



FINNISH EDUCATION
EVALUATION CENTRE

ACCREDITATION OF THE BACHELOR'S DEGREE PROGRAMME IN MECHANICAL ENGINEERING AT OULU UNIVERSITY OF APPLIED SCIENCES 2025

PUBLICATIONS 7:2025

Silvia Schintke | Mateusz Hirny | Antti Huttunen
Kati Isoaho | Mika Lohtander

ACCREDITATION OF THE BACHELOR'S DEGREE PROGRAMME IN MECHANICAL ENGINEERING AT OULU UNIVERSITY OF APPLIED SCIENCES 2025

Silvia Schintke

Mateusz Hirny

Antti Huttunen

Kati Isoaho

Mika Lohtander



Finnish Education Evaluation Centre

Publications 7:2025

PUBLISHER Finnish Education Evaluation Centre

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

LAYOUT PunaMusta

ISBN 978-952-206-857-6 pdf

ISSN 2342-4184 (pdf)

© Finnish Education Evaluation Centre

Contents

1	Description of the accreditation process and of the programme	6
1.1	Aim of the accreditation	7
1.2	Bachelor’s Degree programme in Mechanical Engineering	7
1.3	The accreditation processes	8
1.4	The review team.....	8
1.5	Evidence used in the accreditation	9
2	Evaluation of the fulfilment of the accreditation standards.....	11
2.1	Planning of the programme	12
2.2	Implementation of teaching and learning.....	23
2.3	Resources	32
2.4	Quality management	38
3	Overall evaluation of the programme.....	44
4	Decisions of the FINEEC Committee for Engineering Education.....	48

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 degree programmes and to provide higher education institutions with the means of deciding whether an engineering degree 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 (FINEEC 26:2024). 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 of standards for programme's planning, implementation, resources and quality management are met.

1.2 Bachelor's Degree programme in Mechanical Engineering

The Bachelor's Degree Programme in Mechanical Engineering is delivered by Oulu University of Applied Sciences (Oamk) and its School of Engineering. Oamk is located in Northern Ostrobothnia, with two campuses in Oulu and one in Oulainen. The Degree Programme leads to a Bachelor of Engineering degree. Its language of instruction is Finnish. The degree programme consists of 240 ECTS and the intended study time for full-time students is 4 years. Yearly intake is about 150 students: 100 via the joint application system and 50 via other pathways, such as open university studies and transfers.

The degree programme currently has three study options, as follows:

- Automotive Engineering
- Machine Automation Engineering
- Production Engineering

1.3 The accreditation processes

The accreditation was conducted in accordance with the principles set in the FINEEC standards and procedures for engineering programme accreditation document (FINEEC 26:2024). This was the first accreditation of the degree programme. The schedule of the accreditation was the following:

1. The accreditation team was appointed by the FINEEC Committee for Engineering Education on 13th December 2024.
2. Oulu University of Applied Sciences submitted the self-evaluation report on 11th April 2025.
3. A site visit to the degree programme was conducted on 14–15 May 2025. See Table 1 for the programme of the visit.
4. Decision-making meeting of FINEEC Committee for Engineering Education on 19th September 2025.

TABLE 1. Site visit programme

Wednesday 14.5.2025	Thursday 15.5.2025
09.00–10.00 1: Interview with Oamk and the degree programme management	09.00–9.50 5: Interview with external stakeholders
10.15.–11.15 2: Interview with the academic staff	10.05–10.55 6: Interview with students
11.30–12.20 3: Interview with the support services staff	11.10–12.00 7: Interview with alumni of the degree programme
13.50–15.00 4: Facilities tour	13.30–15.00 8: Academic staff presented examples of the teaching and assessment methods (demos)
15.15–17.00 Accreditation team meeting	15.15–16.45 Accreditation team meeting
	17.00–17.45 9: Initial feedback for Oamk and the degree programme

1.4 The review team

Chair

- Prof. Dr. **Silvia Schintke**, University of Applied Sciences and Arts Western Switzerland (Switzerland)

Members

- Engineering student **Mateusz Hirny**, Warsaw University of Technology (Poland)
- NPI Quality Lead **Antti Huttunen**, AGCO Power Ltd. (Finland)
- Principal Lecturer **Mika Lohtander**, LAB University of Applied Sciences (Finland)

Counsellor of Evaluation **Kati Isoaho** acted as a project manager for the review.

1.5 Evidence used in the accreditation

Self-assessment report, along with the following appendices:

1. Organisation chart: Oamk and School of Engineering
2. Key performance indicators 2021–2024
3. Picture of the Oamk's yearly planner (schedule of planning)
4. Curriculum of the degree programme
5. A list of key employers with whom the degree programme cooperates
6. Examples of stakeholder feedback on joint operations
7. Oamk strategy and a road map
8. Curriculum analysis
9. 1st year students' performance indicators
10. Examples of the study progress monitoring tool Helistin
11. Description of technical and administrative support staff
12. Degree programme budget
13. Description of the quality system

The curriculum of the degree programme for academic year 2024–2025 was used in this accreditation.

In addition, the accreditation team requested and received the following extra materials from Oamk and the degree programme under review:

- Continuous training courses and possibilities for teachers (statistics).
- Safety instructions for laboratories.
- Description and examples of how research and education overlap.

A Moodle course functioning as an electronic evidence room was provided to the review team. It contained information and materials concerning the following topics:

- Final theses, assessed course work and assignments, assessed exams
- CVs of key staff members
- A list of staff members
- Examples of student feedback (exit survey and course feedback)
- Examples of recent research/RDI publications

The review team had access to Oamk's staff intranet as well as student Intranet during the review process.

Information was gathered during the site visit through interviews with Oamk and degree programme management, academic staff, support services staff, current students, alumni as well as key stakeholders. Teaching staff members were met twice, at the traditional interview as well as during the teaching demo session.

Evaluation of the fulfilment of the accreditation standards

2

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 aims of the degree programme have been clearly identified and are regularly reviewed. As laid down in the self-assessment report, the aim of the degree programme is to educate engineers whose skills include professional competences in the field of mechanical engineering, IT skills, product development skills, basic knowledge of company logistics and cost awareness, proficiency in a foreign language required in the profession, and consideration of people's needs in the application of technology. Completing the degree provides qualifications to work as a mechanical engineer in various expert and managerial positions in different sectors of the business world.

The degree programme has recently been updated by the team of teachers under the lead of the head of the degree programme. The degree programme aims at training students in three options, namely **Automotive Engineering**, **Machine Automation Engineering**, and **Production Engineering**. The programme is strongly oriented towards the needs of companies in the region of Northern Ostrobothnia.

Based on the written materials and site visit interviews, cooperation with industrial stakeholders is both agile and strong. On the one hand, the degree programme holds annual meetings with several important large companies, which are seen as core industrial partners from the region of Northern Ostrobothnia; on the other hand, the degree programme has numerous person-to-person interactions with companies, notably in the context of student internships and bachelor's thesis projects. The degree programme engages in spontaneous, fluent, and needs-based cooperation with industry, which provides the students with valuable interaction opportunities with companies in order to engage with the professional engineering world and to gain practical experience.

Major industrial stakeholders are convincingly involved in the continuous development and review of the degree programme's aims. Smaller companies are also engaged, for example by collecting their feedback on graduate thesis projects, as well as by consulting alumni. The degree programme utilises insights gained from its core partners as well as from collaborative projects and RDI activities when developing the degree programme aims.

Public stakeholders, such as the City of Oulu, are consulted at the level of the UAS regarding strategic focus area definitions, as well as annual action plans.

Oamk has defined three focal areas in its strategy and roadmap: Low Carbon Solutions, Digital Solutions, Business Development. The degree programme in Mechanical Engineering aligns well with these Oamk focal areas, and contributes pertinently to several identified subtopics, as follows:

- Solutions for low carbon energy, transport and machinery technology
- Circular economy solutions
- Automotive
- Robotics and drones
- Flexible automation
- New business, growth, profitability and internationalisation
- A start-up ecosystem and co-development

According to the self-evaluation report and programme content, the focus is on automation and automotive industries. The degree programme is coherently oriented to Oamk's focal areas and aims for the future through integration of topics and skills which are relevant to business development and interdisciplinary collaborations.

At Oamk, international co-operation is seen as a part of quality. According to the self-evaluation report, the degree programme is clearly engaged internationally and benefits from double-degree cooperations with Ulm UAS in Germany, as well as with Hanze UAS in the Netherlands. These cooperations mutually enrich the good practices in the mechanical engineering degree programmes involving German, Dutch, and Finnish students and academic staff in a regular and natural manner. Further international partner universities for student exchange and internship cooperations are, in particular, FH Joanneum – Austria (Automotive Engineering), Höhere Fachschule Technik Mittelland (HFTM) – Switzerland, as well as recently also University of Vic – Central University of Catalonia (UVic) – Spain, a member of the Up University alliance.

The degree programme aims are consistent with the stated activities and mission of Oamk to "educate competent and innovative professionals and conduct active research and development" and "to serve the development and renewal needs of working and business life, support the vitality of the region, and ensure the provision of diverse university of applied sciences education in Northern Finland."

A project work period of one semester in industry strengthens the combination of theory and practice. The degree programme is versatile, and studies are pursued in close cooperation with different companies of the region and with other educational organisations. In addition to basic and professional studies in mechanical engineering, students deepen their professional skills by taking courses from a set of elective topics of their own degree programme, or that of another degree programme or another university/university of applied sciences. At the final stage of the studies a bachelor's thesis project, in most cases commissioned by industry, is conducted and concludes with writing a bachelor's thesis. The education prepares the graduates for team and project work. Good cooperation with different partner universities also offers students varied possibilities for national and international mobility and studying abroad.

Overall, the aims of the degree programme are clearly defined as a whole and for each study option, and the planning effectively reflects the needs of major regional industry stakeholders.

To further enhance and structure the co-operation with companies it could be beneficial, in addition to the strong collaboration with the core partner companies, to more actively valorise and support also the relationship with some smaller companies, such as those active in the B2B sector in mechanical engineering. In addition, the emphasis given on supervision skills of the graduates could be enhanced in direct relation with their specialisations, i.e. related to the study options, also through the participation of representatives from small companies. Also strengthening the relations with smaller companies would furthermore allow for getting structured feedback about future needs from various kind of companies.

Based on the team's assessment, the degree 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-assessment report states that the degree programme defines its programmes' learning outcomes as the same as the general degree programme aims and objectives presented under standard 1. Therefore, there is no list of programme outcomes differing from the programme aims.

The objectives of the Degree Programme in Mechanical Engineering are to train engineers who, in addition to mechanical engineering skills, have a good knowledge of information technology and product development, basic knowledge of company logistics and expenditures, as well as command of foreign languages required in this profession. The engineers also need to meet the needs of the people involved in technological applications. The graduates work in diverse positions as experts and managers in different fields of industry.

In addition to the overarching objectives of the degree programme, students in Mechanical Engineering at Oamk will gain the following generic competences:

- skills for self-improvement and continuous training,
- sufficient communication and language skills, and
- skills required for international activities in their field of competences.

Common learning outcomes/objectives have been defined at Oamk level using the European and National Qualification Framework (EQF/NQF). More specifically, the degree programme has followed the "Recommendation on the shared competences of universities of applied sciences and their application" of ARENE (The Rectors' Conference of Finnish Universities of Applied Sciences), which are aligned with the European Qualifications Framework (EQF). Indeed, the curriculum of the degree programme incorporates ARENE's aims regarding ethics, proactive development, internationalisation and multiculturalism, sustainable development, learning to learn and operating in the workplace.

Overall, the learning outcomes/objectives are consistent with the national qualification framework (FINQF) and its level 6.

Distinctions between the three study specialisations (Automotive Engineering, Machine Automation Engineering, or Production Engineering) are made in terms of objectives. Students chose their specialisation after the first year of studies.

The option **Automotive Engineering** consists of vehicle legislation, control systems of vehicles, electric and hybrid power train, and alternative energies. Key strengths are performing measurements in laboratory environment and under actual operating conditions. One of Finland's most versatile laboratories in vehicle and machine technology is used as a learning environment. Students also have an opportunity to take part in a light vehicle inspection training programme.

In the option **Machine Automation Engineering**, students are educated to understand the design, control and operation of multi-technical devices and systems. Expert duties in industrial machine automation projects require versatile engineering skills, expertise in project work as well as technical and economic understanding. The programme provides the students with excellent skills in product development by utilising modern computer-aided tools such as 3D-modelling and simulation.

The option **Production Engineering** gives special attention to the basics of manufacturing companies' competitiveness development. Focal topics of this option include economical manufacturing of a good quality product, modern construction and use of production machines and systems as well as efficient operation and rational collaboration with partners. Basic skills in industrial maintenance and different fields of logistics complement the graduates' production engineering skills.

However, as the existence of the programme's learning outcomes is one of the key requirements in the accreditation, both the terminology and list of the degree programme outcomes need to be clarified. This should be done by advancing the current formulation of programme objectives, both professional and generic ones.

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

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

The general syllabus of the degree programme covers all the areas outlined in the FINEEC reference programme learning outcomes. The structure of the curriculum is constructed to support the programme's aims and programme learning outcomes/objectives. The degree programme has defined the set of learning outcomes/objectives for all courses, including practical training and a thesis. Overall, the course learning outcomes are well defined and provide necessary information on the course goals and intended outcomes/objectives.

The EUR-ACE criteria are directly linked to the course learning outcomes of the degree programme. For each of the learning outcome areas according to the EUR-ACE criteria, the degree programme has analysed and appropriately specified the modules that contribute to the acquisition of the learning outcomes. In summary, the defined course learning outcomes/objectives fully meet the FINEEC reference programme learning outcomes.

The mechanical engineering studies, same for all the study options, include 23 ECTS of Engineering mathematics and Engineering physics and Introduction to management, 20 ECTS of Professional development and working life skills, English, Swedish, Digital and IT skills, Finnish communication skills for working life, as well as for Research and Development, 53 ECTS of Common studies for Mechanical Engineering, 90 ECTS of Professional Studies in the Study

Option (i.e. Automotive Engineering, Machine Automation Engineering, or Production Engineering), 9 ECTS of Free-choice studies, 30 ECTS of practical training, and 15 ECTS for the bachelor's thesis, which gives a total of 240 ECTS.

Knowledge and understanding related learning outcomes are addressed in Common studies in technology (Engineering mathematics and Engineering physics), as well as in all mechanical engineering courses all along the studies. Knowledge and understanding of mathematics and physics is however somewhat limited, as training relating to e.g. basic knowledge in optics, waves or electromagnetism is not provided in line with the course content, while optical sensors and vision systems are nowadays broadly applied in automotive engineering, as well as in machine automation engineering and production engineering. Basic knowledge of experiments and numerical modelling is partially included through classroom experimental training in Engineering physics. Learning outcomes in knowledge and understanding of mechanical engineering are well addressed through courses in engineering practice, however with a limited base of underlying physical phenomena and concepts, which may represent a limiting factor for efficiently designing functional machines. The knowledge and understanding related learning outcomes are overall good.

Knowledge and understanding are gained through the following numbers of courses:

Common studies for all specialisations: 14 study modules

- Automotive and work machine technology specialisation: 11 study modules
- Machine automation specialisation: 13 study modules
- Production technology specialisation: 8 study modules

Engineering Practice learning outcomes are well addressed through the courses of common studies in Mechanical engineering as well as through the technical courses of each option, the practical training and the bachelor thesis. A common studies course in Professional development and working life skills supports these learning outcomes in a transversal and holistic manner. Engineering methodologies for problem solving could be further developed.

Essential topics of mechanical engineering are covered in a structured manner, both in the common courses and the specialisation-options. The learning outcomes/objectives of all options are consistent with the degree programme aims as a whole and for each option.

Engineering practice is gained through the following numbers of courses:

- Common studies for all options: 10 study modules
- Automotive and work machine technology option: 11 study modules
- Machine Automation option: 13 study modules
- Production Technology option: 8 study modules

Some choices and distinctions of the study paths are laid out during the first year of common studies; for example, the Statics course is associated with a four-part exam with different levels that can be chosen and completed to reach a higher level at a later stage. The higher levels are needed for the options focusing on mechanical design, while the lowest one is sufficient for the option Production Engineering. Another example is Physics Engineering 1.

While such individual choices by students are clearly innovative parts of the curriculum as they contribute to giving the students individual responsibility for the targeted levels and allow them

to progress with their studies smoothly, for example in case of initial difficulties the degree programme should closely monitor possible side effects to assure that the expectations of the programme for reaching good results in these fundamental subjects are kept high for Mechanical Engineering.

It is not entirely convincing that first- or second-year students are already aware of potential limitations to or possible negative impacts on their work life or future career perspectives when some of them eventually target lower levels in subjects like Statics or Physics Engineering 1. These disciplines build foundations and teach fundamental concepts, critical analytical skills and systematic methodologies that are highly valuable not only for Mechanical Design but also in the context of interdisciplinary projects and for developing pertinent engineering solutions for various fields of industrial sectors.

Consequently, ensuring students' strong motivation to reach high levels of results in all fundamental topics of Mechanical Engineering should therefore accompany the student's freedom to choose their target levels during the studies, as all of them will receive a title in Mechanical Engineering and will be expected to have acquired good basic knowledge in Mechanical Design and its foundations. In addition, part of the students may later wish to continue with studies at master's degree level. The risk of low motivation to reach high level results or skilled students' poor performance should be taken into consideration in order to maintain the high quality and good reputation of the degree programme regarding all of its options.

Investigations and information retrieval related learning outcomes are mainly addressed through the common courses in Finnish communication skills for working life and Finnish communication skills for research and development, through the practical training semester, and through the bachelor's thesis. According to the self-assessment materials, investigations and information retrieval are only associated with larger projects and with inspection training in automotive engineering. Training by regular and active application of investigations and information retrieval skills within other courses is not explicitly stated and could be developed further, also in the context of exercises, such as case studies, and laboratory work.

A total of 4 study modules for all options come under the outcome area of investigations and information retrieval.

Multidisciplinary competences related learning outcomes are partly addressed through "the Product Development Project" (Machine automation engineering option), "Automotive and Machine Technology Project" (Automotive engineering option) or the "Practical Project Training" (Production Engineering option), accounting for 25 ECTS or 28 ECTS respectively, as well as through the Practical training (30 ECTS) internship and the bachelor's thesis project. These courses and activities also give students skills and competences that prepare them for multidisciplinary work. Free-choice elective courses provide further possibility of interdisciplinary studies.

Multidisciplinary aspects are well integrated from the technology point of view, as each curriculum combines mechanics with competences in automation and fabrication technologies. Furthermore, a set of non-technological courses (20 ECTS) are an integrated part of the curriculum, namely "Professional development and working life skills, English, Swedish, Digital and IT skills, Finnish communication skills for working life as well as for research and development", together with an offer of elective courses from other study option or other disciplines.

However, project work in multidisciplinary teams, for example in collaboration with other disciplines or degree programmes, incorporating e.g. end-users' or stakeholders' views or marketing

and communication aspects in the development of products, production, or services, are not explicitly integrated into the curricula.

Therefore, multidisciplinary competence learning outcomes could be further strengthened in the curriculum.

Communication and teamwork learning outcomes are addressed at several levels. Both the communication and the teamwork learning outcomes are good.

Oamk's common courses provide communication skills in Finnish for working life at the beginning of the studies, and for research and development at the stage of the bachelor's thesis project, as well as skills in foreign languages (English and Swedish for working life); these courses are completed by all students of the degree programme. Several teamwork activities are directly integrated into courses of the study programme. The self-assessment material indicates that teamwork activities are very well represented in the study options Machine automation engineering and Production engineering, while the Automotive engineering option has identified few courses that explicitly provide training in teamwork activities. This might be a point to be considered for further development of teamwork activities in courses. During its site visit, the accreditation team saw several very convincing practical examples in all three study options where students learn teamwork skills, particularly in their respective laboratories that are used for practical training. Teamwork and communication skills are furthermore practised by students during internship projects.

According to the self-assessment report and its annexes, there is a good match between the FINEEC reference programme's learning outcomes and the degree programme curriculum. Based on the self-assessment report, evidence room materials and evidence presented during the site visit in the interviews and demos, it can be concluded that the programme provides students with the necessary knowledge and understanding for successful studies in Automotive Engineering, Machine Automation Engineering, and Production Engineering in Mechanical Engineering. The review team suggests that the degree programme should further develop skills in engineering methodologies for problem solving and pay attention to knowledge of physical phenomena related to optical sensing and automated vision technologies, as these are increasingly used in Mechanical engineering within all proposed professional options of the degree programme.

As a summary, the degree programme content clearly supports successful entrance into the labour market in the field of mechanical engineering in the region of Northern Ostrobothnia.

Based on the team's assessment, the degree 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 curricula of the degree programme are available for students, applicants and a wider public on the Oamk website from 2021 onwards. They include general information about the degree programme, available study options, and detailed descriptions of each course, including the number of ECTS credits and recommended study schedule.

Based on the self-assessment report, for all study modules the following information is described in the curriculum:

1. Learning objectives based on competence,
2. Study module content,
3. Study module assessment scale,
4. Study module assessment criteria based on competence, and
5. Possible prerequisites.

The learning outcomes/objectives at the overall degree programme level are not separately described in the curricula but are well described in the self-assessment report. All three options (Automotive Engineering, Machine automation Engineering, and Production Engineering) could be found in English and Finnish on the Oamk web site. Course level objectives, assessment, execution methods and other materials are appropriately provided under course descriptions.

The publicly available electronic curriculum offers multiple viewing options, allowing users to review the timing of studies by academic year, semester or periods. Each course page provides a comprehensive description, which includes the course objectives and intended learning outcomes/objectives, a summary of the course content, additional course-specific details, as well as information on prerequisites and co-requisites. Moreover, it outlines the grading scale examples 1, 3, and 5 as criteria used for assessment. Some information is also provided about past and upcoming implementations. However, it is common for different persons to have slightly different perceptions of course descriptions and their scope. The accreditation team suggests, for the sake of consistency, that it would be a good idea to review all course descriptions at the degree programme level to achieve consistency.

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

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

Oamk has responsibilities and processes in place for ensuring that students of the degree programme under review have the possibility to graduate within the expected study time defined in the national regulations. The annual timing plans of the curriculum implementation are publicly available at Oamk web site.

Oamk has a specified procedure of "annual planning and schedule work" for curriculum and implementation plans. It contains comprehensively the whole process of programme improvement procedure. When the procedure has been completed, the annual curriculum and timetable are published on the Oamk website. Therefore, the degree programme under review has established processes for planning and publishing both curricula and course timetables.

An essential factor in the timetable work is that all required information is comprehensive and timely when saved to the system. Education deans and the persons in charge of the degree programmes make sure that the timetabling work stays on schedule and follows institution level instructions on education planning and descriptions.

The degree programme actively uses student feedback for developing the programme implementation, including the timing of the studies and allocation of courses to the different study years. The self-assessment report states that feedback from students and alumni is collected on a regular basis. The interviewed external stakeholders and students declared that the organization of studies is sufficient and updated. The students felt that the workload was balanced throughout the academic semesters in general.

The Oamk regulations and processes, student guidance system and different feedback channels should, as a system, be appropriate to ensure that it is possible to graduate in the expected time.

The graduate statistics show that approximately 63% of the candidates graduate on time in four years. Furthermore, approximately 17–30% of students graduate within five years at maximum. A remarkable factor behind this is the fact that many students work aside of studies and study part time, using the study time flexibly for up to the six years.

The average number of credits earned per present student per academic year has increased steadily, from 47.8 in 2021 and 47.9 in 2022 to 56.6 in 2023, indicating improved academic performance. The proportion of students who earned at least 55 credits during their first year has risen significantly, from 61.0% in 2021 and 60.1% in 2022 to 77.4% in 2023. Therefore, the degree programme shows a good effort in enhancing the conditions for timely graduation.

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 admission process of Finnish universities of applied sciences is regulated and standardized, with detailed specifications. Oamk also has internal admission rules in place. The Oamk website provides information on the application procedure for the applicants, including information on the entry-level qualifications. These rules can be found on Oamk's website in Finnish and English. The review team observed, however, that the links from Finnish to English and vice versa do not provide direct access to the corresponding information.

Each spring, the President of Oamk determines the number of available study places for the upcoming academic year. Once this decision has been made, the education services release the admission criteria. Applicants are admitted through two main pathways: 60% via certificate-based selection and 40% through entrance examinations. Among the certificate-based study places, 80% are reserved for first-time applicants—those without a previous Finnish UAS or university degree. Additionally, at least 30% of these places are allocated to individuals who have completed a vocational qualification as a secondary level education.

Applicants to the degree programme use the electronic joint national application system. The scoring models of the certificate-based selection procedure are maintained and updated on the national website UASinfo.

At Oamk it is possible to apply for the right to study, based on previous studies, in order to complete a degree without participating in the normal student selection process. Transfer student selection is carried out twice a year. Oamk provides clear criteria and rules for transfers for students within and outside of the university. Transfer applications are made using the electronic form available on the national Studyinfo service during the application period.

Further study perspectives are indicated, namely, to apply for Master's degree programmes, based on an earlier university degree, or a higher vocational degree or a college degree with two years of work experience after completing the degree. Oamk's Master's degree in Mechanical engineering is related to Welding technology, Vehicle technology, Intelligent automation and robotics and lean management, providing consistent options for further strengthening and completing competencies in mechanical engineering after the Bachelor's degree.

Oamk provides study places for so called Highway students through the Open University of Applied Sciences. After completing secondary education degree studies, applicants can apply to be a degree student through the Oamk Highway programme.

Additionally, the review team would like to note that refugees or asylum seekers may submit their applications and be selected for the degree programme in the same way as any other eligible Finnish citizen or foreign national.

According to the self-assessment report, there is currently no established process for reviewing or assessing whether the entry-level requirements and admission procedures are appropriate. The number of available study places is determined annually by the President, based on recommendations of the School of Engineering. Admissions are carried out through a national joint application system, which follows standardized criteria. As a result, the programme has limited influence over the backgrounds of incoming students. Since the admission process is shared across all universities of applied sciences, it often leads to a highly diverse student intake, with significant differences in prior knowledge and skill levels.

However, the degree programme shows improvement in statistics on students staying enrolled during and right after the first study year. The drop-out rate after the first year fluctuated, increasing from 5.0% in 2021 to 8.8% in 2022, and then dropping to 3.2% in 2023, suggesting improved student retention. The number of students who dropped out during the first year decreased from 6 in 2021 to 4 in 2023. Similarly, the number of students who dropped out immediately after the first year declined from 13 in 2022 to 4 in 2023. Meanwhile, the number of students who completed at least 55 credits increased each reviewed year, reaching 96 in 2023.

Based on the team's assessment, the degree 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.

Oamk has a process, responsibilities and tools in place for recognition of prior learning (RPL). Recognition and accreditation of prior learning are handled through Oamk's "HOT process", which aims to support personalized learning paths and aligns with the principles of competence-based education. HOT is one of the electronic tools included in the electronic Peppi study system. Detailed student instructions for the HOT process are available for students on the designated wiki site.

The Head of Studies is responsible for approving previously acquired learning for full study modules, individual courses, or specific course components. Teachers may also validate prior learning for their own courses or course parts. Decisions regarding recognition may be positive, negative, or may require additional documentation. These decisions follow the institution's official assessment schedule.

Once prior learning is accredited, students are expected to update their personal study plan (PSP) and, if needed, consult with their tutor teacher. In cases where recognition is denied, students must complete the required learning through coursework or by submitting a rectification. Competence gained through formal education is verified with official certificates or academic transcripts. If necessary, these can be supplemented as outlined in the institution's guidelines. Skills acquired through work experience or personal activities can also be recognized, but the method of demonstration must be agreed upon between the student and the Head of Studies, involving the relevant teacher(s) if necessary.

The most typical cases involve the recognition and accreditation of Highway studies, studies completed during exchange programs, elective studies completed through CampusOnline (closed in the end of 2024), and transfer students' prior studies.

Oamk and the degree programme have processes in place for monitoring the student progress and taking action in case of challenges. The degree programme has a system of tutor teachers. The progress of studies is regularly monitored. At the beginning of their studies, the student is given a study plan, which the student updates later during their studies with the support of the tutor teacher if necessary.

According to Oamk's pedagogical guidelines, the student is an active and responsible actor. The student is responsible for the progress of their studies. The progress of studies, completion of implementations, and grades are monitored using the Helistin system, and the tutor teachers hold tutor discussions with their students.

Teachers track student participation and notify the group's tutor teacher if any students appear inactive. The tutor teacher then follows up with these students to discuss their situation and uses the Helistin tool (Microsoft BI) to regularly monitor the academic progress of the entire student group. Based on the self-assessment report and discussion with academic staff and teachers, the teacher, tutor teacher or campus counsellor collaborate with the student to ensure the progress. If a student needs an extension period to complete their studies, certain conditions must be met, and there is an application process for requesting additional time for individual tests, other course studies or extension of overall studies.

Managers and Heads of studies also use Helistin system while monitoring the progress of studies as well as achieved learning levels. Degree programme-specific goals for graduates within the set timeframe and the number of completed Bachelor's and Master's degrees are also regularly monitored using a report created for this purpose.

Oamk and the degree programme have procedures in place for the graduation stage. The self-assessment report states that a student's personal learning path is supported by enabling flexible graduation at different times. The degree certificate can be applied for in Peppi once all studies required for the degree have been assessed and registered, and any grade improvements and corrections have been processed. The application can be filled out on any day of the year, and its first step is answering the AVOP survey (Feedback survey for students at the graduation stage of universities of applied sciences). The application also includes Oamk's employment survey for graduating students. The processing time for applications is a few weeks. Once the degree certificate has been signed, the student receives an electronic degree certificate by e-mail.

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

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

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

- The programme aims and curriculum reflect the needs of the businesses and industry in Northern Ostrobothnia.
- The degree programme provides detailed data and information for the applicants on the degree programme.

- Oamk and the degree programme have systematic and advanced procedures for monitoring students' progress on all levels.

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

- The degree programme must differentiate between the programme's aims and programme learning outcomes. As a result, there should be a set of programme aims as well as a set of programme learning outcomes.
- Even though the degree programme cooperates a great deal with the key stakeholders, this cooperation could be strengthened by introducing a regular stakeholder survey or similar tool for collecting and analysing feedback from them.

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 team concludes from the details presented in the self-assessment report, as well as from information and feedback received during the interviews and presentations of the site visit, that the degree programme offers clear evidence of the effectiveness of individual courses and the overall learning process.

Oamk has a roadmap for education for years 2024–2028 linked with the current strategy. In addition, pedagogical guidelines were updated in 2024. The pedagogical guidelines aim to support pedagogical leadership at all levels. Furthermore, the guidelines have four perspectives: learning, competence-based education, community, as well as work-life and practical orientation.

Oamk and the degree programme apply personal study plans (PSP), which allow teaching staff and students plan studies together. Student learning is evaluated through a variety of approaches, reflecting the diverse teaching and learning methods employed. Many courses incorporate case studies, group projects, individual assignments, and educational games. Typically, theoretical concepts are introduced at the start of a course, after which students put this knowledge into practice through exercises and assignments completed throughout the course. Course materials are stored in electronic Moodle workspaces. Aside of storing materials, Moodle is also used e.g. in the exams and tests for student assessment.

A significant portion of coursework is conducted as laboratory exercises. Students' individual progress in courses is monitored through tests. In addition, some courses employ automated assessment tools within Peppi, such as uploading laboratory measurement data and reports directly into Moodle applications.

There is, however, room for improvement—particularly in enhancing automatic assessment and plagiarism detection for more complex tasks. In certain courses, traditional exams are also used to assess students' understanding and knowledge.

Teachers cooperate actively in designing course implementations. One example of this concerns language and communication teaching. It is integrated into professional subjects, allowing students to learn both professional vocabulary and professional communication methods. Examples and

exercises in teaching come from practical working life. As another example, teachers of basic sciences integrate meaningful application examples from different engineering fields into their lectures.

The implementation of the curriculum is well adapted for students with both upper secondary school and vocational education backgrounds. Strong efforts are made to offer a degree programme that really suits cohorts with various initial competences.

Aligned with Oamk's strategic objectives, both students and staff actively contribute to the development of the programme, thereby supporting regional vitality. This is achieved through close cooperation during the studies. Each specialisation within the degree programme features a major labour market project, where students carry out supervised work within companies located in northern Finland. Additionally, these projects across all specialisation options are typically commissioned by industry partners.

To support Oamk's internationalisation goals, an English-language degree programme in Mechanical Engineering, with the option Sustainable Product Development, was launched very recently. Aside of institutional internationalisation, the degree programme under review instructed in Finnish also benefits from the existence of this programme. For instance, it provides opportunities for internationalisation at home for the students.

Current students, stakeholders and alumni expressed in the interviews strong support for the degree programme. They would readily recommend it, citing that the teaching and learning practices effectively support the achievement of course and programme learning outcomes/objectives, utilize appropriate assessment methods, and actively involve students in the learning process.

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;

Knowledge and understanding are addressed in Common studies in technology (Engineering mathematics and Engineering physics), as well as in all mechanical engineering courses all along the studies.

Physics and mathematics courses are well linked to the engineering disciplines, particularly through practical experiments that are included in classroom activities. Based on the interviews, part of the students have challenges in completing basic science courses. Teachers are aware of this and make an extra effort to support these students.

Knowledge and understanding of general mechanical engineering, such as general mechanical design and fabrication techniques, as well as professional knowledge and understanding in the options are at a very good level. Knowledge and understanding of mathematics and physics are however somewhat limited; for example, basic knowledge of optics, waves or electromagnetism is not taught in keeping with the course content, while optical sensors and vision systems are nowadays increasingly applied in automotive engineering, as well as in machine automation engineering and production engineering.

Basic knowledge of experiments and numerical modelling is partially included through classroom experimental training within Engineering physics. Mechanical design and modelling using CAD software is appropriately taught regarding mechanical designs with a moderate degree of complexity.

Overall, knowledge and understanding of mechanical engineering are well addressed through the courses in engineering practise, however with a limited base of underlying physical phenomena and concepts, which may represent a limiting factor for efficiently designing functional machines.

The knowledge and understanding related learning outcomes are therefore moderate.

The review team recommends paying attention to knowledge of physical phenomena related to optical sensing and automated vision technologies, as these are increasingly used in mechanical engineering within all proposed professional options of the degree programme.

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

The ability to analyse complex engineering products, processes, and systems as well as to correctly interpret the outcomes of such analyses is taught throughout the degree programme and in all of the study options.

Students are trained and coached while being able to select and accumulate the necessary practical skills. The available courses they can take to achieve the learning outcomes vary between the study options; the courses are organised to provide the best available programme and outcomes in the fields of Automotive engineering, Machine automation engineering, and Production engineering.

Analysis methods are taught in "Physics Engineering" classroom experiments. Students gain good practical analysis skills through laboratory and project work in all three options. Examples are the measurement and analysis of vehicle performance parameters as well as the analysis of production processes and logistics and processes that will be automated using robots. The degree of complexity of these examples is high and students are trained by using state-of-the-art professional equipment, which provides them with training pertinent to work life.

Traditional analysis methods, such as material testing, failure analysis, and numerical analysis skills could be further developed to further strengthen the skills in critical analysis of results.

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

Problem solving skills are needed in engineering work, and engineers should learn at least the basics of problem-solving. Problem solving tasks are connected to an extensive project (20–30 ECTS) in the third academic year. Topics come from companies and students, under the guidance of teachers, work on real engineering tasks to solve company problems.

Curriculum analysis does not give a clear view of systematic problem-solving methods being included in course content. Based on interviews, the teaching of problem-solving skills is not dedicated to specific courses. During the site visit, the reviewers asked if systematic problem-solving methods or tools are included in teaching. Based on the answer, some issues are included in the purpose of the training tasks within courses, and students must solve those as a part of their weekly assignments. This is a good practical approach that obviously helps students solve problems in a large project, such as the thesis project work and in work life when those occur.

It would be good to also include theory of different systematic problem-solving methods in the teaching. It would give students an understanding of choosing correct and fit-for-purpose methods to solve different kind of problems effectively, by addressing the root causes.

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

The curriculum of the degree programme only includes a limited number of courses focused specifically on design. Nevertheless, the self-assessment report mentions that the Machine Automation Engineering programme equips students with competencies in product development, particularly using computer-aided design tools. On the other hand, the specialization in Production Engineering focuses on manufacturing and production systems design used in subcontracting companies and industry. The studies also cover production quality, its management, and production logistics.

Engineering design is integrated into various courses step by step. Engineering design is taught and practised in the mandatory course "Basics of 3D Modelling", which focuses on modelling

exercises. Students choose their target grade level (1, 3, or 5) and complete exercises accordingly. The course concludes with a demonstration session where students showcase their skills and receive immediate feedback and a final grade.

Based on the self-assessment report and site visit, the team understands that in the "Product Development Project" course, students carry out a design project based on a real company assignment. The course also includes supporting studies, such as 3D modelling, product data management, and systematic product development. These components support the completion of the project. Each part is assessed separately, and the final assessment is based on project documentation, participation in the final presentation, self-assessment, and feedback from the commissioning company. Based on interviews, the accreditation team understands that the course also includes studies in managerial communication and teamwork.

During the site visit and especially during the laboratory tour and interviews with partners and alumni, strong cooperation with companies in the region was highlighted. The companies constantly offer technical internships related to realising complex engineering designs.

In addition to foundation and professional courses in mechanical engineering, students can enhance their expertise by selecting elective studies either from their own programme or from other degree programmes. Especially studies of Evaluation of business, Incubation of business ideas and Entrepreneurship are excellent course offers for the degree programme.

Overall, design competences are appropriately integrated in the curriculum.

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

The ability to apply the standards of engineering practice is included in the fourth year of studies and as part of practical training. These norms are included in selected study type courses. The students learn to apply in practice the theoretical foundations and skills learned during classes. In addition, the students get a realistic understanding of the required skills and tasks in the field.

The students are clearly informed about the principles and rules of health and safety in the use of laboratory equipment. The importance of safety culture should be highlighted in teaching and practical training.

Students have access to tools and devices used in the professional environment of mechanical engineering. The equipment provided appears to be suitable for the professional environment of mechanical engineering.

Students have opportunities to take personal initiative in self-development as part of additional professional practice through the possibility of using project spaces that are part of the university's resources.

The students have the opportunity to cooperate with external stakeholders, for example in the implementation of joint projects.

- 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 of 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

At Oamk, students are systematically guided to develop their ability to search for and critically use scientific information. Based on the self-assessment report and the library tour, courses such as "Professional Development and Working Life Skills", "Communication Skills for Working Life", and "Communication in Research and Development Work" introduce students to scientific databases, referencing practices, and information literacy. Oamk's library provides personal guidance and training on finding the materials needed for study projects, as well as specialized standards, norms, and scientific literature for research and development projects.

Simulation and technical analysis are integrated into several courses, particularly in design and automation, such as "Basics of 3D Modelling" and "Machine Automation Control System", where students design, simulate, and build control systems. This ensures that students can apply theoretical knowledge to investigating technical problems in practice. These skills are further applied in the thesis process.

The ability to design and conduct experimental investigations seems to be the key component of Oamk's mechanical engineering curriculum. Students engage in laboratory work in early stages of their studies, for example in "Manufacturing Technology 1" and "Automotive Engineering", where they perform measurements and analyse data. The third-year "Product Development Project" allows students to apply experimental methods in real-world company projects, and the thesis project serves as a capstone where students demonstrate their ability to plan and execute research, analyse findings, and draw conclusions. These experiences build strong competencies in technical research and problem-solving.

Based on the facilities tour on the site visit, laboratory and workshop skills are embedded in the programme. Students have access to a wide range of modern facilities, including robotics, automation, automotive, hybrid, and mechanical workshops. After completing safety orientation, students are allowed to work independently in these environments, excluding the mechanical workshop. However, laboratory safety culture is not integrated into education as deeply as it should be.

Practical exercises and projects are conducted in these labs, and students often use them for thesis work and company-commissioned projects. Facilities like the LEAN Lab also provide simulation-based learning environments. These opportunities ensure that students gain hands-on experience and confidence in working in technical environments, preparing them for both professional and research roles and later on also that of an industrial partner.

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

The Degree Programme demonstrates a structured approach to embedding multidisciplinary competences in both course-level and programme-level learning outcomes/objectives. These competences are addressed through real-world projects, internships, and thesis work, aligning with FINEEC standards 2, 3, and 8.

Multidisciplinary competences are explicitly integrated into the programme's learning outcomes/objectives and reflected in several course-level outcomes. The curriculum includes modules that develop awareness of societal, environmental, and economic implications of engineering, such as 'Management, Sourcing and Offer Calculations' and 'Product Development Project'. Risk management and ethical considerations are more implicitly addressed and could benefit from clearer articulation.

The programme applies multidisciplinary teaching methods. Students engage in multidisciplinary topics through third-year company projects, internships, and thesis work, all of which involve real-world, cross-disciplinary collaboration. Courses like "Machine Automation Control Systems" and "Operations Management" integrate technical, managerial, and societal perspectives.

The interviewed students reported gaining a broad understanding of their field within a broader societal and industrial context. Safety, environmental, and ethical issues are emphasized in lab work and project settings, including mandatory safety training and the safety culture. The interviewed alumni highlighted the need for stronger business and cost-structure education.

Curriculum analysis confirms that multidisciplinary competences are addressed in some courses, including examples such as "Quality, Safety and Environmental Management", "Operations Management", and "General Period of Inspection Training". Programme-level mapping shows 15 out of 20 learning outcomes/objectives linked to multidisciplinary competences, including project management, techno-economic understanding, and teamwork.

The programme fosters lifelong learning and technological adaptability through curriculum updates, integration of emerging technologies, and independent learning via project-based and flipped learning methods.

The self-assessment report notes that in the past three years, all Bachelor's degree programmes at Oamk have experimented with a multidisciplinary course called "Innovate Together." However, the experiment was limited to a few implementations, and the course was completely removed from the mechanical engineering curriculum due to problems encountered in previous implementations. As a capacity to work in a multidisciplinary team is an important work-life skill, the review team recommends that the degree programme look for an enhanced version for the trialled course or a similar training solution.

In conclusion, the programme meets the FINEEC standards for multidisciplinary competences through integration in learning outcomes and teaching practices. Continued development is recommended in explicitly embedding risk management, ethical reflection, and economic analysis across more courses, and in enhancing the visibility of multidisciplinary learning outcomes/objectives in the programme and course documentation.

Communication and teamwork

- ability to communicate information, ideas, problems and solutions effectively within the engineering community
- ability to communicate information, ideas, problems and solutions effectively in 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.

The way classes are conducted supports the development of communication and teamwork skills. Through group work during classes, students can learn how to effectively convey information as well as create ideas and solutions related to mechanical engineering.

Communication and team-working skills are often studied in the degree programme by integrating them into professional subjects.

For example, the course "Manufacturing Technology 1" is implemented together with the course "Communication Skills for Working Life." Initially, a few lectures are given to large groups on the theories of manufacturing technologies, but the focus of the course is on laboratory exercises. The reports on these exercises are prepared following the principles of written communication with the support of the communication teacher and the manufacturing technology teacher. Both teachers assess the report. In manufacturing technology, weekly assignments and learning tasks are also assessed.

Therefore, students learn how to create research reports and effectively develop results. Thanks to quick and effective feedback, students can improve their projects. Students have a possibility to learn communication skills during their courses. In addition, communication between the teachers, who substantively report a need for regular revision and update of the teaching content enabling students have access to current topics and content related to mechanical engineering, deserves praise. The university provides a system enabling ongoing contact with academic teachers, administration and other students. Students have ongoing insight into their results through the digital Peppi system.

Based on the curriculum description as well as evidence room materials, many of the courses include teamwork. This allows students to learn teamworking skills and practices at all stages of their studies. Collaboration with external stakeholders enables students to develop their skills in communicating with the socio-economic environment. They also have possibilities of participating in mobility programmes or double degree studies, gaining skills in international communication and teamwork. Based on the statistics provided by the degree programme, however, more efforts are needed to encourage students to join international activities outside Finland.

Based on the team's assessment, the degree programme meets Standard 8 fully.

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

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

- The studies are arranged flexibly for full time and part time students.
- The implementation of the curriculum is well adapted both for students with upper secondary school and vocational education backgrounds. Strong efforts are made to offer a degree programme that really suites cohorts with various initial competences.
- The close and continuous cooperation with industry partners provides a great number of opportunities to develop the students' communication and team-working skills.
- The facilities and laboratory equipment convincingly support the achievement of the practical learning outcomes/objectives.
- Teachers from the different fields communicate well about the alignment of the courses; for example, teachers of basic sciences integrate meaningful application examples from different engineering fields into their lectures, providing good support for the achievement of the intended learning outcomes/objectives of the degree programme.

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

- Industrial stakeholders as well as alumni reported that some basic knowledge and skills for supervising roles would represent a useful preparation for entrance into the labour market, although supervising skills can be further learned in industry. Especially in companies with large production facilities, UAS engineers with a strong practical background are often given roles as supervisors very early on in their careers.
- Knowledge of material properties and transformations should be reinforced during the studies, according to company representatives.
- Different problem-solving methods, theories and tools should be introduced in the curriculum and its implementation.
- Knowledge of physical phenomena related to optical sensing and automated vision technologies should be introduced in line with their increasing use in mechanical engineering within all proposed professional options of the degree programme.
- The degree programme should put more effort into encouraging students to join international activities outside Finland.

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.

At Oamk, staff recruitment is guided by strategic workforce planning integrated into broader operational and financial planning. The recruitment process is formalized through a permit system and adheres to national legislation. Permanent teaching positions require compliance with the Finnish Universities of Applied Sciences Act and Decree. Additionally, Oamk mandates that teaching staff should have completed at least 60 ECTS or 35 study weeks of pedagogical training. If not completed at the time of hiring, these studies must be finished within three years. For foreign degrees, official recognition from the Finnish National Agency for Education is required.

The degree programme under review is staffed with a sufficient number of qualified educators. Based on the self-assessment materials, the teacher-student ratio is around 40, when comparing the staff person years and current number of students. The total number of teaching staff is 22. However, part of them serve more than one degree programme at Oamk. The total number of teaching staff's person years is currently around 14.

Based on the site visit interviews and teaching demo session as well as evidence room materials and facilities tour, the academic staff of the degree programme is amazing and enthusiastic. The review team respects their high motivation and willingness to share their experience and opinions during the site-visit.

Based on the self-assessment report, all principal and senior lecturers have completed the required pedagogical training. The staff also has industry experience, which enhances the practical relevance of the education. The self-assessment report includes a detailed breakdown of staff qualifications and roles. While 60% of the teaching staff have more than 10 years of industry experience, 55% have more than 10 years of teaching experience.

Staff development at Oamk is systematically managed by unit directors, who are responsible for identifying development needs and ensuring that appropriate actions are taken. These needs are addressed through regular development discussions and tailored training opportunities. Development activities are aligned with current and anticipated job requirements and supported, based on self-assessment report, by Oamk's vocational teacher education unit and participation in internal or external competence development projects.

Academic staff have access to a variety of opportunities to maintain and enhance their pedagogical and professional skills. They include participation in RDI projects, collaboration with industry, and international partnerships.

At the end of 2024, there are several ongoing projects in the RDI unit involving mechanical engineering teachers. These projects aim to develop education and practices in collaboration with the RDI unit and the field of technology.

Based on the team's assessment, the degree 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.

Based on the self-assessment report, interviews and site visit, the degree programme is supported by a broad and well-organised staff of technical and administrative personnel. This includes support for digital learning platforms (Peppi, Moodle), ICT services, education services (including admissions, scheduling, international exchanges), communications, legal services, safety, and HR. In addition, the degree programme has a laboratory engineer in the automotive laboratory and a laboratory technician in the mechanical workshop who maintain the laboratories and train students to use the available equipment, along with providing safety training.

As laid down in the self-assessment report, Peppi and Moodle are the main software used by teachers, and there is a support team available for troubleshooting. ICT services provide background support for various systems, and helpdesk assistance is available when needed. The services of the Academic Affairs team are particularly needed during student application periods, in the creation of schedules, and in international exchange matters. The communication and marketing team plays a crucial role in sharing information on various matters. Development Managers assist in various departmental and degree programme development projects. Oamk has a lawyer who helps with various contract matters and issues. The Safety Manager is responsible for the overall safety at Oamk in compliance with rescue and occupational safety legislation. The finance and HR departments have their own important tasks at Oamk.

The technical and administrative support staff maintain their professional competence through a variety of means, including online courses, trainings, seminars, workshops, national meetings, Research, Development and Innovation (RDI) work, pedagogical studies, benchmarking, networking meetings and self-study.

During the site visit, the accreditation team observed the positive, purpose driven attitude, motivation, and implication of support staff in their activities related to higher education, and therefore strongly recommends continuing these beneficial actions.

Based on the team's assessment, the degree 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

The development of student support at Oamk is the responsibility of the support services staff. Study guidance begins at the application stage and covers the entire study path. Majority of the services are arranged as centralized functions.

Institutional guidelines ensure that accessible study environment services are available to the students. Students' learning and well-being are supported by study counselling, career and student tutoring and mentoring, as well as student psychologist services. Health care services are provided locally by the FSHS (Finnish students' healthcare services) organisation.

Oamk and the degree programme apply the Personal Study Plan (PSP). The Head of Studies approves courses in the PSP within the limits of the degree's competence requirements, scope, and the resources of the educational department. According to the agreed division of duties, the tutor teacher and campus counsellor can also approve the PSP.

Based on the self-assessment report as well as site visit interviews and observations, the support services appear to use well-planned mechanisms surrounding students and support their progress towards graduation. The support services help the students with such issues as enrolments, ICT matters, the thesis process, safety, practical training, international exchanges, transfers, recognition of prior learning, graduation procedures and general topics related to the studying process. Key information about the services is published on the Oamk website for all students.

The education services guide and advise students on matters related to study rights, student financial aid, insurance, and graduation. The international services of the education services provide information, guidance, and advice related to studying and internships abroad. In the School of Engineering, there is an international coordinator whose tasks include acting as a contact person for international matters.

Communication between the academic staff and support service staff deserves praise. Based on the self-assessment report and interviews, teachers communicate actively with the support services and vice versa. The collaboration and communication among staff across all levels is clearly good.

During the first days of studies, first-year students participate in an orientation week. This initiative is important for the new students with many questions and doubts about the studying process. The self-assessment declares that at the beginning of studies, support is provided to help students integrate into the university community.

Oamk and the degree programme have two kinds of tutors available for all students. A tutor teacher acts as the student's close advisor and assists in the smooth start of studies. Student tutors trained by the Student Union OSAKO also take care of students' group formation, engagement with the studies, and well-being. With their tutor teacher, students can discuss the progress of their studies, choices and challenges related to studies, study motivation, or study and career goals, and plan actions to achieve them together. The electronic study system Peppi has a tool that supports the student's career planning and professional growth.

Students reported in the interview that most of their teachers are reactive with responses when students have questions, both during laboratory work and project work. During the site visit, students stated that they can come directly to their tutor teacher with any questions, which they will then try and solve together. If the situation is more complicated, the tutor refers the question to the service offices, who will provide an answer.

During laboratory classes and while working on laboratory projects, process staff responsible for technical equipment and safety issues relating to them are present, and the students are informed about occupational safety.

Students receive support for personal growth and well-being from campus counsellors, study psychologists, and other guidance personnel. One campus counsellor has a special responsibility for mental well-being, addiction, and crisis counselling. Additionally, various groups and guidance workshops, as well as courses related to the development of study skills, are available. Webinars and podcasts related to motivation, well-being, and self-management are also available.

A crucial role is played by the university psychologist. Especially after the COVID-19 pandemic, mental health issues have become a very broadly discussed topic worldwide. During the site visit, the administration members and students stated that psychological services are beneficial for the university community.

The student union OSAKO along with its sub-associations provides additional initiatives and leisure time activities for all Oamk students.

Based on the team's assessment, the degree 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 degree programme benefits from modern and well-equipped facilities that support the achievement of programme learning outcomes. Classrooms are equipped with digital presentation tools and hybrid teaching capabilities, allowing for flexible and interactive learning. With the 24/7 access cards issued to them, students can use the campus facilities outside of teaching hours.

Students have access to a variety of specialized laboratories, including the Robotics Laboratory, Hybrid Laboratory, Automotive Laboratory, and a shared Workshop with the University of Oulu. These labs are equipped with up-to-date machinery and tools, such as collaborative robots, CNC machines, and electric vehicle platforms. Students are trained in safety protocols and can use most of the facilities independently after completing orientation. Technical staff are available to support learning and maintain equipment.

The review team's observations confirmed that the facilities are modern, accessible, and well-maintained. Students and staff reported satisfaction with the availability of machines, tools, and software. The economic capacity of the institution ensures ongoing maintenance and development of the infrastructure. Safety culture is evident in laboratory practices, or at least it is required. The safety culture and use of safety equipment should also apply to outsiders, such as representatives of partner companies working in laboratories. There were shortcomings in this respect during the site visit. Safety instructions are available and up to date. Teachers are required to follow rules, but there might be some improvement needed in the focus on safety culture on management level. The safety culture is nowadays a big part of work life in industry and may be part of an engineer's responsibilities even at the beginning of their career.

Library services are provided through the University of Oulu's Pegasus Science Library, offering access to printed and electronic resources, group work rooms, and information literacy training. Students receive guidance in information retrieval at early stage in their studies, and support is available throughout their academic journey.

Software access is comprehensive, with all necessary engineering tools available in computer classrooms and remotely where needed. Students confirmed that software licenses are sufficient and up to date, and that support is available for learning to use these tools effectively.

In conclusion, the classrooms, laboratories, computing facilities, software, and library services are sufficient and accessible to enable students to achieve the programme learning outcomes/objectives. The infrastructure supports both theoretical and practical learning, and the institution demonstrates a strong commitment to continuous improvement and student support. Some improvement may be needed in the focus on safety culture on management level, not only for safety at laboratories but also for future needs in work life.

Based on the team's assessment, the degree 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.

The degree programme has established a broad and active network of external partnerships that significantly support the achievement of programme learning outcomes/objectives. These partnerships span employer collaboration, international cooperation, and joint development initiatives. The programme has identified key partners such as Outokumpu, Proventia, and SSAB, and maintains a wide network of companies that provide opportunities for internships, thesis work, and project-based learning.

Cooperation with key partners and companies is agile and mutually beneficial, with strong person-to-person collaboration. Regular meetings are held with key partners, which is a good example of how to document cooperation. However, audit team observations noted that while cooperation is effective, formal partnership agreements could be more structured to define e.g. responsibilities, safety, intellectual property rights, and contacts. There is also a risk of discontinuity if key individuals change roles at either the institution or partner companies.

International partnerships are well-developed and include active collaboration with institutions such as Technische Hochschule Ulm (Germany) and Hanze UAS (the Netherlands). These partnerships support both exchange and double degree opportunities, particularly during the third academic year. The degree programme also participates in the UP University alliance to expand international cooperation together with Oamk at large. Review team observations confirmed that international cooperation is active and supports programme outcomes/objectives, although the statistics of student exchange show a low level of student participation in mobility programmes. The review team recommends that the degree programme further encourage student participation in the mobility programmes.

The programme benefits from close collaboration with the University of Oulu, particularly in terms of shared facilities, such as the mechanical workshop. Review team observations suggest that further synergies could be explored, including joint study modules and expanded use of university laboratories. Stakeholder interviews confirmed that external cooperation is highly valued and contributes directly to the development of student competences.

As a conclusion, the degree programme under review has established a robust framework of external partnerships that effectively support the achievement of programme learning outcomes/objectives. These partnerships are diverse, active, and well-aligned with the curriculum. To further strengthen this area, the programme should enhance the formalisation of agreements, encourage broader student participation in international mobility, and explore deeper collaboration with the University of Oulu and other stakeholders. Also, collecting and documenting feedback on the cooperation and the future needs of partners, industry in general, and society are recommended.

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

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

Oamk's key operations are financed by the Ministry of Education and Culture (MoEC), by research and development activities and by other sources. The financing of the higher education institution is performance based in Finland. Rather than monitoring income and costs at degree programme

level, OAKM uses various cost drivers and keys, essentially based on number of staff and number of ECTSs, to allocate costs and resources internally to its units.

The main sources of Oamk's funding in general are (2024 figures):

- Core funding and strategic special funding from the Ministry of Education and Culture (MoEC) 82%
- RDI project financing from different sources, 9%
- Other sources, such as business activities, tuition fees, etc., 9%

At Oamk, budgets are prepared by units/schools. The core funding Oamk receives from the MoEC first covers the costs of administration and the Language Centre. The remaining income is then allocated to the units in proportion to the metrics that influenced the funding. The budget of the School of Engineering shows the internally agreed share of MoEC funding and other possible revenues and unit costs.

Degree programme specific budgets are not prepared, but an income vs. expenses analysis was produced for the degree programme under review first time in 2024 to develop and improve the financial performance of the operations. Degree programmes, such as Mechanical Engineering, can plan and propose investments and development needs requiring funding during the budgeting process as needed. Approved actions will be included in the unit's/school's overall budget.

Self-assessment materials include degree programme's income vs. expenses analyses for years 2023–2025. Based on them, the financing for the degree programme appears to be shrinking. Maintaining a balanced budget is an essential part of the operation, and a budget balance helps foster a positive mood and well-being at work.

The state-of-the art equipment for practical project training is mainly financed by other sources, due to highly performing research and development activities, as well as strong industrial collaborations, including the training of industrial partners using the equipment. The degree programme discusses regularly strategic investments to find the required research projects and resources for such investments.

The degree programme very efficiently also invests in materials for students' hands-on-training, such as equipment for classroom teaching.

Overall, the financial situation is essentially stable. However, as the personnel costs create the main part of the costs, attention should be paid to maintaining a good teacher/student ratio.

As a conclusion, the degree programme shows efficient and responsible management of resources with adequate investments in relevant focus areas and considers industrial evolution in the field of mechanical engineering.

Student assistants for teachers could contribute to offering even more practical hands-on training and could support teachers in their continuous development of new exercises, laboratory exercises, and case studies as well as in the correction of student exercises or quiz development on Moodle. The early involvement of student assistants in RDI activities as well as their assistance in laboratory teaching and exercises would further strengthen the students' multidisciplinary and practical work competences.

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

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

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

- The teachers and technical staff have high motivation and a great commitment to the students' learning experience. The degree programme strongly involves talented teaching staff with industrial backgrounds.
- The laboratory and teaching staff have high-level technical competences and practical engineering experience.
- The active participation of many teachers in RDI activities is an indicator of good cooperation with industrial partners and provides a valuable contribution to the degree programme's learning outcomes/objectives.
- The classrooms and laboratories are of a high quality and well maintained, resulting in a very good working environment for the students.
- The variety of laboratories convincingly support high-level education for the three focus areas of the degree programme. Access to equipment, also outside of teaching hours, is well organised for student projects. The available equipment for robotics, including collaborative robotics, as well as the mechanical workshops is very good.
- The spacious library is organised to function effectively as a creative working space for individuals, pairs, and groups.
- All students have equal access to the facilities and the services provided.

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

- The degree programme is encouraged to analyse resource allocation needs for further supporting the laboratory training offered to the students in each specialisation to enable them to fully benefit from the existing laboratory equipment.
- The degree programme should continue monitoring the degree level costs to maintain a financial balance and a good teacher/student ratio.

2.4 Quality management

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

Oamk has a clearly defined quality system. It is available for the personnel in Heimo, and a public introduction to the quality system is available on Oamk's website. The quality system and operations are based on continuous improvement along the Plan-Do-Check-Act (PDCA) cycle, and they are designed to support the achievement of strategic and operational goals. The quality system is open to all staff and students and covers all institutional activities, including education, RDI, and support services. The system emphasises impact, transparency and responsibility, aligning with Oamk's core values.

The degree programme under review applies the institutional quality policy consistently in its operations. Curriculum development follows a defined annual cycle, and programme-level learning outcomes/objectives are aligned with institutional strategic goals. The programme uses

competence-based curricula and assessment frameworks derived from national and European qualification frameworks. Teachers are responsible for implementing quality practices in their courses, and programme management ensures alignment with institutional policies.

In the timetabling work for studies, an essential factor is that all required information is comprehensive and timely when saved to the system. Education deans and the persons in charge of the degree programmes make sure that the timetabling work stays on schedule and that timetabling work follows institution-level instructions on education planning and descriptions.

The roles and responsibilities for quality management are clearly defined at both institutional and programme levels. The Vice Rector oversees the quality system, while Directors and Heads of Studies are responsible for its implementation within their units. Each staff member is accountable for the quality of their own work. In the degree programme, the Head of Studies monitors curriculum implementation and student progress, supported by tutor teachers and development managers.

The programme participates actively in institutional quality processes, including feedback collection, self-assessments, and external audits. Student feedback is collected through the Spark system and discussed at development meetings. Employer feedback is gathered from project work, theses projects, and RDI collaboration, although the process for collecting internship feedback is still under development. The review team observed that feedback is used systematically to improve teaching and learning.

Documentation of quality processes is maintained through the institutional intranet and public website. Curricula, course descriptions, and assessment criteria are publicly available, and students are informed of the quality procedures through orientation and ongoing guidance. The review team noted that while documentation is comprehensive, the accessibility of some information could be improved.

Review team observations confirm that the degree programme is well integrated into Oamk's quality system. Staff and students are aware of their roles in quality assurance, and the programme demonstrates a culture of continuous improvement. Areas for further development include enhancing student participation in programme-level quality teams and improving the visibility of quality-related information. Overall, the programme's quality management procedures are consistent with the institutional quality policy and support the achievement of learning outcomes.

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

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

Oamk and the degree programme operate within a clearly defined organisational and decision-making framework that supports effective programme management. The institutional quality system, as outlined in the Quality System document, is based on the Plan–Do–Check–Act (PDCA) cycle and ensures that all operations are systematically planned, evaluated, and improved. The Vice Rector is responsible for the quality system, while the Directors of Schools and Managers oversee its implementation within their respective units.

At the programme level, responsibilities are clearly distributed among such roles as the Manager, the Head of Studies, Team Leaders, Development Managers, and academic staff. The self-assessment report outlines these roles and their contributions to curriculum implementation, feedback

review, and educational development. The Manager is responsible for the curriculum and also works together with the Team Leaders, Head of Studies, Development Managers and academic staff.

The School of Engineering has a Management Team chaired by the Director, who is also part of Oamk's Executive Board. This structure ensures that strategic goals set at the institutional level are effectively implemented at the degree programme level. The Management Team develops action plans aligned with strategic objectives, including graduation rates, financial management, and staff well-being.

The programme's decision-making processes are embedded within Oamk's quality assurance framework. The quality system supports continuous improvement through regular feedback collection, internal evaluations, and development discussions. The Education Development Group coordinates educational development across the institution, ensuring consistency and alignment with strategic goals.

Stakeholder feedback is integrated into decision-making through structured mechanisms, such as student feedback (via Spark), employer feedback on internships and theses projects, and alumni input. These inputs are reviewed in development discussions and used to inform curriculum updates and teaching practices.

Review team observations confirmed that the programme benefits from a well-functioning management structure and responsive decision-making processes. The staff and students are aware of their roles, and communication channels are clear. However, the review team noted that student participation in the degree programme team could be improved, and that further integration of stakeholder feedback into formal decision-making would enhance transparency and responsiveness.

As a conclusion, the organisation and decision-making processes of the degree programme are fit for effective management. They are consistent with Oamk's quality policy and support the achievement of programme learning outcomes through structured roles, strategic alignment, and continuous improvement mechanisms.

Based on the team's assessment, the degree 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.

The Degree Programme demonstrates a structured and systematic approach to reviewing and developing its curriculum, teaching and learning processes, resources, and partnerships. This is guided by the institution's quality policy and supported by a comprehensive quality system that applies the Plan-Do-Check-Act (PDCA).

The programme follows an annual curriculum planning cycle, with regular updates informed by foresight data, stakeholder feedback, and national frameworks. Curriculum development is coordinated by designated teams for each specialization and aligned with Oamk's strategic goals. The programme also utilizes roadmaps for teaching and laboratory development and integrates RDI project outcomes into curriculum updates.

The degree programme has a process for reviewing the curriculum. The most recent wider substantial update to the degree programme curriculum took place in 2017. Since then, according to the self-assessment report, the curriculum has undergone minor annual adjustments, while comprehensive revisions are carried out when deemed necessary rather than following a fixed cycle. One of the key objectives of earlier curriculum development was to promote team teaching and enhance students' ability to integrate their learning to better meet the demands of working life.

In 2023, a significant development initiative focusing on competence-based education was launched. The project began at the degree level, where the needs of work life were examined, and the learning objectives of the degree were refined for the 2023 curriculum. Based on the self-assessment report, the 2024 version largely mirrors the 2023 curriculum. The impact of the competence-based approach is expected to become more evident at the course level starting with the 2026 curriculum.

Feedback from students is collected through the Spark system at the end of each course and discussed at teacher development meetings. Students also have opportunities to provide feedback through programme teams, although participation rates could be improved. Employer feedback is gathered on project work, theses, and RDI collaboration although the process for collecting internship feedback is still under development.

Student progress is monitored using the Helistin system, which provides real-time data on course completion and academic performance. Tutor teachers play a key role in supporting students and identifying those at risk of delay. The programme also tracks graduation rates, learning outcomes, and employment data through national surveys such as AVOP and career tracking.

Graduate feedback is collected at the time of graduation and five years post-graduation through national surveys. These results are used to assess the relevance of the education and to inform curriculum development. Employer feedback confirms that graduates are well-prepared for engineering roles, though more structured feedback mechanisms are being developed.

The degree programme's development is embedded in Oamk's quality culture, which emphasises transparency, responsibility, and continuous improvement. The quality system is well-documented and accessible, and responsibilities are clearly defined across the institutional level. The PDCA cycle is applied consistently in curriculum planning, feedback analysis, and operational development.

As a conclusion, the degree programme demonstrates a systematic and regular approach to reviewing and developing its operations. The integration of feedback, performance data, and strategic foresight ensures that the programme remains relevant and effective. Further development of feedback systems and increased student participation in quality processes would enhance the robustness of the programme's continuous improvement efforts.

Based on the team's assessment, the degree 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.

Oamk's and the degree programme's website provides public, up to date information about programme's objectives, teaching and learning processes, resources, quality management procedures, and results. Most of the information is available in Finnish and English. There is a designated

section for applicants interested in the Mechanical Engineering degree programme. Possible career options for graduates are also described on the website.

The full curriculum is available on the Oamk website for students, applicants and a wider public. Curricula are usually updated and published online by the beginning of the semester.

Students' rights and responsibilities are described in the Oamk Degree Programme Rules in Finnish and English. During the site visit, all interviewed groups stated that the information policy and structures are adequate and robust.

Oamk also uses Moodle and Peppi software for informing students about the courses and resources.

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

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

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

- Oamk's available quality system is clear and the degree programme under review applies it systematically.
- The quality system supports the studies well, and student feedback is appropriately taken into account at all levels of the degree programme.
- The mindset and cooperation of teachers, technical staff, and Oamk support staff are very positive and efficiently contribute to positive collaborative operation and actions in light of quality management and the continuous improvement of the degree programme.

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

- Oamk and the degree programme should highlight the safety culture more as a part of students' laboratory training.
- Oamk and the degree programme should take better care of written agreements with partner companies, including those involved in laboratory operations. Formal partnership agreements could be more structured to define e.g. responsibilities, safety, intellectual property rights, and contacts. There is also a risk of discontinuity if key individuals change roles at either the institution or partner companies.
- The degree programme could further structure its feedback collection on current and future needs from industrial stakeholders.

Overall evaluation of the programme

3

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

- The degree programme and its teaching staff engage in excellent agile cooperation with core industrial partners.
- The degree programme strongly involves talented teaching staff with industrial backgrounds.
- The curriculum reflects the needs of companies in the region of Northern Ostrobothnia and is updated regularly.
- Studies are arranged flexibly for part-time and full-time students.
- The implementation of the curriculum is well adapted for students with both secondary school and vocational training backgrounds. Strong efforts are made to offer a degree programme that really suits both cohorts.
- Practical work and laboratory training have a strong focus on the curriculum in all study options.
- The facilities and laboratory equipment convincingly support the achievement of the practical learning outcomes/objectives of all study options and include modern professional equipment of industrial relevance for each of the study options. Also, a number of related RDI activities meaningfully support the degree programme topics and the laboratory equipment of the three study options.
- The close and continuous cooperation with industry partners provides a great number of opportunities to develop the students' communication and teamwork skills.

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

- The degree programme must differentiate between the programme aims and programme learning outcomes.
- Even though the degree programme cooperates a great deal with its key stakeholders, it should develop more systematic methods of feedback collection and analysis to also gain feedback from the smaller partner companies and gather information on e.g. current and future industrial needs.
- Oamk and the degree programme should take better care of written agreements with the partner companies, e.g. those involved in the laboratory operations.

- Knowledge of material properties and transformations should be reinforced, and supervision skills could be introduced during the studies according to company representatives to facilitate the transition into working life in various sectors, roles, and company structures.
- Different problem-solving methods, theories and tools should be introduced into the curriculum and its implementation.
- Knowledge of physical phenomena related to optical sensing and automated vision technologies should be introduced in line with their increasing use in mechanical engineering within all proposed professional options of the degree programme.
- The degree programme is encouraged to analyse resource allocation needs for further supporting the laboratory training offered to the students of each of the specialisations to allow them to fully benefit from the existing laboratory equipment.
- The degree programme should continue monitoring the degree level costs to maintain a financial balance and a good teacher/student ratio.

The team recommends that the programme is accredited with the following condition:

- The degree programme defines its programme learning outcomes as the same as the general degree programme aims and objectives presented under standard 1. Therefore, there is no clear list of programme outcomes different from the programme aims. As the existence of programme learning outcomes is one of the key requirements in the accreditation, both the terminology and list of the degree programme outcomes need to be clarified further. This should be done by advancing the current formulation of programme objectives, both professional and generic ones. (standard 2)

Decisions of
the FINEEC
Committee for
Engineering
Education

4

In its meeting on 19 September 2025 the FINEEC Committee for Engineering Education decided, based on the proposal and report of the accreditation team, that the Degree Programme in Mechanical Engineering at Oulu University of Applied Sciences (instruction is Finnish, full-time) is accredited conditionally.

The set conditions are those listed in section 3. The accreditation is valid until 19 September 2026 by which Oulu University of Applied Sciences should report to the Finnish Education Evaluation Centre (FINEEC) on how they have met the set conditions. If the FINEEC Committee for Engineering Education then finds that the conditions have been successfully met, the validity of the accreditation will be extended until 19 September 2031.



Engineering programme accreditation is a degree programme specific evaluation that can lead to the 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 and globally. 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 Mechanical Engineering at Oamk University of Applied Sciences in Finland.

The Finnish Education Evaluation Centre (FINEEC) is an independent, state evaluation agency responsible for the external evaluations of education from early childhood education to higher education in Finland. 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 978-952-206-857-6 pdf

ISSN 2342-4184 (pdf)

Finnish Education Evaluation Centre
P.O. Box 380 FI-00531 HELSINKI
Visiting address: Hakaniemenranta 6,
FI-00530 HELSINKI
kirjaamo@karvi.fi
Telephone: +358 29 533 5500
karvi.fi