room/interview with the staff in charge of curriculum development	

1.4 The accreditation team

Chair of the accreditation team:

Janne Lahtinen, Senior Lecturer, Satakunta University of Applied Sciences, Finland

Members of the accreditation team:

Bernhard Fleischmann, Professor emeritus, University of Augsburg, Germany

Jakub Grodecki, student, University of Science and Technology – AGH, Kraków, Poland

Kimmo Nykänen, Logistics Services ICT, Development Lead, Posti logistics company, Finland

Senior Advisor **Kati Isoaho** from FINEEC acted as a Project Manager of the accreditation.

1.5 Evidence used in the accreditation

The results of the accreditation and the analysis in the accreditation report are based on the following evidence:

- Self-evaluation report of the degree programme, along with the following appendices:
 1. A list of Advisory Board members
 2. A list of executed customer trainings in 2018–2019
 3. Year-after-graduation follow up summary
 4. Description of the programme structure and schedule
 5. Description of the programme structure and competencies (matrix table based on the courses)
 6. International Logistics study guide
 7. JAMK Quality Manual
 8. Degree regulations of JAMK
 9. Applicants guide 2019
 10. A list of staff of Logistics department
 11. A list of practical training placement of Logistics
 12. A list of cooperation HEIs
 13. Key figures of the programme
 14. Grade distribution of student group TLE16S1 in 2016–2027
- The accreditation team had access to JAMK intranet in the course of the accreditation process.
- Interviews with management, teaching staff, support staff, students, alumni and external stakeholders.

- Evidence gathered by the degree programme to the evidence room during the site visit, which included course material, thesis works, project works and examples of the course feedback among other things. In addition, the CVs of the programme staff were available in the evidence room.
- Tour of the relevant facilities: library, EXAM studio, Digi Centre and Logistics laboratory.

In addition, the accreditation team requested the programme management to provide information on the forthcoming curriculum update and obtained the following materials: an excel sheet with a comparison of the two curricula in terms of courses and an initial plan of the updated structure of the programme, that the accreditation team could discuss with the program management during the site visit. However, this report assesses only the curriculum set for 2019–2020 International Logistics degree programme.

Evaluation of the fulfilment of the accreditation standards

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2.1 Planning of the programme

Standard 1: The programme aims, which describe the educational task and purpose of the programme, are consistent with the mission of the higher education institution and reflect the identified needs of employers and other stakeholders.

The self-evaluation report defines the degree programme's aims as the ability of the graduates to work in certain working fields as follows:

"Graduates are able to work in the fields of industry, transportation, logistics, trade and the public sector."

These working fields are typical for freight logistics, i.e. managing the flow of industrial products through the network of suppliers, producers, trade and customers. The industrial setting of Central Finland causes a strong demand for these fields of education, as the representatives of industry confirmed in the interviews.

Programme management endeavours to orient the programme towards the needs of working life via various contact channels, as described in the self-evaluation report and confirmed in the interviews with external stakeholders, alumnae and teaching staff:

1) The Advisory Board of Logistics, composed of representatives of companies and meeting twice a year, ensures that the programme educates competent logistics engineers for working life in the future. It also facilitates working contacts between education and businesses in the form of excursions, practical assignments and projects, practical training and theses.

2) The degree programme in International Logistics participates in several research projects in cooperation with industry. In particular, the "Robots on Roads" project, started in 2019 as part of a cooperative network and providing a laboratory for testing pilot robotics, contributes to working life experience for teaching staff and students.

3) Moreover, the JAMK Logistics Department offers continuous education services to the staff of cooperating companies. These seminars last a few days or weeks. The self-evaluation report lists approximately twelve such events during the last two years.

Recent feedback from companies suggested adding modules or courses on the Circular Economy and the Analysis of Big Data.

The degree programme is also embedded in JAMK's general strategy and in its focus areas, one of which, Automation and Robotics, is particularly relevant to logistics. One part of the degree programme, common to all of JAMK's programmes, is dedicated to the general aims of JAMK's educational strategy. They are described as learning outcomes and referred to under Standard 2.

However, these special feedbacks are not reflected explicitly in the formulated programme aims, but have an impact on the forthcoming curriculum, as explained under Standard 3. The programme aims at educating general logistics engineers and managers able to work in fields relevant to the logistics of physical products.

One particular specialisation is expressed by the new title of the programme (as of 2020), Purchasing and Logistics Engineering. Purchasing is commonly understood as one function within the logistics chain, in addition to inbound and outbound transportation, warehousing, production, sales and distribution.

Based on the team's assessment, the programme meets Standard 1 fully.

Standard 2: The programme learning outcomes, which describe the knowledge, understanding, skills and abilities that the programme enables graduates to demonstrate, are consistent with the programme aims, with relevant national qualifications frameworks (if applicable) and with the FINEEC reference programme learning outcomes.

The self-evaluation report lists some general learning outcomes under the programme aims:

- *extensive practical basic knowledge and skills and their theoretical foundations for working in a specialist position in the field,*
- *the ability to follow developments in the field,*
- *skills for self-improvement and continuous training,*
- *sufficient communication and language skills, and*
- *skills required for international activities in the field.*

In addition, JAMK formulates working life competences that are common to all bachelor's degree studies at JAMK. From 2020, these are as follows:

- (a) *learning and information management competence,*
- (b) *entrepreneurship, innovation and working community competence,*
- (c) *internationalisation and communications competence, and*
- (d) *ethical competence.*

As professional programme learning outcomes, the general EUR-ACE learning outcomes for bachelor's degree programmes are quoted, with only minimal specification for the programme in question, such as "... to solve logistics related problems..." or "... to implement logistical design ...". In the category "Knowledge and Understanding", even the general term "their branch of engineering" is used.

However, as the programme aims are also rather general regarding the future working fields and functions of the graduates, the described programme learning outcomes are consistent with these aims and with the FINEEC reference programme learning outcomes.

Based on the team's assessment, the programme meets Standard 2 fully.

Standard 3: The course level learning outcomes, including thesis work and possible practical training, aggregate to the programme's learning outcomes.

The overall structure of the curriculum suits well the programme's aims and learning outcomes. It includes an obligatory part comprised of basic and advanced topics of logistics in breadth, practical training and the thesis, and in addition, it allows for specialisation in two optional minors of 15 credits each.

JAMK has provided a matrix of all courses in relation to the programme's specific learning outcomes, the general JAMK learning outcomes (see Standard 2) and subareas of logistics (self-evaluation report, Appendix 5). It allows for one-click access to the course description together with the course learning outcomes and the content. In addition, in the evidence room the team had the opportunity for online access to detailed material and the course schedule of every course.

The matrix uses a somewhat older catalogue of six instead of eight of the FINEEC learning outcomes: It combines Engineering Analysis and Problem Solving into a single issue and Multidisciplinary Competences and Communication and team working into Transferable Skills. A further reason for requiring the evaluator to look into the course descriptions is that the way in which the matrix is combined can be viewed, to some extent, as conservative.

In the following paragraph, Standard 3 is assessed with respect to the 2019–2020 curriculum for the International Logistics degree programme based on the mandatory parts of the

curriculum, summing it up, practical training and the thesis, and five modules totalling 150 credits. The modules are Transferable Skills (29 cr.), Natural Sciences (incl. Mathematics) (35 cr.), Engineering (30 cr.), Economics and Management (26 cr.) and the Major Global Logistics Operations (30 cr.).

Regarding the rather general programme aims and learning outcomes targeting a general logistics engineer or manager, one should bear in mind that logistics is an interdisciplinary field, overlapping with engineering, management and ICT.

Knowledge and Understanding fields are covered by the basic modules Natural Sciences and Engineering and Management. Logistics related ICT falls under Logistics Information Technology and Enterprise Resource Planning.

The basics of management, as taught in the courses Accounting and Organisation (the latter dealing with Human Resource Management), provide the minimum required knowledge for a logistician. There is a lack of studies on economics, such as basics on markets, competition, international trade and monetary systems. There is no corresponding course in the module Economics and Management. The teaching staff, when queried on this issue, explained that these subjects are dealt with in several courses. But this cannot be verified in the course descriptions.

Engineering Practice / Analysis and Problem Solving are addressed, according to the matrix, in the basic courses on mathematics and entrepreneurship, and in the courses Optimisation and Simulation, Transportation Economy and Introduction to Life Cycle Management. But many other courses clearly contribute to analysis and/or problem solving, such as Production Technology and Automation Engineering (students learn "to compare advantages and disadvantages of different technologies in logistics processes"), Intralogistics (students learn to "evaluate the level of intralogistics processes and used technologies") and Transportation modes (students learn "to choose correct methods from the transportation modes available").

For **Engineering Practice / Design**, the matrix exhibits only two crosses, namely for Sustainability and Responsibility and for Technical Drawing. This is a very narrow view of engineering design. All courses in the engineering module and courses such as Transportation modes, Transport Economy (logistics costing), as well as Accounting certainly contribute to engineering design.

Engineering Practice / Practice are covered in a large number of courses and a practical training period of three times seven weeks.

Abilities subsumed under the heading **Investigations and Information Retrieval** are gained from courses in the Transferable Skills module, in the statistics course, which deals with the design and interpretation of experiments, and mainly from the thesis project.

Multi-disciplinary Competences, Communication and Teamwork are covered by the large module of Transferable Skills (28 credits), which includes language courses and courses where teamwork and communication are practiced.

As explained in section 1.5. (evidence used in the accreditation), the accreditation team received initial information on the forthcoming curricular changes before the site visit. Detailed course descriptions were still missing at the time of the site visit. The programme management explained that in the new curriculum, course names have been changed and contents transferred between courses.

However, as the assessment of the curriculum is based on the learning outcomes instead of the course titles, there was not the possibility to assess the significance of the upcoming changes adequately as a whole.

Based on the information available, the accreditation team made two notions to be taken into account in the future development and updating of the degree programme curriculum. The accreditation team notes the following concerns regarding the intended new curriculum:

1. *Necessary knowledge and understanding of a logistics engineer on the basics of engineering and management should be taken into consideration when considering whether to provide less focus on management and basics of engineering in the curricula.*
2. *The aim of educating general logisticians should be kept in mind when increasing the proportion of specialised courses.*

Based on the team's assessment, the programme meets Standard 3 fully.

Standard 4: The curriculum gives comprehensive information on all the individual courses of the programme, including thesis work and possible practical training, and is accessible to students.

The curriculum is published in the JAMK study guide and publicly available on JAMK's web pages, including a description of all the individual courses, practical training and thesis work. Although the different teachers have individual styles of explaining the learning outcomes and contents, the common format of the course descriptions conveys very clear and detailed information on all courses.

Unfortunately, this is not yet the case for the forthcoming curriculum for "Purchasing and Logistics Engineering", implemented in 2020. Although the application period for the next intake already took place in January 2020, there was no information available on it during the site visit. There is a homepage for the degree programme under its new name, but with the note "Please note that the programme structure for 2020–2021 will be published later" and reference to the study guide for 2019/20.

Based on the team's assessment, the programme meets Standard 4 fully.

Standard 5: The curriculum and the course timetable enable students to graduate in the expected time.

The Head of Programme makes a draft of delivery for the next academic year every spring. The specific resource plan for each semester is prepared during the previous semester in cooperation with team leaders.

The schedule for the students is made by the study coordinator at JAMK. Students and alumni, based on their experiences, expressed the opinion that the timetable enabled them to graduate in the expected time. When students gather their opinion and want to change the course timetable, an assistant and the teaching staff assist them in the process. Such an option allows them to find more free space in the schedule if needed. The interviewed students indicated that the breaks between lectures and classes allow them to rest and to use the time for their own purpose.

The self-evaluation report (Appendix 13) shows that in general, JAMK's students exhibit a relatively brief study duration and time to graduation compared with the average for Finnish universities of applied sciences. The interviewed students felt that the workload is balanced throughout the academic semesters. Analysis of the timeframe allowed the accreditation team to note that the courses are equally weighted throughout the semester.

One of the main challenges for JAMK and programme management is to find a solution concerning to a common situation in which international students are prolonging the studies due to residential permission (visa) issues. The possible action to take could aim towards providing support for students that are actively looking for employment after completing their studies.

The curriculum allows for timely graduation; however, thesis work and finding practical training positions constitute important hurdles for the students. This was evident from the self-evaluation report and from the interviews. Problems with finding a practical training position are highlighted especially with non-Finnish speakers. This challenge is further visible through the fact that in the degree programme, 70–80 per cent of students are of foreign nationality.

Based on the team's assessment, the programme meets Standard 5 fully.

Standard 6: The criteria and process for student admission and transfer are clearly specified and published. Students should be informed of the qualifications necessary to enter the programme.

The application period for the International Logistics degree programme takes place through either the joint national application system or a separate application. The Director of the School makes the decision on student selection based on the placement list. Confirmation of

the admission criteria and descriptions of the application and admission procedure process are both included in JAMK's process manual.

JAMK enrollment information and explanations of the process are easily available for applicants and they provide a clear understanding of the degree programme's contents and the expectations for the participants. Admission and transfer information are specified and openly published. The necessary comprehensive information about studying is given in the applicant's guidebook, study guide and information stored on JAMK's intranet.

The interviewed students felt informed regarding the qualifications and requirements that are necessary for entering the programme. Based on the opinion of students, alumni and the analysis of the JAMK public webpage, the required information regarding joining the programme is provided on the webpage in good time before the course begins. The admission procedure is clear and transparent for the potential applicants. The interviews with the students confirmed that, for example, email guidance during the course of the application stage was functional and effective.

At the beginning of the studies, a test in the natural sciences is conducted annually. Based on different students' experiences, the management of the department has indicated that there are differences between the level of knowledge among the recruited students from different countries. Therefore, JAMK aims to create more introductory courses.

Based on the team's assessment, the programme meets Standard 6 fully.

Standard 7: Students are informed of regulations and guidelines that concern recognition of prior learning, progress of studies and graduation.

The regulatory framework for prior learning is made publicly available and is communicated to applicants during the application process. Based on an interview with programme management, the number of students that wanted their prior learning in engineering to be recognised was relatively small; in the year prior to the site visit, four out of twenty-five students expressed the need for such recognition.

The recognition procedure takes into account both informal and formal learning.

The process consists of four stages:

- Recognition of learning by the student
- Accreditation and studification
- Demonstration of competence
- Assessment of learning.

The final decision on whether to recognise prior learning belongs to the Head of Programme once all the stages of the recognition procedure have been fulfilled.

Information regarding the recognition process can be found on JAMK's web pages, in the intranet and in the JAMK Quality Manual. Additionally, students are also informally guided by the teacher tutors during their studies in recognition matters. Complete information on the recognition procedures is available to students in the study guide and FAQs on JAMK's intranet site. This was confirmed in the interviews with students and alumni based on their experiences. In their opinion, the procedure of recognition was understandable and carried out professionally.

Based on the team's assessment, the programme meets Standard 7 fully.

Strengths, good practices and areas for further development regarding section 2.1: planning of the programme.

The team notes the following strengths and good practices in this section:

- Systematic consultation with external stakeholders in the design and development of the curriculum;
- Use of the various methods to consult the stakeholders during curriculum development, such as the Advisory Board, surveys, student feedback procedures and project work with the logistics companies.

The team sees the following as areas for further development in this section:

- There is a need to further clarify the difference between the programme aims and programme learning outcomes as they are presented in the curriculum. In addition, it would be beneficial to better tailor the programme learning outcomes to match the expectations of the logistics engineering branch.
- The publication of the annually updated curriculum should take place earlier, regardless of the extent of changes applied. That would be in line with the applicants' possibility to explore the curriculum at the time of application.
- Basics of economics are missing in the curriculum.
- There is a need to complement the Advisory Board with public-sector representatives to ensure the comprehensive view of the employment sector for logistics.
- Improvement of the students' inclusion and active role in the curriculum development, aside feedback procedures in use, is needed.
- There is a need to increase and develop possibilities for international students to choose optional courses in the same manner as Finnish students (optional courses usually are in the Finnish language).

2.2 Implementation of teaching and learning

Standard 8: The teaching and learning process, including the assessment of students, enables students to demonstrate that they have achieved the intended course and programme level learning outcomes. Students have an active role in co-creating the learning process and the assessment of students reflects this approach.

The review of the self-evaluation report and interviews with students have confirmed the high level of teaching quality. Students positively evaluated the majority of the courses. The content of many courses is closely related to working life.

However, teaching methods are not described thoroughly in the course descriptions. An electronic assessment option is used and has been found to be efficient for describing student performance and achievement with respect to the intended learning outcomes.

During the site visit, interviewed alumni were asked to name courses that they found the least useful after graduation. Almost all mentioned entrepreneurship. The accreditation team found this is surprising, because entrepreneurship is one of JAMK's strategic subject matters. When interviewed, students were asked to name any lack of courses: they mentioned "logistic sciences" in addition to courses on practical issues.

On the other hand, the interviewed students reported that students in the international programme can choose the optional courses from the national programme as well, but because of the language barrier, this is in practice only possible for Finnish students. In general, the learning outcomes in this category are well-addressed in terms of teaching and learning.

Degree programme students have flexible opportunities to influence the learning process and study planning. All students create a personal learning plan (PLP) and a career plan at the beginning of their studies. The PLP helps students organise and evaluate the progress of their studies, clarify their interests, orientate their studies, and set objectives and schedules for their studies. The PLP assists students and degree programme staff in monitoring the progress of studies. In addition, it advances the further evaluation of how the curricula contents align with the intended learning plan.

Learning environments are modern, spacious and, as observed in the course of the site visit, well utilised. However, use of the learning facilities, such as the Digi Centre, could help diversify studies across the variety of degree programmes.

Based on the self-evaluation report and interviews, JAMK has extensive support mechanisms to smoothen the integration process both in Finland and in Jyväskylä, allowing students to focus on their studies. However, the Finnish language remains an issue for many foreigners, which is also the case regarding English language skills for some of the students enrolled. JAMK is providing language courses that will allow foreign students to gain the necessary

skills. During the interviews, it was confirmed that students are supported by the teachers and administrative staff upon experiencing difficulties in their studies or thesis work.

The programme has already decided to commence offering support courses in the natural sciences to allow the students to reach an equal knowledge base prior to commencing their studies. This to ensure an equal starting point for all learners.

Knowledge and understanding

- knowledge and understanding of mathematics and other basic sciences underlying their engineering specialisation, at a level necessary to achieve the other programme learning outcomes
- knowledge and understanding of engineering disciplines underlying their specialisation, at a level necessary to achieve the other programme learning outcomes, including some awareness at the forefront;
- knowledge and understanding of applicable materials, equipment and tools, engineering technologies and processes, and of their limitations, in their specialisation
- knowledge and understanding of applicable techniques and methods of analysis, design and investigation, and of their limitations, in their specialisation

In the curricula, 35 ECTS in seven courses (out of a total of 240 ECTS) are related to natural sciences. Natural science skills are gained during the first and second study year in, e.g. Calculus, Physics 1–3 and Chemistry. Basic engineering skills are mostly studied during the first and second year. The engineering basics are gained in courses like Logistics Information Technology, Mechanics and Materials Technology. In these courses, the students are expected to build up the knowledge and an understanding of the required tools and engineering technologies.

During the interviews, it was confirmed that the overarching idea in the degree programme is to develop professionals that have the mindset and way of thinking to enable problem solving in real-life situations. The project work, workshops and simulations are well in line with the intended learning outcomes. Validation of the learned skills takes place in industry during practical trainings. Many projects also include genuine industry problems that have a real impact on the field of logistics. This is well in line with the degree programme's aims as a part of a university of applied science.

Based on the interviews (as stakeholders and alumni as students), the role of mathematics and other basic sciences and classical engineering were considered important in general – they contribute to the development of analytical thinking. However, it is evident that some students struggle with natural sciences, namely with physics and math.

Assessment of the students has been described in a detailed manner in the curricula. However, there are a lot of similarities within the descriptions of different courses. For example, the six courses under the section Natural Sciences (35 cr.) all list the same assessment criteria. The same applies to almost all other courses. In the section Assessment Methods and Criteria, there is very little variance. The lack of diversity in assessment methods was raised in the previous accreditation; however, it seems the situation has not changed. This issue was not raised in the interviews, but the problem is evident in the self-evaluation report and other written material provided for the accreditation team.

Overall, the fact that the students seems to have far-reaching freedom to compose their own individual study plans, decide what to specialise in and choose what modules and individual courses to take supports the aim of teaching them how to acquire knowledge and form an understanding of their field of specialisation.

Engineering practice: analysis, problem-solving, design, practice

Analysis

- ability to analyse complex engineering products, processes and systems, and to correctly interpret the outcomes of such analyses, by being able to select and having the practical skills to apply relevant established analytical, computational and experimental techniques and methods

Based on the course and competence materials provided, it can be said that the degree programme delivers an education that teaches key skills relevant for an engineering practitioner. Engineering education should provide professionals with the ability to provide societally meaningful services while possessing the necessary skills and knowledge base and a readiness for research. An engineering practitioner's key skill is adaptability and the ability professionally grow towards engaging in complex and demanding professional practices and tasks. As part of such growth, an ability to make decisions and use one's best judgement in uncertain conditions is essential. Engineering problem-solving ability with respect to the industry practices is the desired outcome of the learning process in engineering in general. These qualities must further be reflected in teaching and learning processes.

During the interviews, it was widely confirmed that the overarching idea in the degree programme is to develop professionals that have the mindset and way of thinking to enable problem solving in real-life situations. This approach is visible in the manner of course delivery, particularly in laboratories and through diverse projects engaged to teaching and course contents.

Based on evidence from the self-evaluation report, the evidence room, conducted interviews and alumni feedback, the degree programme has succeeded quite well in this task.

Problem-solving

- ability to identify, formulate and solve complex engineering problems, by being able to select and having the practical skills to apply relevant established analytical, computational and experimental techniques and methods

The degree programme provides students with diverse abilities to solve problems. This is achieved by including real-life problems provided by the cooperating companies. Laboratory facilities support quick failures and encourage students to retest their theories and seek out alternative solutions through controlled processes of validation. Multinational and domestic projects would further enhance student engagement in realistic problem solving and learning about the role of communication in solving engineering-related problems. Information retrieval is well facilitated and actively used by students. Workshop and simulation facilities are guided, and there is a familiarisation process in place for students to utilise for independent work.

Coordination of the students' practical training placements is a shared responsibility between students and the degree programme. Students are responsible for arranging an internship position; however, the process is supported by the degree programme through sharing contacts and through agreements between JAMK and companies to facilitate the practical training of students. Each company has a nominated person with overall responsibility for the practical training periods and for ensuring that students achieve their intended learning outcomes.

Overall, the degree programme has good facilities and competent staff to provide a high-level practical engineering education. The teaching methods have a strong engineering focus with practical examples, exercises and laboratory practice on top of normal theoretical lecturing. The project work, workshops and simulations are well in line with the intended learning outcomes. Validation of the learned skills takes place in industry during practical training. Many projects also include genuine industry problems that have a real impact on the field of logistics. The interviews with alumni and employers confirmed that the degree programme provides graduates with strong practical engineering skills. Based on the interviews, students are generally satisfied with the skills they attained during the practical training periods.

Design

- ability to develop and design complex products (devices, artefacts, etc.), processes and systems to meet established requirements that can include societal, health and safety, environmental, economic and industrial constraints, by being able to select and having the practical skills to apply relevant design methodologies
- practical skills for realising complex engineering designs
- ability to use the awareness of the forefront of their engineering specialisation in design and development

Based on the course/competence matrix, only the courses Technical Drawing and Sustainability and Responsibility contribute to engineering design. As explained under Standard 3, this is a narrow view, indicating that the teaching staff is not sufficiently aware of the importance of engineering design ability as a learning outcome. The degree programme is advised to consider this matter when developing curriculum in the future. The design approach could also be discussed with the relevant external stakeholders to find out their views in light of the working-life demands.

Regarding the content, many other courses are likely to contribute to this ability (see Standard 3). Unfortunately, most course descriptions are unspecific, repeating a standardised text. Teaching methods like workshops, case studies or laboratory work, as indicated in some course descriptions, support this learning outcome.

Practice

- ability to apply norms of engineering practice in their engineering specialisation;
- ability to consult and apply codes of practice and safety regulations in their engineering specialisation

Engineering practice abilities result from the mastering the content of many courses, as indicated in the course/competence matrix and from the teaching methods, such as laboratory work and company visits. Moreover, the students gain practice experience in the obligatory practical training placements of three times seven weeks.

Investigations and information retrieval

- ability to conduct searches of literature, to consult and to critically use scientific databases and other appropriate sources of information, and to carry out simulation and analysis in order to pursue detailed investigations and research on technical issues
- ability and practical skills to design and conduct experimental investigations, interpret data and draw conclusions
- ability to work in a laboratory/workshop setting

According to the self-evaluation report, every implemented course of the degree programme consists at least to some extent of information retrieval and investigation. Concept Lab as an optional course is an example of a course that combines different areas of expertise, such as engineering and entrepreneurship. In this course, students must have a selected business case prior to attending.

The Concept Lab process consists of three parts:

1. researching the phenomena under study / researching new concept ideas,
2. developing a concept idea using creative methods,
3. evaluating the created concept idea.

As such, it provides a good example of a course that facilitates the qualities specified by the industry in an innovative and diverse manner while utilising different teaching methods and overarching collaboration between professionals.

In the courses Logistics Information Technology and Probability and Statistics, the students learn to gather information from various sources and to analyse empirical data.

According to the self-evaluation report, thesis work also develops remarkably well the skills of information retrieval. The thesis is divided into two courses, Bachelor Thesis, part 1 (5 cr.) and Bachelor Thesis, part 2 (10 cr.). This includes collecting a diverse range of information from various sources, such as scientific articles, books, doctoral dissertations, oral communication and electronic sources.

Multidisciplinary competences

- awareness of the wider multidisciplinary context of engineering
- awareness of societal, health and safety, environmental, economic and industrial implications of engineering practice and recognition of the constraints that they pose
- awareness of economic, organisational and managerial issues (such as project management, risk and change management) in the industrial and business context
- ability to gather and interpret relevant data and handle complexity to inform judgements that include reflection on relevant social and ethical issues;
- ability to manage complex technical or professional activities or projects, taking responsibility for decision making
- ability to recognise the need for and to engage in independent life-long learning
- ability to follow developments in science and technology

As logistics is, per se, a multidisciplinary field, the students certainly become aware of the implications of engineering practice, at least regarding economy and management. But implications regarding health, safety, the environment as well as social and ethical issues are also treated explicitly in many courses. Moreover, common courses for all JAMK students, such as Innoflash and Entrepreneurship, lead the students to solving problems and make decisions as part of a multidisciplinary team.

Communication and team-working

- ability to communicate effectively information, ideas, problems and solutions with the engineering community
- ability to communicate effectively information, ideas, problems and solutions with the society at large;
- ability to function effectively in a national and an international context;
- ability to function effectively as an individual and as a member of a team;
- ability to cooperate effectively with engineers and non-engineers

Through an analysis of the programme learning outcomes regarding communication and team-working skills, it is clear that those outcomes result from the contents of many courses, as indicated in the course competence matrix. Analysis of the class programmes and syllabuses demonstrated that academic teachers are using the teaching methodologies that best provide

students with the opportunity to achieve the required competences. Those include group work, project work and distance learning in groups.

The course matrix has a variety of courses open to interdisciplinary participants that focus on problem solving as part of a team, thus enhancing student collaboration and resource management skills. Courses like Concept Lab enhance the participation of a mixture of Finnish and foreign students, helping them to enhance their ability to co-exist in a national and international context.

The Concept Lab course, as an example, incorporates the creation of a student learning diary. The learning diary and the examination help students develop their analytical skills and personal growth in terms of understanding the phenomena surrounding concept development and the skills required to successfully complete such development. The concept plan is based on thorough research and is well justified.

Assessment of student achievement with respect to the learning outcomes in communication and teamwork is done in a number of courses, as this is an overarching subject touching on a variety of courses in the curriculum. Assessment of how the courses help develop communication skills and teamwork highlight the timely delivery of assignments together with reported progress in one's studies. This enhances students' professional growth and their ability to take responsibility for their own actions and achieving set goals.

Strengths, good practices and areas for further development regarding section 2.2: implementation of teaching and learning

The team notes the following strengths and good practices in this section:

- In general, the degree programme has diverse and well-functioning learning environments that advance the achievement of the intended learning outcomes.
- Students are in general satisfied with the teaching provided by the degree programme.
- The degree programme staff is evidently committed to supporting students through their learning paths. Students have interdisciplinary courses to choose from that offer diverse contents for learning about problem solving in a collaborative environment.

The team sees the following as areas for further development in this section:

- In the course descriptions, both the assessment criteria and teaching methods consist mostly of unspecific standardised texts.
- More extensive and interdisciplinary use of laboratory facilities could add value and diversity to course contents.
- There is a need to build up support for foreign students so that they can find practical training positions.

2.3 Resources

Standard 9: The academic staff are sufficient in number and qualification to enable students to achieve the programme learning outcomes. There are arrangements in place to keep the pedagogical and professional competence of the academic staff up to date.

According to the self-evaluation report, teaching staff are appointed according to pre-defined recruitment criteria (UAS Act (1 129/2014)). The creation of academic posts and the recruitment of academic staff are explicitly described in JAMK's Rules of Procedure. Academic staff are not hired with a permanent employment contract prior to completing a master's degree in higher graduation and completing the requisite amount of pedagogical studies. Key actors are the team leaders and Head of Department. A network of alumni also supports the recruitment of new staff.

There are 2 principal lecturers, 27 senior lecturers and one project engineer in the Logistics Department, and all take part in the both national and international programme (app. 500 students). In addition, there are two education coordinators and the Head of Department. The number of staff members in teaching and in student support is at a level required for achieving the intended learning outcomes (student-teacher ratio of 17.2). Age distribution of the academic staff is diverse, consisting of both more senior and younger staff members within the department.

Based on the curriculum vitae of the staff members, they have strong experience in the logistics field in general. Interviews confirmed that many of the staff members have teaching experience from the foreign partner universities. Both features seem to advance the achievement of the intended learning outcomes in the degree programme.

Developing the competence of academic staff is guided by strategic goals, the personnel plan as well as RDI and pedagogical principles. Improving the competences of teachers and their teaching load are topics focused on in the annual development discussions. The academic staff have 50 hours per annum at their disposal for self-development. This is not much, as reported during the interviews; however, the staff reported that the employer has a supportive attitude towards self-development.

The staff are encouraged to strive for continuous development in their work, for example by attending conferences, engaging in RDI work and co-operating with working life. In addition, the employer encourages teaching staff to pursue postgraduate studies. In the interviews, it was confirmed that study leave is available, but there is usually no possibility to use actual work time for personal studies. The academic staff also take part in the service business of JAMK. JAMK offers competence development to companies according to customers' demands. Academic staff play a significant role in planning and executing those courses and in other activities, and it is a way to develop staff expertise at the same time.

Based on the team's assessment, the programme meets Standard 9 fully.

Standard 10: An effective team of technical and administrative staff supports the programme. There are arrangements in place to keep the competence of the support staff up to date.

Support staff for degree programme consist of staff members serving several programmes in the centralized services along with some staff members designated to assist with the degree programme. Support staff consist of one project engineer with expertise in intralogistics and robotics and two education coordinators who handle matters of enrollment, study administrative matters, human resource planning and graduation formalities. Inter-disciplinary support staff consist of library and IT services, a study affairs coordinator, an international coordinator, an admissions coordinator, an e-learning designer and a quality officer.

In laboratory facilities, the support staff engage directly with engineering programme and assist with the tests and exercises being planned. Additionally, in laboratory facilities that simulate a warehouse environment with forklifts and related live machinery, safety is of the utmost importance. There is a familiarization process that all students must complete prior to visiting the laboratory facilities.

Support staff do not have the 50-hour resource appointed for self-development, as is the case with teachers. However, support staff report that they have multiple channels for self-development supported by JAMK. For example, library staff have participated in trainings to update their skills. The team of support staff is extensive and consists of experts from multiple areas of expertise. Based on the interviews, support staff appear to "learn by doing". It was confirmed in the interviews that best way for administrative support staff to learn their tasks and maintain an up-to-date understanding of student needs is to be connected with the students' daily routines. This reportedly has specific benefits in dealing with daily routines related to foreign students from different cultural backgrounds.

One of the development areas in support staff operations could be the creation of more effective support mechanisms around the students' practical training. According to the interviews, the international students in the degree programme regularly face difficulties in finding positions for their obligatory practical training periods. As they represent most the student population in the degree programme, the active involvement of both teaching and support staff members in resolving the situation is required. Strengthening the practical training support would help improve the learning outcomes set for the training periods.

Based on the team's assessment, the programme meets Standard 10 fully.

Standard 11: The students are provided adequate and accessible support services to enable the achievement of the programme learning outcomes.

Support services that play an essential role in helping students achieve the learning outcomes appear to be at an outstanding level, with well-planned mechanisms surrounding students and supporting their progress towards graduation. The services are described on the JAMK web pages and intranet for all the students.

The accreditation team sees that support services have been designed in a student-centred way. Students have access to, e.g. the following services: career tutor, study counsellor, study psychologist, study services, tutors, mentors, mediators and wellbeing tutors. In addition, the library along with group working facilities are available for the students. International services are in charge of the study exchange issues and serve all the degree programmes as a centralised service unit. All the offices are located in one place within the main building of JAMK, which allows the students to access the support services easily.

Finding practical training positions for non-Finnish speakers is an issue mutually recognised by the different actors within the programme. The accreditation team recommends that the degree programme consider support services and tools to tackle this problem together with the industry partners.

During the first days of studies, first-year students participate in an orientation week. This initiative is important, especially for international students, so that they can understand and settle into the new environment. It was confirmed in the interviews that the management of the degree programme also emphasises making sure that everybody receives accommodation.

Support facilities were positively assessed by the students and alumni in the interviews.

The student body as a whole is represented by the student union JAMKO. The union represents the students in their dealings with the relevant bodies and management of the university.

Some of the key initiatives that are taken by JAMKO are as follows:

- Managing and providing the tutoring system
- Organising Grumble weeks to gather feedback from students and raise awareness about the quality of the education
- Organising cultural activities for JAMK students
- Providing student cards
- Advocating for student rights.

Based on the team's assessment, the programme meets Standard 11 fully.

Standard 12: The classrooms, computing facilities, software, laboratories, workshops, libraries and associated equipment and services are sufficient and accessible to enable students to achieve the programme learning outcomes.

The facilities for the degree programme are all situated on JAMK's main campus, comprising well-equipped classrooms for lessons and group work, working areas for the students and computer rooms. The students can also use their own devices on the school's free WIFI. They have access to a variety of ICT systems for administrative purposes, such as

- Elmo, a student intranet and ICT service desktop; the latter was accessible for the accreditation team;
- Optima, a learning environment, which will be replaced by the internationally widespread Moodle system in the near future;
- A cloud service for standard software, e.g. Office 365.

The impressive 180 m² logistics laboratory is equipped with much machinery, mainly for intralogistics, including a forklift truck, a conveyor system, a high warehouse rack, an automatic warehouse system for small parcels and an RFID system. The installation of a new robotics system for intralogistics is in the planning stage. The lab is used for courses, student projects and thesis material.

The Digi Centre is equipped with the newest technology in several rooms. It permits to produce videos by mixing various electronic and life sources. The videos are used, for instance, for teaching material, information and advertising. So far, it seems that the Digi Centre is not much used yet by engineering students, who could benefit from it, for instance in their thesis work.

The library contains more than 70,000 printed books and provides online access to approximately 150,000 electronic books and 13,000 electronic journals. The spacious arrangement has 70 workstations, some of which are reserved for strictly quiet studies. A video control system at the entrance permits access to the library also for students outside the normal working hours, in the evening and at weekends.

JAMK provides a special examination room (EXAM studio), which allows students to participate in online examinations. Through the arrangement of 16 workstations and video control, no human surveillance is necessary. So, students can register for the exam on an individual date, just so long as a place in the exam room is free.

The students as well as the alumni expressed their complete satisfaction with all the facilities in terms of both their functionality and availability. A minor exception was a single course that had used specially licensed software, which was available on a restricted number of computers only.

Based on the team's assessment, the programme meets Standard 12 fully.

Standard 13: The HEI and the programme have external partnerships that are adequate to the achievement of the programme learning outcomes.

JAMK collaborates with more than 200 international higher education institutions and universities, which offers possibilities for lecturer exchanges. Exchanges are based on annual objectives according to JAMK strategy. JAMK also participates in the Erasmus exchange system with over 200 agreements. Connections to international stakeholders, especially in student exchanges, are excellent; this was evidential through the interviews with students.

JAMK and The Logistics Department are in a partnership network with regional industry, which makes it possible for the students to do working life projects and provides them with practical training placements, internships and thesis material. There is also the Advisory Board, which consists of members of industry stakeholders who help ensure the relevance of the curricula, and as such, assist in the creation of a degree programme that efficiently leads to future employment opportunities for students. However, no public-sector representatives are on the Board at the moment. This was a finding discussed already in the previous report, and it has been left unattended. This issue should be considered when inviting new people to join the Advisory Board in the future.

Based on the team's assessment, the programme meets Standard 13 fully.

Standard 14: The financial resources are sufficient to implement the learning process as planned and to further develop it.

Government funding of the HEI will be centred on graduation of the students. Full funding of HEI is distributed as follows: 76% education, 19% research and development, and 5% other. JAMK's internal funding allocation follows similar indicators as used by the Ministry of Education and Culture, such as the number of graduates. Funding is allocated to the schools, who then allocate it further to the degree programmes.

The entire revenue budget for 2018 for the Logistics Department was €2.6M. The budget was divided into basic education €2.0M (Ministry of Education) and other income €0.6M (financing of RDI projects, service sales). Finance for basic education for the degree programme in International Logistics is one third of the budget, or approximately 0.7M€. Basic education funding is intended mainly for the wages of teaching and support staff as well as rentals.

After looking at the facilities and hearing the opinions of stakeholders, students and staff, it is evident that the degree programme is doing well from a financial standpoint. However, according to management there is never enough money. Government funding has decreased, while the responsibility of JAMK as an educator has remained the same. According to the interview with management, the new funding model that will come in force on 1 January 2021 for Universities of Applied Sciences will put even more pressure on universities to ensure that students graduate in a timely manner. Based on the above, the necessary measures have

been taken in the degree programme to maintain compliance with the upcoming changes to the financing model. The impending changes in the financial structure have also been incorporated into the curricula that will come into force in autumn semester of 2020.

Based on the team's assessment, the programme meets Standard 14 fully.

Strengths, good practices and areas for further development regarding section 2.3: resources

The team notes the following strengths and good practices in this section:

- Learning environments support achieving the intended learning outcomes;
- Students and alumni are satisfied with the support services for the degree programme students;
- Support services are designed in a student-centred manner.

The team sees the following as areas for further development in this section:

- Extension of the cooperation with companies and the public sector could make practical training positions easier to access for the international students;
- Self-development resources for the support staff members could improve the quality of the student support process.

2.4 Quality management

Standard 15: The quality management procedures of the programme are consistent with the quality policy of the higher education institution.

JAMK's quality management manual steers the different processes at JAMK and it is used to help develop the degree programme, supported by the JAMK Process Manual. Procedures are in line with the HEI Quality Manual and they are conducted as per the plan. There is apparently no contradiction between degree programme implementation and the HEI Quality Manual.

Programme-level quality assurance consists of diverse feedback systems with feedback from students, teaching staff, support staff and key industry stakeholders. Additionally, extensive data collection is conducted to monitor degree programme status and key figures in a domestic and international context. Data collection is both qualitative and quantitative, providing metrics to determine the level of performance in meeting quality assurance for JAMK in general. Data collection and analyses are done at both the JAMK level and the degree programme level.

Key performance indicators consist of the following:

- admission statistics
- Success rates and time taken to complete the programme
- Achieved learning levels
- Student feedback on courses, practical placements, international mobility
- Feedback on practical placement
- Final-year students' opinions on the learning process and support services
- Time taken to enter the workforce
- Graduates' job placement and career progress
- Opinion of employers on the graduates' education
- Student progression to master's or Doctoral studies (no data was collected to date at the time of the assessment).

Based on the interviews, the quality management manual is rarely referred to in everyday life and in the daily routines of the staff. However, end of course and the mid-course feedback is requested continuously from the students, and the results are used to improve performance. Based on the interviews, a sufficient amount of resources is allocated to quality work.

A School of Technology representative participates in planning and configuring the JAMK quality management manual as a member of the quality management development team.

High-quality and continuous improvement seem to be essential in planning the degree programme. In contrast to the above positive assessment, relatively few alumni actually respond to the year-after feedback surveys. This may have a negative impact on how to adequately take account of industry demands when updating the curricula.

Based on the team's assessment, the programme meets Standard 15 fully.

Standard 16: The organisation and decision-making processes of the programme are fit for effective management.

School of Technology management consists of a director, a quality officer and management team. Furthermore, as part of the School of Technology, the Logistics Department's degree management team consists of the Head of Department and team leaders. Finally, as part of the Logistics Department, management of the International Logistics programme is overseen by the head of degree programme.

The School of Technology's management team consists of the school's director, department/institute heads, an administrative planner and a personnel representative. The management

team convenes every two weeks. The management team's memorandums are available for review in the document management system at JAMK's intranet site.

School of Technology personnel are further organised into teams with specific areas of expertise. Each team is solely responsible for planning area of responsibility. Teamwork is supported by a team leader and the head of department. The team leader works directly under the authority of the Head of Department.

The organisational structure is clear and made transparent. Smaller teams have contact with management, and such communication is encouraged not only through the structure of management, but also in the JAMK quality manual. Transparency in communication is highlighted in the overall strategy, and based on evidence from the self-evaluation report and interviews, it is at a very good level. The interviews supported the understanding that management is well informed about what is happening at the curricula level when everyday routines are conducted. Teachers reported having open lines of communication and changes, whenever applicable and adding value, are amended efficiently.

In light of the self-evaluation report and interviews, the decision-making process appears to be quite straightforward and transparent. It is important to ensure the equal and meaningful participation of all the stakeholders in shaping the degree programme. With this in mind, the composition of the Advisory Board is not very diverse, and the same companies have been attending for many years. There are no acknowledged mechanisms for rotation of the companies in the advisory Board.

Based on the team's assessment, the programme meets Standard 16 fully.

Standard 17: The programme reviews and develops the programme aims, curriculum, teaching and learning process, resources and partnerships, and quality management in a systematic and regular manner, taking into account analysis of results of student admissions, students' study progress, achieved learning levels, student, graduate and employer feedback and graduate's employment data.

JAMK has a well-established, formalised quality system, which is described in the Quality Manual in detail. It comprises circles of feedback and improvement on different operating levels and at different paces.

Feedback from students, graduates and teaching staff is collected by the quality team of the School of Technology, which includes a student representative and meets three times a year. Feedback on working life is gained from discussions with the Advisory Board once or twice a year and also through cooperation with companies on projects, thesis work and R&D. A further source of feedback are statistics about student admission rates and study progress and the follow-up reports one year after graduation. On the programme level, this leads to minor

annual updates of the curriculum and more profound reforms in intervals of about five years, as stated in the self-evaluation report. JAMK internally evaluates the degree programmes more thoroughly once every five years. The current evaluation procedure was started in 2014.

For the students, there are various feedback channels: optional continuous feedback and formalised mid-term feedback in every course as well as a feedback week for the whole programme, organised yearly by the student union. These feedback procedures have been judged as very useful by the students. They reported cases where the teaching staff reacted immediately to the mid-term survey. However, the impact of the students on the strategic development of the degree programme appears rather weak.

One current problem is a decreasing number of applicants, only 45 for 25 places in 2020, and hence decreasing levels of qualification. Though JAMK has an outstanding position in the field of logistics within Finland, it competes with an increasingly international market for students from abroad, who represent the majority of students in this degree programme studying in the English language. As an acquisition measure, JAMK has started to offer preparatory courses for the degree programme abroad, for instance in Vietnam.

Based on the team's assessment, the programme meets Standard 17 fully.

Standard 18: The programme provides public, up to date information about its objectives, teaching and learning process, resources, quality management procedures and results.

Clear, up-to-date and concise information about the degree programme can be found on JAMK's web pages, which provide all necessary information that should be made publicly available regarding the degree programme and studies. The curriculum for the degree programme is publicly available on the website and includes information regarding the objectives.

JAMK's quality management is described on the "Quality through Studies" page. However, the results and quality management statistics are quite difficult to find. The accreditation team recommends that the degree programme consider what kind of information related to the results would be useful to publish on its own web pages.

JAMK's web pages also include versatile information on accommodation, health and well-being, student health services, and so forth, to help students settle into their new environment. Links for students on the web page are excellent, providing all relevant information with easy access.

Based on the team's assessment, the programme meets Standard 18 fully.

Strengths, good practices and areas for further development regarding section 2.4: quality management

The team notes the following strengths and good practices in this section:

- Quality management system is transparent and made available at the school and degree programme level;
- Continuous development of the curriculum is an essential part of the degree programme operations;
- Quality officers appear to be a good way to collect information on the degree programme and the extent to which it achieves its stated goals;
- Use of quality management-based information extends to the day-to-day level with respect to routine tasks, allowing for a low threshold to intervene in the event of non-conformity;
- Well-designed policies and established procedures support reviews of the degree programme's needs.

The team sees the following as areas for further development in this section:

- Degree programme level quality management results could be made more transparent.

Overall evaluation of the programme

3

Upon reviewing the programme, the team highlights the following **key strengths and good practices**:

- Students, alumni and external stakeholders are satisfied with the degree programme as a whole.
- The teaching quality in the degree programme is at a very high level, as confirmed by the students in interviews and course evaluations and guaranteed by the impressive effort of the programme management and the teaching staff.
- The library, labs and IT resources, along with students support services, are well equipped and accessible and satisfy the students.
- The programme learning outcomes are well in line with the industry demands. The degree programme staff makes visible efforts to maintain and develop them accordingly.

The team sees the following as the **main areas for further development** of the programme:

- The inclusion of the students in developing the degree programme's aims, learning outcomes and the curriculum could be strengthened.
- The course descriptions should specify the teaching methods used in each individual course.
- Course-specific learning outcomes should be more informative for the students and applicants.
- Changes in the degree programme structure should be published before the application period for the updated programme.
- The degree programme's level of participation in multinational RDI projects should be strengthened.

The team recommends that the programme is *accredited without reservation*.

For the curriculum update coming into force in autumn 2020, the team recommends that JAMK is advised of the regulations in the *FINEEC Standards and Procedures for Engineering Programme Accreditations*, Section 6 (Validity of the accreditation).

Furthermore, the team recommends that JAMK is requested to report to FINEEC by 31.8.2020 the changes in the curriculum and explain they are consistent with the programme aims, considering especially the concerns expressed under Standard 3.

FINEEC
Committee for
Engineering
Education's
Decision

4

In its meeting on 27 April 2020, the FINEEC Committee for Engineering Education decided, based on the proposal and report of the accreditation team, that the Degree programme in International Logistics at JAMK University of Applied Sciences is accredited without reservation. The accreditation is valid until 27 April 2026. The accreditation covers both Degree programme in International Logistics and a similar programme carried out by JAMK in Finnish.

For the curriculum update coming into force in autumn 2020, the Committee decided that JAMK is advised of the regulations in the *FINEEC Standards and Procedures for Engineering Programme Accreditations*, Section 6 (Validity of the accreditation).

In addition, the Committee decided that JAMK is requested to report to FINEEC by 31.8.2020 the changes in the curriculum and explain they are consistent with the programme aims, considering especially the concerns expressed under Standard 3.

Engineering programme accreditation is a degree programme specific evaluation that can lead to the European EUR-ACE® Label. The accreditation aims to support the enhancement of quality in engineering degree programmes and increase the international comparability and recognition of engineering degrees within Europe. The accreditation is voluntary for Finnish higher education institutions and degree programmes. This report presents the process and results of the accreditation of the Degree Programme in International Logistics at JAMK University of Applied Sciences in Jyväskylä, Finland.

The Finnish Education Evaluation Centre (FINEEC) is an independent agency responsible for the evaluation of education. It operates as a separate unit within the Finnish National Agency for Education. It implements system and thematic evaluations, learning outcome evaluations and field-specific evaluations. Moreover, FINEEC supports providers of education and training and higher education institutions in matters related to evaluation and quality assurance, as well as advances the evaluation of education.

ISBN 978-952-206-589-6 pdf
ISSN 2342-4184 (pdf)
ISSN 2342-4176

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