IMLEX

Quality Assurance System and Procedures Handbook (QASPH)

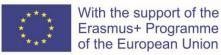| Purpose	Reference guide for policies, procedures, principles and practices related to educational quality assurance in the IMLEX programme
Keywords	Quality assurance, assessment, monitoring, improvement, programme development, student recruitment, admission, mobility, teaching and learning activities, stakeholder integration, academic results and learning outcome evaluation, staff development, stakeholder satisfaction, grievance, crisis management
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Contents

Section I.   Introduction

A.   Scope[1]

The 2-year Master programme (120 ECTS) "Imaging and Light in Extended Reality (IMLEX)" provides a multidisciplinary and innovative programme combining Imaging, Lighting and Information Technology. In this IMLEX programme, students benefit from both the European research expertise in imaging, rendering and lighting in combination with Japanese research expertise related to XR and robotics. This cooperation is supported by industrial involvement from both regions.

This Quality Assurance System and Procedures Handbook (QASPH) describes how assessment outcomes are used by the Quality Assurance Board (QAB) to monitor, upgrade and improve the quality of the IMLEX programme. It is a reference guide for policies, procedures, principles and practices related to educational quality assurance in the IMLEX programme and is distributed to the consortium members and students.

The following sections more specifically document the programme's governance and structures (Section II) and subsequently identify evaluation and improvement procedures for:

a) Programme development, approval and validation (Section III);
b) Student recruitment (Section IV);

Related KPIs:

- **Criteria C4: Students admission, progression, recognition, and certification**
  - KPI/C4/1: Checking by the QAB that the annual student's selection process is implemented as stated in the QASPH;
  - KPI/C4/2: Checking by the QAB that the students' progression/achievement is, throughout the Master's cycle, monitored and documented by the AMB;
  - KPI/C4/3: Checking by the QAB of the recognition(s)/certification(s)/diploma(s)/diploma supplement obtained by the graduated students;
  - KPI/C4/4: Checking by the QAB that students' complaints and appeals are monitored and well documented by the AMB (in connection to C17).

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[1] IMLEX project description, paragraph 1.1, 2.2.

c) Mobility (incl. student support) (Section V);
d) Teaching and learning (Section VI);
e) Academic results and learning outcome evaluation (Section VII);

Related KPIs:

- **Criteria C2: Processes for the design and approval of the program**
    - KPI/C2/4: Checking by the QAB that any issue arising (e.g. non-available units, credits deferred) and remedial, reported by the AMB are enough documented.
- **Criteria C4: Students admission, progression, recognition, and certification**
    - KPI/C4/4: Checking by the QAB that students' complaints and appeals are monitored and well documented by the AMB (in connection to C17).
- **Criteria C8: Public information: clear, accurate, objective, accessible**
    - KPI/C8/1: Checking by the QAB that the information available on the IMLEX website is clear, accurate and objective;
    - KPI/C8/2: Checking by the QAB that the information sent to students and stakeholders is clear, accurate and objective.

f)   (Section VIII);
g)   Consortium collaboration, staff and staff development (Section IX);
h)   Monitoring and review (incl. stakeholder satisfaction) (Section X);
i)   Grievance (Section XI);
j)   Crisis management (Section XII).

This handbook provides a framework and pointers for quality assurance. QA in the IMLEX programme is nevertheless not simply compliance based; it is equally focused on perceiving quality as fitness for purpose, consistency, and striving for excellence[2]. This is why each section also includes notes by the QAB to stimulate reflection, growth and continuous improvement.

B.   List of abbreviations

AMB	Academic and Management Board
CLO	Course learning outcome
EACEA	Education, Audiovisual and Culture Executive Agency
ECTS	European credit transfer system
EHEA	European Higher Education Area
EMJMD	cfr. EMJMD-IUEP
EMJMD-IUEP	Erasmus Mundus Joint Master Degree – Partnership with Japan
ESG	European Standards and Guidelines for internal and external QA in the EHEA
EU	European Union
HEI	Higher education institution
IMLEX	Master of Science in Imaging and Light in Extended Reality
IPAISH	Information Package and International Student Handbook
KPI	Key performance indicator
LMS	Learning management system
MEXT	Ministry of Education, Culture, Sports, Science and Technology
MSc	Master of Science
PLO	Programme learning outcome
QA	Quality assurance
QAB	Quality Assurance Board
QASPH	Quality Assurance System and Procedures Handbook
TBD	To be determined
TUT	Toyohashi University of Technology
UEF	University of Eastern Finland
UJM	Université Jean Monnet
ULO	Unit learning outcome
XR	Extended reality

C.   References

-   IMLEX website[3]
-   IMLEX EMJMD-IUEP project description[4]
-   IMLEX Student agreement template[5]

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[2] Harvey, L. & Green, D. (1993). Defining Quality. *Assessment & Evaluation in Higher Education, 18*(1), pp. 9-34.
[3] https://imlex.org/ = www.uef.fi/imlex
[4] Dd. 28.03.2019.
[5] https://imlex.org/studies/instructions/

- Standards for Quality Assurance of Joint Programmes in the EHEA[6]
- European Standards and Guidelines for internal and external QA in the EHEA (ESG)[7]
- European Approach for Quality Assurance of Joint Programme[8]
- Guidelines for Building International Joint Diploma Programmes Including Double and Joint Degree Programmes (Japan)[9]

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[6] https://www.eqar.eu/kb/joint-programmes/agreed-standards/
[7] https://www.enqa.eu/wp-content/uploads/2015/11/ESG_2015.pdf
[8] https://www.eqar.eu/kb/joint-programmes/
[9] https://www.mext.go.jp/component/b_menu/shingi/toushin/__icsFiles/afieldfile/2015/04/17/1356863_1.pdf

Section II. Governance and structures

A. Purpose[10]

The consortium is organized as two separate authorities integrating all partners: an Academic and Management Board (AMB) and a Quality Assurance Board (QAB). Both have distinct activities but interact to ensure continuous development in the programme.

The educational quality assurance system is based around three main processes: Course Approval, Annual Monitoring and Periodic Review. These have been established by the consortium as a joint mechanism for assuring and maintaining the standard of the awarded degree as well as the quality of the student learning experience.

The processes follow both the internal quality assurance procedures of each partner university (according to a periodicity defined by these procedures, e.g. every 5 years in France) as well as joint mechanisms established between partners. The cooperation and organization of the master are managed through the AMB and QAB.

The aim of the Quality Assurance Process is to assess that

   a) the IMLEX programme meets the expectations raised by the EACEA in terms of excellence, performance and relevance;
   b) the management and financial practices within and between the consortium members are effective and coherent with the missions, duties and roles of each partner defined in the Consortium Agreement signed by all partners; and
   c) the results of the quality review process are open, based on transparent criteria, and good practices that have been identified bring positive and long-lasting effects on the programme implementation.

B. Integrated elements[11]

IMLEX operates with several key elements tailored to incorporate jointness:

   - A joint recruitment strategy and implementation;
   - A single online application platform centralizing all students' applications for staff members in Finland, France, Belgium, and Japan to consult and evaluate applications;
   - A joint evaluation procedure with common admission criteria and policy;
   - A centralized and shared academic data (grades file, transcripts) that can be integrated in the partner institution's student studies systems (from registration to diploma delivery);
   - A single and systematic mechanism that ensures the recognition of ECTS from all participating institution;
   - A joint Master thesis policy and guidelines (from implementation to evaluation), including a joint event for the thesis defence days;
   - Integrated mechanisms allowing the delivery of three to four national Master degrees accompanied by a joint diploma supplement, from the coordinating institution, describing in details the studies, specialization and performance of the student;
   - A joint graduation ceremony event and the annual IMLEX days;
   - A joint and consistent internal and external quality assessment of the programme.

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[10] IMLEX project description, paragraph 2.1-2.2.
[11] IMLEX project description, paragraph 1.1.B.

C. Academic and Management Board[12]

C.1. Responsibilities

The Academic and Management Board (AMB) is the "core structure" of consortium management.

The responsibilities of the AMB are:

A. Academic:
- to define the course structure, credit recognition, module contents and common rules of assessment/examination and their potential amendments;
- to guarantee the Compulsory/Optional units availability in each institution and their syllabuses;
- to select the students and scholars and to define their mobility;
- to monitor the achievement of IMLEX students throughout the Master's cycle (e.g. final assessment decisions, student's probation),
- to inform consortium members of any issue arising (e.g. non-available units, credits deferred) and remedial actions (to be) undertaken; etc.;

B. Management & finances:
- to supervise the correct implementation of the technical and administrative operations in universities;
- to decide on the budgetary redistribution between partners;
- to implement IMLEX policies (selection, gender equality, participation costs and quality improvements);
- to foster sustainability policies, etc.

The assessment of the academic content is coordinated by the AMB, with the support of the local course director and the unit heads:

a) Each unit head is responsible for the pedagogical content, its coherence and its integration within the programme, which includes the management of the guests/visiting scholars, the pedagogical pace, and transversal links with other units.

b) Each unit is developed by expert teaching staff and has a unit description describing the syllabus, prerequisite knowledge, unit learning outcomes, schedule, teaching and learning methods, assessment tasks, assessment criteria, and any industrial relevance. The relationships between Unit Learning Outcomes and Programme Outcomes, and also assessments, are stated in the unit description.

c) Once the programme is developed and approved by the AMB, the units are submitted through the internal mechanisms at each university. On a consortium level, the MoA describes the quality assurance mechanisms to provide all students undertaking the Master with educational excellence, proceed with the processes required by the competent national or regional agencies, in order to assure the quality of the Master, protect the academic standing of the integrated study programme and honour applicable intellectual property rights and brand names, accept the other parties' ECTS unit credits within the framework of the agreed joint curriculum and delivery scheme.

The AMB is moreover the authority responsible for the implementation of the QAB decisions. The AMB has six months to implement the solutions proposed by the QAB or other relevant solutions that achieve the requested improvements.

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[12] IMLEX project description, paragraph 2.2, 3.2.

C.2.   Constitution

The AMB is composed of delegates from each university. The AMB includes:

- the consortium coordinator;
- the administrative coordinators;
- local coordinators from each full partner;
- one vice member for each full partner.

Depending on the points addressed in the AMB meetings, other stakeholders are invited to join specific AMB meetings:

- one alumnus (at least once per year);
- one delegate from current cohorts (at least once per year)
- other staff from central services or international offices (administrative or academic)
- representatives of each associate academic partner and delegates of industrial partners (September meeting).

C.3.   Mode of operation

The AMB meets at least twice a year, held alternatively in one of the full partner HEIs:

- In February/March as the selection committee for IMLEX applicants and for the results and decision regarding semesters 1 and 3 for ongoing intakes, and for mobility of semesters 2 and 3;
- In September for the induction of new students and management of the course, and to validate mobility for semester 2.

Additional meetings are held by video-conference, for instance in June for the results and decision regarding semester 2. AMB members also interact through the IMLEX intranet (for issues related to course content and educational aspect), telephone, e-mail and video-conference depending on the urgency of the matter.

The decision process within the AMB is based on a democratic consensus, whereby each regular academic member holds one vote. Decisions are adopted by simple majority of the members.

D.   Quality Assurance Board[13]

D.1.   Responsibilities

The QAB is the authority responsible for good practices and quality assurance. The results of the quality review process carried out by internal and external quality assurance bodies are reviewed and reported by the Quality Assurance Board.

The main missions of the QAB are:

- to ensure the implementation of an efficient, relevant and auditable Quality Assurance Process and to develop good practices and methodological innovation;
- to disseminate the quality procedures, the results of the quality assurance reviews (good practices and bad practices if any) and the improvements made from one year to another one;
- to ensure convergence of this Quality Assurance Process with the European Higher Education expectations, throughout all dimensions of the teaching and training programme (teaching methodologies, learning methodologies, training methodologies, unit learning outcomes evaluation, etc.);

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[13] IMLEX project description, paragraph 2.2, 3.3.

- to enhance the quality of learning and teaching activities, formal, non-formal/informal learning outcomes (low level objective), course coherency and units sequencing (at semester and programme level, and across partner sites), course learning outcomes, teaching coordination among semesters and partners (higher level objective);
- to enhance the quality of academic coordination, board-level coordination, academic partner coordination, partners' involvement in the programme, partnerships and relationships with industrials;
- to ensure the adequacy of the educational programme with academic expectations and industrials needs identified and the relevance of changes or updates proposed within the curriculum (long term objective);
- to involve all stakeholders (students, alumni, teaching staff, etc.) and facilitate their participation in the quality assurance process, ensuring an efficient structure to support continuous improvement;
- to continuously improve the satisfaction, academic results and professional skills of the students;
- to apply effectiveness, efficiency and transparency as key management principles.

The QAB defines:

- the procedures to evaluate the development and quality of the programme,
- the criteria and the actualization and improvement procedures of the programme,
- the analysis procedures to evaluate the professional insertion of all the graduates from the Master and their satisfaction level for the education received,
- the mechanisms for administrative management and the certification of the results,
- the procedures for the evaluation of teaching and lecturers,
- the procedures for the evaluation of formal, non-formal and informal learning outcomes.

So as to propose guidance, advice and comments to the AMB for further improvement, the QAB:

a) defines Key Performance Indicators (KPIs). These are published on the IMLEX website (criterion C15). They support the AMB in the management of the programme (criterion C1) and guarantee
   i. clear, accurate, objective and accessible information to public and partners (criterion C8);
   ii. recognition of the degree, status of the programme (join design and delivery) and accuracy of the diploma supplement (including ECTS) (criterion C2);
   iii. meaningful exposure of IMLEX students to non-academic sector;
   iv. exposure of students to multi-disciplinary approach;
   v. effective collaboration & exchange of information within the partners (criterion C7);
   vi. relevant networkwide training activities;
   vii. coherency between learning & training activities from semester 1 to 3 and between the implemented activities & strategic objectives;
   viii. that the activities performed by the AMB are done in a transparent way;
   ix. that the programme activities contribute to develop career perspectives and provide transversal skills (e.g. entrepreneurship, IPR, communication, ethics) which match academic/private sector needs.
b) disseminates (on the IMLEX intranet) the results of these review processes (transparency rule, criterion C16);
c) if necessary, recommends (every semester) solutions/ideas to the AMB to improve bad practices or negative outcomes identified, if any;

d) checks and reports (within six months) that the AMB has effectively taken into account the recommendations (criterion C9). This report is published on the IMLEX intranet and a summary of all these reports are published each year on the IMLEX website (criterion C16);

e) has the primary responsibility of to support external QA and course approval (criteria C10 and C2) and to guarantee that the IMLEX quality assurance procedures satisfy the set of "Standards and Guidelines for internal and external Quality Assurance in the EHEA (ESG)", the "European Approach for Quality Assurance of Joint Programme", and the Japanese Guidelines for Building International Joint Diploma Programmes Including Double and Joint Degree Programmes;

f) reviews the student selection process;

g) is responsible for checking that selection rules are strictly followed (quality assurance process). If an applicant appeals his/her ranking/evaluation or if discrepancy between marks (i.e. more than 10% of difference), two members of the QAB re-evaluate the application. In the case of a discrepancy between the QAB marks and the AMB marks, the QAB asks the selection committee to reconsider the final selection lists before sending these lists to the EACEA. If changes occur student(s) are duly informed.

D.2. Constitution

The QAB is composed of delegates from each university. The QAB includes:

- the QAB head;
- the learning outcomes coordinator;
- two full partner representatives;
- two associate partner representatives;
- one alumnus;
- one delegate from current cohorts.

Depending on the points addressed in the QAB meetings, other stakeholders are invited to join specific QAB meetings:

- representatives of local quality assurance boards;
- representative(s) of teaching staff;
- representative(s) of administrative staff;
- other personnel (representative(s) of academic advisors);
- delegates of industrial partners (in charge to list the needs and requirements from industry);
- professionals from socio-economical associations or enterprises, acting in the fields of technology transfer or valorisation of Research and Development (R&D) activities.

D.3. Mode of operation

The QAB meets at the same schedule and at the same location as the AMB.

D.4. Objectives[14]

The QAB responsibilities can be summarized into 4 main objectives:

D.4.1) To design, implement and report on the QA *process*
- Criteria: efficient, relevant, auditable, corresponding to European standards and guidelines, informative about good practices as well as bad practices and improvements made, continuous improvement

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[14] QAB minutes 2 September 2020.

- Scope: all dimensions of the teaching & training programme (teaching methodologies, learning methodologies, training methodologies, unit learning outcomes evaluation, etc.)
- Deliverables: QA reviews, good practices, methodological innovation

D.4.2) To involve **stakeholders** in the QA process
- Criteria: effectiveness, efficiency, transparency
- Scope: teaching staff, board members, students, alumni, industry, partners
- Deliverables: academic coordination, board-level coordination, academic partner coordination, partner's involvement, relationships with industry

D.4.3) To enhance the **outcomes** of the IMLEX programme
- Criteria: academic expectations & industrial needs
- Scope: learning & teaching activities, learning outcomes, course coherency, units sequencing, internal coordination
- Deliverables: satisfaction, academic results and professional skills of students

D.4.4) To define and review **procedures** [note: overlaps with objectives 1-3]
- Criteria: effectiveness, efficiency, transparency
- Scope: curriculum development and improvement, analysis of graduate's transition to the professional field, administrative management and certification, evaluation of teaching and lecturers, evaluation of learning outcomes, student selection process (incl. re-evaluating applicant in case of appeal)
- Deliverables: academic coordination, board-level coordination, academic partner coordination

E.   Key performance indicators (KPIs)[15]

IMLEX' KPIs are intended as criteria to check whether progress is being made, to monitor issues, and to make sure necessary aspects are being covered. These are founded on the criteria mentioned in the initial project description:

Internal Quality Assurance
- C1: A policy for quality assurance
- C2: Processes for the design and approval of their programmes
- C3: Student-centred learning, teaching and assessment
- C4: Student admission, progression, recognition and certification
- C5: Competence and qualifications of the teaching staff
- C6: Provision of learning resources and student support
- C7: Information management for effective management
- C8: Public information: clear, accurate, objective, accessible
- C9: On-going monitoring and periodic review
- C10: Undergoing external QA

External Quality Assurance
- C11: Addressing the effectiveness of the internal QA
- C12: QA methodologies fit for this purpose
- C13: QA processes reliable, useful, implemented consistently, published
- C14: Peer-review experts: including (a) student member(s)
- C15: QA criteria explicit and published. Applied consistently
- C16: Reporting: published, clear and accessible report
- C17: Complaints and appeals: clearly defined and communicated to the institutions

Criteria that will be assessed for Internal Quality Assurance and External Quality Assurance (as recommended by the Standards and Guidelines for Quality Assurance in the EHEA (ESG) and the European Approach for Quality Assurance of Joint Programmes).

The KPIs are drafted as a separate document for monitoring purposes. They can be consulted in the related documentation on the MS Teams platform and will be monitored during QAB meetings.

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[15] QAB minutes 3 June 2021.

F.   Periodic reviews[16]

The programme is subject to periodic review by the consortium following national requirements of each partner. The IMLEX programme is subject for the first time to an External Audit on a 2-year cycle for assuring and enhancing the quality and standards of programmes, and also subject to Internal Audit (guidance for continuous improvements) and EACEA evaluations (strengths and weaknesses of the programme). This periodic review focuses explicitly on assurance and adopts an audit/scrutiny-based approach. It is based on a Narrative Summary document (criterion C16), QAB reports (criteria 11, 12 and 13), and a range of paperwork for each type of partnership subject to contractual obligations (criterion C17). The audit is undertaken by a panel of external senior academic peers, student and industrials representatives (criterion C14) and is reported to the Quality Assurance Board (criterion C11).

The external audit includes two academic expert fellows, two alumni and two industrials.

G.   Notes by the QAB[17]

- It is preferable to have 1 student delegate in the QAB, yet to have this student consult a small group of peers before/after meetings so as to be able to represent different perspectives (stay in touch with a representative from UJM + KU Leuven + abroad during this second semester). No specific procedure has to be followed to recruit a student representative member. Online student welcome sessions may provide a good opportunity to raise the question on who would like to join the QAB.
- QASPH sections to focus on during programme start-up: section IV-B/C/D, section V-F, section VII-B, section IX-E, section X-B (in regards to KPIs).
- The timing to monitor the KPI criteria will differ: some would be most useful when monitored annually (e.g. students' progress in cohort X vs. cohort Y), whereas other KPIs are situated on a longer time line (e.g. typical issues faced by students from the same university). Some criteria moreover will be easy to satisfy (e.g. publishing the QASPH on the website), others less so (depending on e.g. the default availability of indicator data). The main challenge will be to define KPIs which can be evaluated in an efficient, meaningful way, and not to lose ourselves in checking countless minor items.
- As many KPI criteria and indicators are still in start-up phase, the QAB will have to prioritize, simultaneously taking into account the current context of the pandemic and where necessary postponing. It is moreover (especially in the current phase) better and more efficient to discuss some KPI criteria every meeting instead of having one major monitoring exercise once a year.
- Interaction between the AMB and QAB is key: by sharing information, both boards will be able to make more progress on KPIs.
- Organize a joint meeting where the AMB-QAB could report upon its workings and inform each other on how to monitor KPI progress in the consortium.

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[16] IMLEX project description, paragraph 2.2.
[17] QAB minutes 28 January 2021, 11 March 2021 and 3 June 2021.

H.   QA responsibilities summary[18]

Ref.	Fields/areas	Key player	Instrument/medium	Timing
QA1	Educational policy, implementation of QAB decisions	AMB	AMB meeting	Min. 1x/sem
QA2	Quality assurance and dissemination of good practices	QAB	QAB meeting	Min. 1x/sem
QA3	Quality Assurance System and Procedures Handbook (QASPH)	QAB	Written documentation	ASAP upon start-up
QA4	Key Performance Indicators (KPIs)	QAB	Written documentation	ASAP upon start-up
QA5	Internal audit	Each university	Internal mechanisms at each university	Ad hoc
QA6	EU funding evaluation	EACEA	Audit	TBD
QA7	External audit	External panel	Narrative summary document, QAB reports, …	Every 2 years (as of 2022)

Related KPIs:

- **Criteria C1: A policy for quality Assurance**
    - KPI/C1/1: A Quality Assurance System and Procedures Handbook (QASPH) validated by the QAB and by the AMB;
    - KPI/C1/2: A Quality Assurance process, implemented by the AMB/QAB as stated in the QASPH, checked and validated by the QAB;
    - KPI/C1/3: An Internal Quality Assurance process, implemented by the QAB as stated in the QASPH, reported to the AMB (last update reported in March 2021);
    - KPI/C1/4: An External Quality Assurance process, implemented as stated in the QASPH, reported to the AMB and QAB (in connection with C12).
- **Criteria C10: Undergoing external QA**
    - KPI/C10/1: External QA reviewing.

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[18] QAB meeting 28 January 2021.

Section III. Programme development, approval and validation

A.   Purpose[19]

The proposed course content is to be fully validated and recognized by all the partners' Quality Assurance authorities.

Regarding the EMJMD aims and objectives:

A.1.   For students and their employability

- Study and interact in diverse environments and cultures (adaptability skills) in Europe (Finland, France, Belgium) and in Japan, and potentially anywhere in the world (during their Master Thesis in associated partners and summer internship);
- Use multiple methods/approaches of teaching/learning and competence/skills acquisition both in different Higher education systems (adaptability skills) and work environments (studies, internships, thesis placements, industrial projects);
- Benefit from the excellence and the best area of expertise from the different partners but within a single programme (transdisciplinary skills and domain knowledge). A concentration of excellence where the students have "all-in-one" without having to follow two or more different master studies in different institutions (e.g. a MSc in "Lighting and Computer rendering" and another MSc in "Robotics and Computer Science");
- Develop intercultural awareness, language learning skills and adaptability to multicultural environment (from daily life to the world of work);
- Develop entrepreneurial skills throughout the programme thank to an optional online accessible and customizable entrepreneurship course;
- Acquire solid transversal skills (e.g. working remotely with a team) for employability, efficiency and flexibility in enterprises (team working skills);
- A taste of mobility turned into a capacity to be mobile (mobility skills) in Europe, Asia, and the world;
- Dialogue with the labour market, analysis and reflection on the needs of the target employment sectors, the competence to develop, the skills to acquire;
- An integrated study mobility where the students build on knowledge, competences and skills ensuring a high percentage of employability of post-graduates in high technology sectors with huge demand;
- Long lasting effects on the participants, our consortium and the HEIs composing it, through the networks of associated partners and alumni.

A.2.   For European Higher Education Institutions and their excellence and internationalisation

- A gain of competences and skills for academic staff with regards to their own professional practices and to the best teaching practices developed by other partners (e.g. teaching with new ICT tools, complex project management at distance, pedagogical skills, innovation skills, ICT skills, open-mind skills);
- A gain of good reputation with regards to their educational activities in the field (applied teaching skills and quality assessment skills for academic staff);

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[19] IMLEX project description, paragraph 1.1, 1.4, 2.2.

- A gain of expertise with regards to their strategy of international expansion (e.g. new administrative skills regarding the management of international programmes with different educational systems) (expertise and internationalisation skills);
- New opportunities for HEI to collaborate with targeted partners, to develop research activities in the field with partners having complementary expertise/skills (internationalisation skills);
- Modelling practices to manage integrated programmes so as to benefit other projects at internal level and beyond, sharing good practices to modernise systems and attract best talents.

A.3. For the European and Japan Higher Education Area (E/JHEA) and its attractivity

- Raising attractiveness of universities at Master level and thus of the EHEA and the Japan Higher Education Area; foster quality improvements in involved HEIs and lead to excellence;
- Networking with experts and following news provided by the EACEA and MEXT, and other educational authorities to lead to excellence.

Programme Learning Outcomes (PLOs) developed throughout the Programme:

- Scientific knowledge and comprehension in multiple disciplines within photonics and information technology in general and imaging and lighting in particular;
- Skills for design and conduct of experiments, analysis and interpretation of data by methods of data science or artificial intelligence, problem analysis and problem solving;
- Design a system or process to meet industrial needs;
- Effective communication in oral, written, and other media forms;
- Critical thinking attitude;
- Social skills to function in a team and to participate in discussions;
- The insight of lifelong learning.

Unit Learning Outcomes (ULOs) are defined for each semester. In addition to these, learning outcomes are also defined for each individual course and are referred to as Course Learning Outcomes (CLOs) that are enumerated in the corresponding ECTS files.

The programme also aims at some long term objectives which students could reach during their career:

1) to have a successful career in an area related to photonics and/or information technology;
2) to become engaged in a multicultural and global research or industrial team;
3) to demonstrate career progression towards senior management and leadership positions.

The curriculum and relevant course topics have been defined in interaction with a number of representative companies and stakeholders from private sectors and professional associations. Most of them agreed to become Associate Partner. In this way, the programme aims to meet the industrial needs and includes topics related to challenging issues for industries and high-tech companies. It has been appreciated that the course topics are not limited to scientific and technological issues, but take into account creative skills (Lighting Design course) and commercial skills (Lighting Business course), confirming the high demand for a broad and multi-disciplinary formation of graduates.

B. Curriculum design principles[20]
The IMLEX curriculum is designed to guarantee academic excellence:

- The content of all units has been jointly defined by the full partners to guarantee a well-integrated curriculum.

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[20] IMLEX project description, paragraph 2.1, 2.7.

- It develops gradually, from semester 1 to semester 3, the skills and competences of students in the main IMLEX disciplines: information technology and photonics. Each semester corresponds to specific learning outcomes based on the acquisition of additional skills and competences that ensure a graduated learning along the training cycle.
- So as to ensure that all students develop either minimal skills in some fields (e.g. in photonics/imaging) or improve their current skills, the curriculum has been designed in a modular way. For example, in semester 1 students who do not have a sufficient background in mathematics have the opportunity to follow the unit "Mathematical methods for Photonics", meanwhile students interested by optics and photonics can follow the unit "Applications of Photonics". Students with a good background in data science have the opportunity to follow optional units in other disciplines rather than following the optional units in this field, or to develop their skills in this field.
- The mobility scheme has been built around the strength of each partner and from their complementarity, so as to benefit from their specific discipline areas, research activities and research facilities.
- The curriculum is designed by specialists in the disciplines taught who defined the content of each individual unit (topics of lectures, training materials, lab session materials).

C.   Academic calendar discrepancy solutions[21]

The discrepancies between Japanese and European academic calendars result in Japanese BSc students graduating at the end of March and autumn semester in Japan starting in October. Japanese students therefore get a preparatory semester (April-August), allowing to take additional computer science and language courses in order to improve their English skills (and even study some Finnish thanks to a free online course) before the start of the 1st semester of the programme at UEF. Students then again start their 3rd semester in Japan in October, and take their local induction week in Japan in September, facilitating handling the practicalities before starting their studies. Students moreover have their thesis defence and graduation ceremony in Japan, according to rules of TUT, but they may take their thesis placement outside Japan, as long as one of the supervisors is appointed as visiting professor (or professor) at TUT for the time of supervision.

D.   Credit units and study load measurements[22]

The Japanese credit unit system differs from its European counterpart. In the Japanese credit system, a curriculum consists of 30 credit units (CU) whereas the European system consists of 120 ECTS. However, a direct conversion between the credit units and ECTS is not possible due to other restrictions. During an earlier launched double degree programme between TUT and UEF, a CU modification has been bureaucratically finalized so as to increase the former 4 CU devoted to thesis in the TUT curriculum to 6 CU. In the Japanese system, students moreover need to include so-called general courses (such as language, culture and other "transferable skills courses") for 6 CU.

The workload for a student is 26,5 hours for ECTS and 45 hours for CU. Matching the course volumes for credit transfer provides a conversion factor between ECTS and CU. Use of workloads leads to the ECTS/CU ratio of 1,7. On the other hand, the use of the total volume of curricula leads to the different ECTS/CU=4 ratio. Furthermore, analysing this discrepancy by the workloads of individual courses, different weight factors are used for general (such as language) and IT/photonics courses. Based on the total course workload for lecture courses the ECTS/CU ratio of 2 is advisable for general courses such as language and culture courses, online courses on entrepreneurship and project management, study skills courses,

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[21] IMLEX project description, paragraph 1.4.
[22] IMLEX project description, paragraph 1.4.

research methods and so on. The Japanese requirement related to general courses is fulfilled based on these.

The Japanese ministry of education moreover applies a rule for the credit unit transfer limit from other university to the universities in Japan: only 10 CU can be transferred to TUT from other universities. This is one third of the total CUs required for the MEng degree. This 10 CU limit does nevertheless not apply to all courses and thus, the transfer of some courses is not restricted by this rule. The IMLEX curriculum has been designed taking all restrictions into account, fulfilling the requirements of all universities both in EU and Japan.

E.   Involvement of external partners in the curriculum[23]

Numerous topical courses give the floor to guest lecturers from associate partners, enabling direct knowledge and skills transfer. Industrials or representatives of public organisations related to the field are invited. These actors also offer topics for internships and master theses: in this way they contribute to co-create the content of the curriculum. During their internship and master thesis, students are co-supervised by a representative of the non-academic partner (together with an academic staff member from the partner university). The objective is to increase interactions between students, academics and industrials which allow continuous improvement of the curriculum.

Industrials also participate to the evaluation of the master thesis. The programme offers an online course about Digital Innovation and Entrepreneurship. Non-educational associated partners are involved in the selection and quality check of this course.

Process Genius is one of the industrial partners of the consortium, a company specializing in Digital Twin services aimed at industrial process plants. Sm4rtLab (www.sm4rtlab.fi), a new virtual laboratory platform developed at UEF, brings together augmented reality and photonics studies. It is a concept in which any physical laboratory in transferred to a IoT environment that is then controlled with its digital twin. The user interface of Sm4rtLab including the mixed reality version is developed together with Process Genius. The Sm4rtLab laboratory concept contains already several laboratories, and it is successfully used in remote laboratory exercises. Sm4rtLab concept and applications are to be developed further to support IMLEX teaching, research and inter-university cooperation.

F.   Curriculum validation[24]

A representation of the associate partners (at least one from Japan and one from Europe) is a member of the QAB to participate in the course evaluation and to continuously question the relevance of the programme.

During the annual IMLEX day, furthermore, a roundtable discussion on student skills needed by the industrial world (formal and informal skills) is programmed so as to keep the content of the programme up to date and relevant.

G.   Notes by the QAB[25]
   - With regard to the meeting on overlaps and incoherencies between course units: the QAB advises to organize an online meeting where the UEF teaching staff can discuss this with the teaching staff of KU Leuven and UJM. Discuss whether intentions to cover content/skills have or

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[23] IMLEX project description, paragraph 2.7.
[24] IMLEX project description, paragraph 2.7.
[25] QAB minutes 28 January 2021 and 3 June 2021.

have not been met due to the pandemic. It would be interesting to include someone from the QAB as attending will give us input on how we have been able to deal with the crisis.

- Check the status of current program development for the next AY and document issues where necessary.

H.　QA responsibilities summary[26]

Ref.	Topic(s) to be discussed	Key player	Target audience	Instrument/medium	Timing
QA8	Course approval	Local course director	AMB, unit heads	Internal mechanisms at each university	Before start of course
QA9	Overlaps and incoherencies between course units, advice and comments by the QAB	Local coordinator, course director	Local teaching staff	Oral discussion	Start + end of each sem

Related KPIs:

- **Criteria C2: Processes for the design and approval of the program**
  - KPI/C2/1: Approval of the program (course structure, credit recognition, curriculum/modules content and assessment/examination rules, etc.) by the AMB;
  - KPI/C2/2: Formal approval by the AMB of the changes/amendments in the curriculum requested by the QAB, or by local coordinator(s) or teaching staff(s), and documented;
  - KPI/C2/3: Checking by the QAB that Compulsory/Optional units defined in the program are available in each institution, as their syllabuses;
  - KPI/C2/4: Checking by the QAB that any issue arising (e.g. non-available units, credits deferred) and remedial, reported by the AMB are enough documented.

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[26] QAB meeting 28 January 2021; IMLEX project description paragraph 2.2.

Section IV. Student recruitment and admissions

A.   Purpose[27]

IMLEX improves inter-university exchanges between Japan and Europe. Recruitment is aimed at attracting excellent students and scholars. The consortium commits itself to keep on attracting students after the EMJMD-IUEP funding period.

The joint selection process is based on two main phases: evaluation of eligibility and selection.

B.   Application/selection procedure[28]

B.1.   Electronic submission of candidacies

The selection of students is managed with an electronic application. Candidates apply online via a common platform Studyinfo with a joint electronic application and procedure. Studyinfo is the national student application portal in Finland, which is used for processing all higher education student applications, including international master's programmes.

Candidates are informed about who can consult and validate personal information, and about guarantees with regard to secure access of provided information. The application process and the selection and admission procedures are explicitly stated in the IMLEX public website and thus available to all prospective students. Guidelines (and FAQ) are also available on the website.

The following documents are required for all applicants:

- an application duly fulfilled for admission, authenticated by the common online platform, which gives a user name and password to each applicant;
- a CV;
- a motivation letter. Each applicant has to express his/her interests/preferences among different units/specialisations proposed by the programme;
- copies of transcripts or other academic records that give proof of the undergraduate and postgraduate studies, including credits and grades achieved in each single subject;
- two letters of recommendation;
- a certificate of language proficiency in English (see below);
- research project and publications, if they are mentioned in the Curriculum Vitae.

As English is the language of the consortium, all these documents must be submitted in English (except copies of official original documents which must be accompanied by a certified English translation). The application are registered in the Studyinfo portal by a pre-approved deadline.

B.2.   Eligibility phase

UEF administrational coordinators inspect all applications and verify the completed online applications with regards to the EMJMD eligibility criteria, observation of deadlines and the compliance of all required supporting documents.

In particular, notice is paid to whether the applicant has an approved Bachelor's degree from an accredited institution, that the result of the Bachelor's degree is in accordance with the admission regulations, that the applicant is able to document sufficient knowledge of English and also whether there

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[27] IMLEX project description, paragraph 1.4, 4.1.
[28] IMLEX project description, paragraph 2.4, 3.3; https://imlex.org/how-to-apply/student-selection/ dd. 3 March 2021.

are any doubts as to the authenticity of the applicant's documents. Applicants who do not fulfil these formal admission criteria are marked as not eligible for admission.

Students obtain support from the coordination institution in case of questions or technical problems.

B.3.   Evaluation phase

Complete eligible applications are pre-evaluated by two AMB members based on geographic windows, grading each criterion for each application from 0 to 5 (5 Excellent, 4 Very good, 3 Good, 2 Satisfactory, 1 Sufficient, 0 Insufficient). The distribution of student applications (based on regions of origin) to partners is jointly decided by the full partners.

The number of places on the main list depends on the master's programme capacity to operate in optimal conditions. All applicants on the reserve list are allowed to enrol as self-financed students if they wish up to the maximum capacity.

The selection criteria are:

- Recognition of home institution/recognized first degree: 10%;
- Rank/grade/distinction: 40%;
- Letters of recommendation: 10%;
- Personal motivation: 20%;
- Adequate academic courses, experience, former international mobility: 20%.

Among the criteria used for the selection of IMLEX applicants, the following points are considered:

- Academic records; Excellence of the candidate: outstanding achievement in the applicant's BSc degree level (i.e. 180 ECTS in the EU system) or equivalent, in Technology, Engineering, or Computer Science. The applicants must have at least a C average on the ECTS grading scale or equivalent (e.g. GPA, CGPA) during their undergraduate studies;
- Language ability: applicants have to demonstrate during application an English language proficiency equivalent to level B2 in the Common European Framework of Reference (CEFR). A letter from the applicant's University proving that English is the medium of instruction throughout his/her degree is also accepted;
- Motivation. Applicants must clearly explain their present situation, the reasons why they are applying, their interest in the programme, their ideas of applied research, and their professional development plan.

B.4.   Moderation phase

All applications above the agreed threshold are evaluated by the other two members of the selection committee and reviewed by the selection committee.

During the selection committee meetings, all members have access to all evaluation scores/comments given by partners.

B.5.   Selection phase

The selection lists (admitted on main list, reserve list, non-admitted, non-eligible) is finalized during the selection meeting. During this meeting the AMB as selection committee:

- looks at selection scores (& associated comments) and ranks obtained by each applicant;
- looks at the interview scores (& associated comments);
- reassesses some scores, in particular Personal motivation and English Language skill scores if necessary (taking into account interview scores & new information obtained during interviews)

and Recognition of home institution & previous degree and Rank/grade/distinction scores if necessary (in case there is a too high discrepancy between the four evaluations);
- establish the final selection lists of admitted students based on the absolute ranking list. The lists (with unnamed references) are made public on the website and applicants are invited by email to consult the lists.

B.6.   Administrative verification phase

Selected applicants must present their original BSc degree documents to the coordination institution by mail of bring the documents upon arrival by September 2022. All official documents (transcripts, diplomas) will be checked to see if they comply with all host universities registration policies. UEF will check that students provide the required documents to avoid any subsequent problems in other host universities. UEF will inform members of IMLEX management teams and the EACEA about any change occurring on the lists (withdrawal, cancellation).

C.   Equity[29]

Giving a positive example of gender balance of peer students can be an important factor to promote the IMLEX studies for both male and female applicants. The consortium invites scientists and professional speakers of both genders. No gender, socioeconomic or disability bias exists in the selection of any student for this course. The selection criteria do not take into account gender of the applicants but quality of the application.

D.   Recruitment[30]

Student recruitment is based on 2 main guiding principles: produce own materials for dissemination and promotion to be used by all partners, and use existing tools available at the consortium partner institutions.

Recruitment materials include: an IMLEX website, a course brochure, course descriptions in the online course catalogues of each consortium partner. Recruitment efforts include a programme website, flyer, participation in EHEF fairs and other international recruitment fairs. First student stories are published in the IMLEX website and social media, to bring a first-hand experience and example of real student experiences.

The IMLEX website furthermore centralizes the information about the degree, the programme structure, the course catalogue, the application requirements and available scholarships, the employability prospects, testimonies, master thesis reports, the exam regulations, a FAQ section. UEF as a consortium coordinator coordinates the website.

Each consortium partner invites, informs and disseminates the new IMLEX master course to its own international partners network (e.g. exchanging information and materials with other consortium partners and associate partners in a "partners only section" on the website), and is engaged to attract the best students in their region. The professors and researchers involved in IMLEX regularly visit the strategic partner universities and organize face-to-face contacts with potential students and scholars, during scientific meetings and conferences.

The AMB sets up a task force for promotion/dissemination/recruitment (with one representative of each local project team in Finland, France, Belgium and Japan). This task force sets up a marketing plan for the promotion and dissemination plan:

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[29] IMLEX project description, paragraph 2.4.
[30] IMLEX project description, paragraph 4.1, 4.4; Erasmus+ technical report, Dec. 2020, p. 11.

- online promotion: use of existing online platforms such as Studyportals.eu (masterportals) and "mastersandmore.eu" to promote the programme;
- social media: Facebook/twitter promotion campaign, and use of Google analytics to monitor the social media response.
- alumni: implementation of a local IMLEX chapter by the Erasmus Mundus alumni association with alumni as student ambassadors recruitment fairs;
- physical promotion materials (brochures, roll-ups) to be used in recruitment fairs;
- recruitment agencies e.g. eMagister;
- focus countries: each of the consortium partners has a number of focus countries where supplementary promotion and dissemination efforts are made.
    o UEF: China, India, South Korean, Vietnam and Nepal.
    o KU Leuven: Japan, Poland, Romania, Russia, Thailand, and US.
    o UJM: Canada, Francophonie (e.g. Switzerland, Tunisia, Morocco, Vietnam), China (Shanghai area), Brazil, and Italy.
    o TUT: Malaysia, Indonesia, Vietnam, Finland, German, China, USA, France, and Belgium, and other countries expected to be active in educational exchanges.

The key target groups for the promotion and dissemination plan are:

- potential students;
- partner universities of the 4 consortium partners;
- associate partners and companies in the field of imaging and lighting;
- worldwide associations such as IEEE, SEFI, FEANI.

The IMLEX alumni network, linked to the EMA alumni association, is kept up to date about the programme in several ways.

The consortium commits itself to keep on attracting students after the funding period by publishing minimum 2 tuition fee waivers for each partner institution via the website.

E.   Notes by the QAB[31]
- Look into the procedure for promotion of the programme, in the own institutions as well as outside of the consortium, to promote it in the best possible way. How many applicants did we get from each country? Which approach was followed so far, and can we provide further advice? Analysing, developing and evaluating the communication campaign (which efforts have partner institutions undertaken in their own country, how could this be improved) might result in an increase in applications overall as well as in particular in Europe.
- Look into the selection process: was the selection procedure followed as described in the application, has the committee faced any issues, and can we give advice to improve the selection for the next round?
- We can expect +50% applications for student selection in the next round (cohort starting in 2021-2022). This may be challenging, especially if done by video call with technical difficulties. Set a date for the selection asap in February or March.
- COVID19 may result in less applicants from Asia the following years (cohort 2021-2022 and following). The consortium might have to take this into account in promotion, maybe focus temporarily on European applicants and others who do not need to travel far. Similarly for scholars. There is a minimum budget which needs to be spent on scholars, if we do not use this

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[31] QAB minutes 2 September 2020, 11 March 2021 and 3 June 2021.

we will have to reimburse this. If need be, revise the policies on student and scholar recruitment for the time being.
- We have a responsibility to correct errors in selection. If a student does not perform well, is not skilled enough or does not attend the activities, this should be detected as soon as possible, as the consortium will have to return those scholarships to the European Commission. We will need to have a look at the procedure to take this type of decisions, as well as how to check the progress and attendance of students who are not physically at the institution, especially in the case of asynchronous learning activities.
- Consider investing in credential evaluation (checking the validity of student applications for fraud). As a consortium it is our responsibility to check the diploma validity of applications. The UK NARIC database is probably the most useful available instrument if we would consider doing this ourselves. In case of fraud, we will be required to refund grants.
- Promoting gender balance: suggestion: interview a female student about her experiences in the programme and include this testimony on the website for recruitment purposes. Perhaps also include some interviews with female staff in the future.
- Start the next active recruitment campaign already in September-October. We have to succeed to attract the necessary number of students from these regions and to make the programme known. And in particular for this cohort: to convince both students and their parents that the pandemic is currently manageable to provide a good study experience, that there is no reason to postpone an international study programme (is interesting for their future career but also a good programme in terms of organization and with regard to safety precautions).

F.   QA responsibilities summary[32]

Ref.	Topic(s) to be discussed	Key player	Instrument/medium	Timing
QA10	Student selection process	QAB	Review	Yearly

Related KPIs:

- **Criteria C4: Students admission, progression, recognition, and certification**
    - KPI/C4/1: Checking by the QAB that the annual student's selection process is implemented as stated in the QASPH;
    - KPI/C4/2: Checking by the QAB that the students' progression/achievement is, throughout the Master's cycle, monitored and documented by the AMB;
    - KPI/C4/3: Checking by the QAB of the recognition(s)/certification(s)/diploma(s)/diploma supplement obtained by the graduated students;
    - KPI/C4/4: Checking by the QAB that students' complaints and appeals are monitored and well documented by the AMB (in connection to C17).

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[32] IMLEX project description, paragraph 3.3.

Section V. Mobility and student guidance

A.   Purpose[33]

The programme overcomes differences in higher education systems between Japan and Europe so as to facilitate inter-university exchange.

Language courses are integrated in the curriculum for various reasons. The Japanese courses are aimed to prepare non-Japanese students for the semester in Japan. The English language course is designed to boost the academic language skills of any non-native English speaking student. Learning the local language ensures integration: in the local university, with other international students, and through the cultural dimension of the language. In addition to a formal language learning unit, students have the opportunity to develop their language skills in informal ways such as in practical situations of their daily life.

B.   Information related to mobility[34]

A students/guest lecturers handbook containing information on administrative procedures, student support and facilities, visa and residence permits, accommodation, banking and financial issues, health and insurance, travel, everyday life, culture, weather, environment and tourism is available on the IMLEX website and is sent in a PDF form in May to all selected students.

Each hosting HEI offers international student events and an information package and web links about services offered to international students by the partners, regulations and practical arrangements.

Scholars receive specific information related to their family situation: information and support on childcare, schooling for children, visa procedures.

During mobility, students benefit from the support of the administrative staff of the academic partners (student office, international relations office, finance department, sport & cultural facilities office, internet access, social services, technical staff and so on).

C.   Support for accommodation and administrative formalities[35]

- Visas: The coordination office and the IMLEX partner universities staff provide supporting documents and updated information about the visa process for the first incoming mobility from outside the EU and the intra-EU course mobility. Personal support is given when the procedure is proving too long in particular cases (e.g. direct emails or phone calls to consulates). Depending on the national situation, the non-European IMLEX students can benefit from the new mobility notification possibility. According to new instruction, if a student has a valid residence permit issued by another EU Member State and if the studies are covered by a Union or multilateral programme that comprises mobility measures or by an agreement between two or more higher education institutions, they have the right to carry out part of the studies in another EU country. With a mobility notification, students can study in another EU country for a period up to 360 days. With this procedure, the students avoid applying two separate residence permits during the first year of studies. The International Affairs Division at TUT has published detailed instructions for the Japanese visa process, and the Division helps and supports the process.
- Enrolment: all students are accompanied to enrol at UEF central office during the induction period in September. For the second year, the coordination office registers all students. Dedicated staff

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[33] IMLEX project description, paragraph 1.4.
[34] IMLEX project description, paragraph 2.4.
[35] IMLEX project description, paragraph 2.4.

of Partner universities organizes and facilitates the registration of students in their university depending on their mobility.

- Accommodation: services are offered by the 4 partners via their international office or their student welfare office. For instance, at UEF, the student housing company Joensuun Elli offers housing for students, and the housing application can be done online as soon as the student has been admitted. At UJM, the local administrative coordinator contacts all students before arrival and welcomes them at the train station. The administrative coordinator collects room keys beforehand and makes any other necessary arrangements. At KU Leuven, the Housing Service manages the student housing options and helps in making reservations. At TUT, there are different housing options on campus: Student Dormitory, International House and TUT Global House, and the International Office reserves housing for IMLEX students.
- Bank account: In Finland, during the induction week, all students open a bank account. The students are assisted by the IMLEX administrational staff and student tutors. In mobility the students could open another account in the mobility country to avoid charges due to currency conversion.
- Language training: the instruction language is English but students have the opportunity to learn French, Dutch, Finnish and Japanese from A1 to B2 level during mobilities. During the semesters 1, 2, and 3, the students have compulsory language studies, either Japanese, English, or national language.

D.   Student agreement[36]

The student agreement contains all the necessary information on student rights and obligations related to academic, administrative and financial aspects of the programme such as examination rules, resits, scholarship payments and internship regulations. The agreement includes also the obligations and rights of the consortium.

The student agreement is sent to students electronically together with acceptance notification and students are required to sign the contract at the latest on the day they accept the study place in the programme. Thus, students are fully aware of the agreement conditions upon accepting the study place. The consequences for breaching the agreement are explained in the agreement and are discussed in detail during the induction week at UEF.

E.   Induction and orientation[37]

The IMLEX programme starts officially with an induction week at the beginning of September. Students get to know about expectations of teaching staff, Bologna ECTS system, and structure of courses, study periods and academic custom and rules in each consortium institute. Students also meet their academic advisors, local staff members and tutors. Therefore, the induction week includes

a) familiarizing students with the IMLEX programme and its partners, and all the practical matters related to studying in this specific programme such as student rights and obligations, scholarships and payment schedules, requirements related to scholarships, mobility paths, different specialization areas and schedules for semesters;
b) networking activities for new students and alumni;
c) workshops + talks by scholars, guest lecturers and industries;
d) following thesis defences and graduation ceremony of more advanced cohorts (online or on campus).

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[36] IMLEX project description, paragraph 2.5.
[37] IMLEX project description, paragraph 2.3.

Students are strongly encouraged to join the social media channels of the programme (WhatsApp, Facebook, LinkedIn) as soon as they get selected so as to stay connected to peers.

The rest of the induction week is combined with an orientation week for international students organized by the university international office, to give them a smooth start to their studies. Orientation provides students with

a) information on studying (how to register to courses/exams, resit options, examination behaviour, grading policy, plagiarism rules,..) and student life at UEF (student clubs, health care services, student unions, student card, student discounts, student trips, available language courses, ..);
b) basic information on Finland and Finnish culture; and
c) practical tips on daily life and free time activities. In addition, orientation week is a perfect way to network with other students.

The university study skills course organized at UEF in September is meant to improve students' skills to learn and teaches them how to manage feeling of stress.

At the start of the following semesters, the subsequent host universities UJM, KU Leuven and TUT as well organise a specific local induction period for incoming IMLEX students and assign tutors/local buddies who help newly arrived students with orientation in the city, the culture, the basic local customs, the everyday life, language etc.

During the 1st and 2nd semesters all students must take one language course per semester. Students are furthermore encouraged to take additional local language and culture courses during their studies, as well as additional online courses on discipline-related topics.

F.   Briefing and debriefing[38]

At the start and end of each semester, each local coordinator meets the local teaching staff to synchronise teaching and training activities and to discuss overlaps and possible incoherencies between units. They discuss guidance, advice and comments proposed by the QAB in order to solve problems if any and to improve the overall quality of learning and teaching activities.

To ensure good communication and information about the cohort in general and individual students, the teaching staff of semesters 1 & 2, local coordinators and course directors get together (by videoconference) at the end of semester 1. They discuss the progress of students, theirs strengths and difficulties, the necessary adaptations in the teaching style and content to apply, coherence of units content and exams, and identify the missing knowledge to acquire. The same process is followed between semesters 2 & 3.

Students meet the course director twice a semester to have a global discussion on the study programme, teaching units, training activities and learning outcomes evaluation.

Local coordinators and course directors meet by video-conference (at the beginning of each semester) to discuss management and academic issues. For major units, the local coordinator organizes teaching activities in coordination with the other IMLEX full partners.

IMLEX is evaluated by internal and external quality assurance bodies and by students. IMLEX commits to fulfil the recommendations of quality assurance bodies, and relevant requests from students, before the start of the following intake.

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[38] IMLEX project description, paragraph 2.1-2.2.

G.   Student counselling[39,40]

Student guidance is tended to by the hosting institution: students have a local academic advisor in each university where they study. These advisors supervise the work of students through a teaching follow-up linked to the Learning Diary process. Each student and his/her academic advisor meet at least once a month. Local academic advisors are available to students during office hours to answer students' questions.

The local coordinator, course director and lecturers are available to students during office hours to answer students' questions and can also be contacted by email.

The local coordinator also meets the students to advise them about the different teaching cultures and practices.

Local faculty advisors discuss with students in an informal way. The faculty advisors are typically alumni from the programme. They coordinate the mentoring action. They discuss coursework, grades, progress, mobility, personal study plan, or even personal issues if necessary.

All IMLEX students are assigned a student tutor from UEF, a student who has passed tutor training and has experience in living in Joensuu and university practices. Each tutor has 6 - 8 students in their tutoring group. The tutor contacts them before arrival and meets them at the airport or train station. Tutors collect room keys beforehand and help with registration, opening a bank account if needed and other arrangements.

At UJM, IMLEX students are assigned also a local student tutor. The UJM tutors interacts with the UEF tutors in order to maintain a continuous and smooth tutoring throughout the duration of IMLEX studies. At UJM tutors provide the same services as at UEF (e.g. collect room keys). IMLEX students benefit during their stay at UJM from social programmes, sports facilities and trips offered by the local student union.

At KU Leuven, a local experienced team support the academic staff to make sure students become fully integrated at the campus. They organize an official welcome event and orientation days, help with finding accommodation, student associations, health and social care systems, counsellors for special needs students, opening a bank account and registration with the city administration, extra-curricular/leisure activities, etc.

At TUT, international students are assigned supporters to facilitate everyday life. Supporters help international students with many procedures for study and daily life in TUT for one year maximum. International students receive the "Guide Book for International students", which provides information about living in TUT (VISA, Scholarships, Campus life, Housing, Medical and Health Care, Daily life and so on). The Core of International Relations supports international students by providing counselling, Japanese language courses and an International Exchange day.

The student union offers social programme, sports facilities and trips throughout the academic year.

H.   Financial issues and scholarships[41]

The consortium coordinators at UEF and TUT are responsible for managing financial issues. TUT handles scholarships coming through MEXT for Japanese whereas UEF is responsible for all the other scholarships. EMJMD-IUEP scholarships are intended to cover IMLEX participation costs & part of the living cost. The

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[39] IMLEX project description, paragraph 2.1-2.2, 2.4.
[40] Erasmus+ technical report, Dec. 2020, p. 8.
[41] IMLEX project description, paragraph 2.5, 3.4; https://imlex.org/fees-and-scholarships/ on 3 March 2021.

administrative coordinator at UEF is in charge of financial issues of the consortium and works in close collaboration with the central financial office at UEF.

An IMLEX student handbook and student agreement provides detailed information on monthly subsistence scholarships and travel and installation scholarships. Scholarship amounts, payment schedule and conditions are explained in detail in the agreement, as well as actions that might cause cancellation of monthly scholarships and mobility grant.

All students receive a bank account in Finland and they are able to use this account online throughout their studies. UEF pre-books the times for the bank in order to speed up the process. In addition, students receive a Japanese bank account during their induction week in Japan.

As soon as students have Finnish bank accounts, they can be registered into the UEF financial system, and the payment of scholarships can be started within a short period of time. Progress of studies is carefully monitored throughout the programme. Hosting universities have an obligation to notify the coordinators at UEF and TUT if they discover any conditions that would endanger following the student contract or notice anything that would put it into breach. Scholarships are to be paid at the beginning of each month.

Students can apply for Erasmus Mundus scholarships, EMJMD scholarships, JASSO scholarships and consortium scholarships.

I. Insurances[42]

A comprehensive insurance package is offered to all IMLEX students (irrespectively of the source of funding). The insurance is issued for each individual student, and the global bill is sent to UEF (in case of EU funded students and self-sponsored students) or TUT (for MEXT funded students). The cost of this insurance is covered by the consortium's pool of money.

The insurance package chosen at the UEF responds to the minimum requirement set by the EACEA. Students receive relevant documents and instructions during induction week.

Non-Japanese students need to join the National Health Insurance programme during their mobility to Japan. This cost is covered from the IMLEX budget.

J. Safety and risk management[43]

Upon arrival to a new mobility destination, IMLEX students have an induction period, where also matters of safety and possible risks are presented. It is important that each partner university has their own system in case of emergencies. These services need to be local and adapted to local conditions and risks. The AMB reacts on consortium level to any major incidents.

UEF has defined providers of help in various crisis situations. They are listed in the UEF student handbook available online (https://kamu.uef.fi/en/student-book/help-in-crises/).

KU Leuven has an Advisory Committee on High-Risk Destinations, which provides travel and safety advice before the start of a student mobility, as well as a Student Crisis Cell, which contacts and supports students in case of an emergency situation abroad. Safety and emergency protocols are in place on all KU Leuven campuses in Belgium, and students are provided with all relevant information at the start of their stay.

UJM has a dedicated person in charge of the defence and the security of students, teaching and administrative staff. All students going outside the EU for an internship or a mobility for studies have to

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[42] IMLEX project description, paragraph 2.4.
[43] IMLEX project description, paragraph 2.4.

ask for her authorization to leave the country to a specific one. The answer depends on the advice of the French Ministry of Foreign Affairs (https://pastel.diplomatie.gouv.fr/fildariane/dyn/public/login.html). The decision is based on geopolitics or depending on the natural risks for certain geographic areas. This contact person is also in charge of the "Plan Vigipirate" to prevent from terrorists attacks. In addition, UJM set up a crisis unit in case of emergencies: UJM students and staff receive an SMS in case of crisis and the situation is dealt according to a process defined beforehand. The access to UJM campuses is restricted: anyone needs a pass to enter all buildings. For any medical emergencies, UJM developed a service with several medical specialists: all students and staff can make an appointment whenever this is needed.

TUT has advising services for International students, with dedicated staff members, and health care services. School nurse and doctor are available for physical and mental well-being guidance.

K.   Equity[44]

UEF has specific policies and instructions to assure accessibility and special arrangements, and as the coordinating institution, is responsible for organizing equal study opportunities for all IMLEX students. If needed, a student can be granted special arrangements, e.g. extra time for completing an examination. All partner universities adapt the same arrangements, once granted. There is also a nominated contact person for accessibility issues (https://kamu.uef.fi/en/student-book/accessibility-in-studies/).

At KU Leuven, the Diversity Policy Office gives support to reassure that people with different backgrounds and beliefs get the chance to fully develop themselves and to promote the recruitment and (out)flow of a diverse student population by means of specific actions.

In all partner universities, dedicated facilities are available to students from disadvantaged backgrounds and to students with disabilities. For example, provisions for wheelchairs (reserved parking places, ramps to access buildings, adapted student housing) as well as facilities for visual or auditive disabilities (large letter books, etc).

L.   Notes by the QAB[45]
-   Set up a questionnaire/survey or focus group conversation to get feedback from students on their arrival and on the induction period: satisfaction about the information on housing, visa procedure, did they have specific questions upon arrival and during the induction period, what is their background and how did they get to know the programme, …? So as to provide even better service next year to meet students' expectations.
-   During induction week: inform students on the European grading system and the value and meaning of specific grades, on the European credit transfer system, on plagiarism, ... (See also: student handbook.)
-   With regard to collecting feedback about the induction week, information package, etc: in other programmes this is often done by the local coordinator in an informal way by way of stepping into the classroom shortly before classes. If the discussion is about practical issues: contact Ilse Roelandt (KU Leuven) and Amelie Genvrin (UJM). If the topics are pedagogical: contact Peter Hanselaer (KU Leuven) and Philippe Colantoni (UJM).
-   Schedule the teacher meeting sem2-3 in June at the latest, so sem2 staff members' experiences are still fresh in mind and so sem3 teaching staff still have time to adapt activities.

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[44] IMLEX project description, paragraph 2.4.
[45] QAB minutes 2 September 2020.

M.   QA responsibilities summary[46]

Ref.	Topic(s) to be discussed	Key player	Target audience	Instrument/medium	Timing
QA11	Teaching cultures and practices to expect	Local coordinator	Students	Face to face meeting	Start of each sem
QA12	Current student cohort and individual students (progress, strengths, difficulties, necessary adaptions to teaching, missing knowledge)	Local coordinators	Teaching staff sem1-2	Video-conference	End of sem1
			Teaching staff sem2-3		End of sem2
QA13	Local induction week, services provided (housing etc.), information package, relevance of specific documents	Local coordinator	Students, scholars, guest lecturers	Online survey, focus group conversation, online interview or similar	End of each sem

Related KPIs:

- **Criteria C7: Information management for effective management**
    - KPI/C7/1: Checking by the QAB that the implementation of the technical and administrative operations (such as welcome and induction, housing and practical information, collection and monitoring of student's curriculum choice, support the organization of common and compatible modules schedules, and preparation, collection and distribution of periodic reports) by full partners is monitored and documented by the AMB;
    - KPI/C7/2: Checking by the QAB that the annual budgetary redistribution between partners (and participation costs, scholarships policy, sustainability policy, etc.) is formally approved by the AMB;
    - KPI/C7/3: Checking by the QAB that reporting to EACEA and full partners is clear and available and well anticipated (in connection with C16).
- **Criteria C8: Public information: clear, accurate, objective, accessible**
    - KPI/C8/1: Checking by the QAB that the information available on the IMLEX website is clear, accurate and objective;
    - KPI/C8/2: Checking by the QAB that the information sent to students and stakeholders is clear, accurate and objective;
    - KPI/C8/3: Checking by the QAB that the QASPH is publicly available on the IMLEX website;

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[46] QAB meeting 2 September 2020 and 28 January 2021.

- KPI/C8/4: Checking by the QAB that the annual QAB summary edited by the QAB is publicly available on the IMLEX website (in connection with C15)

Section VI. Teaching and learning

A.   Purpose[47]

On top of the benefits of mobility and unit integration, IMLEX experiments with Flipped Classroom teaching methods, Projects/Challenges-based teaching methods, and students' self-assessment involving alumni. IMLEX moreover implements new teaching methods, currently tested at UEF to dissolve boundaries between theoretical and experimental science using augmented reality environment combining science and teaching – called the Sm4rtLab concept in which the physical laboratory is controlled with a digital twin, enabling laboratory exercises from anywhere.

With further regard to teaching formats, the curriculum:

- Improves students' learning performance by developing self-learning, critical spirit and scientific curiosity, encouraging active involvement of student in learning and training activities, by putting student at the heart of the learning process;
- Enhances employability and improves career prospects by developing training activities centred on industrial needs, developing skills and competencies demanded by employers, developing networking activities with the world of work;
- Increases sense of initiative and entrepreneurship by offering a digital innovation and entrepreneurship unit;
- Improves foreign language competences and enhances intercultural awareness by offering national language and cultural units;
- Enhances active participation in society by visits of companies, research-based industry-academia collaboration such as industrial projects/projects in research labs;
- Enhances the awareness of European/Japan professional world (manufacturing industries and high-tech companies) by seminars by R&D engineers and scientists, internships, networking events;
- Enhances the awareness of European/Japan students of multicultural diversity.

IMLEX partners moreover endorse tools to ensure that students can exchange information, help each other and build a community.

Selected educational materials are made freely available and promoted through licences/open educational resources in order to increase the impact of the programme.

B.   Teaching formats[48]

UEF offers classic lab sessions as well as remote sessions for practical work.

For projects, very specific pedagogical methods are implemented with, for example at UJM, several projects on the same theme defined at the beginning of the semester on the basis of a research or industrial issue. In order for students to be totally focused on their projects, 3-day sprints are organised for modules "Real time 3D visualization" and "Real time processing of conventional/non-conventional images with GPUs", during which they work exclusively on their realization. The module "Complex computer rendering methods" aims to have IMLEX students create a complete application based on all the knowledge acquired during the semester. This project is be finalized as part of a full week-long workshop at the end of the semester.

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[47] IMLEX project description, paragraph 1.4, 1.5, 2.2, 2.6.
[48] IMLEX project description, paragraph 2.1.

TUT includes a project where students work in multidisciplinary groups of students who have completed their semester at KU Leuven and UJM. The objective is to show them the complementarity of the different themes they were able to address in their respective semesters as well as their capacity to innovate.

Students get access to and are motivated to make use of the third places dedicated to creativity and entrepreneurship in each universities. They are offered the opportunity to participate to hackathons, multidisciplinary workshops, etc.

The link with industrial or research issues is addressed by students as part of their (mandatory or optional) internships. Internship locations are chosen based with care by the IMLEX management.

C.   Learning environment[49]

During each semester students have access to state-of-the-art: technological platforms, third places and technological equipment. In UEF the Sm4rtLab and the EPIC Challenge JNS (http://www.epicchallengejoensuu.com/en/), an innovation platform for students. In UJM, a technological platform "Sensors, intelligence and increased vision" that aims to provide students a large number of imaging sensors, VR and MR devices, etc.; a computing grid dedicated for machine learning and computer vision; the Innovation Factory dedicated for student creativity and entrepreneurship.

D.   Assessment of informal learning[50]

The evaluation of informal learning outcomes (e.g. professional and cultural skills) is based on a set of questionnaires, all students (self-evaluation), lecturers, and invited scholars completing one questionnaire per unit. The result of these questionnaires are discussed during a tutoring session between each student and his/her academic advisor. Lecturer questionnaires are discussed in quality board meetings. A hierarchy of conceptual levels, instead of measures of absolute workload, are proposed to students as an alternative qualitative interpretation of credits (e.g. generic cognitive skills).

E.   Intercultural awareness experiences[51]

Throughout the programme, students develop an adaptability to a multicultural environment which provides them with efficiency and flexibility. This is achieved by exposing them to a variety of intercultural experiences: lecturers cultural origin (from EU, Japan and outside EU), teaching styles (within HEIs in EU and in Japan), communication styles (e.g. hierarchical relationships are more strict in Japan than in Europe), communication with people sited in different places using different systems (e.g. Skype and videoconference), students' cultural origins (from various countries from EU and outside EU), through their mobility scheme between different geographic areas (Western and North Europe, and Japan), through team work activities (lab sessions, industrial project), through internships either in EU or outside EU, in national or international companies, being in contact with local students and other international students enrolled in the same HEI.

F.   Language skills[52]

Student develop and improve their languages learning skills with the national language and culture units in the IMLEX curriculum (i.e. Finnish/French/Dutch languages). Japanese students have to follow in Semester 1 in Finland a mandatory English (and EU culture) course adapted to their English skills. On the other side, students from outside Japan have to follow in Semesters 1 and 2 (i.e. in Finland, next in France or Belgium) a mandatory Japanese language and culture course to develop at least a beginner level (e.g.

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[49] IMLEX project description, paragraph 2.1.
[50] IMLEX project description, paragraph 2.2.
[51] IMLEX project description, paragraph 1.5.
[52] IMLEX project description, paragraph 1.5.

at KU Leuven, the Leuven Language Institute offers, in addition to language courses included in KU Leuven curricula, a wide range of other courses, seminars and workshops as well as online learning tools, translation/revision services and testing).

G.   Professional skills[53]

Students acquire transferable skills (formal and informal skills such as research ethics, critical thinking, presentation and scientific writing) and professional skills (scientific and research, technical and technological skills; adaptation, entrepreneurship and innovation skills) regarding the work environment. IMLEX directly involves professionals (in seminars, workshops, presentations, company visits, technology presentation, devices and tools presentations, etc.), strongly implicates students in the industrial world (during 6 months for their master thesis and during the Summer break between 1st and 2nd year with an optional internship), and puts them in contact with it (e.g. work experience with high-skilled experts at Japanese manufacturing companies).

H.   Networking[54]

Meeting and networking with researchers, academics, R&D engineers or scientists, through visits of companies, seminars, guest lectures, projects, LinkedIn, etc. all along the programme exposes students to the work environment. Some courses are made available to staff from companies, resulting in the possibility to create micro networks between students and companies. During the internship and master thesis, the host organization opens its networks towards students, such as research networks, industrial communities, EU Networks, Japanese networks and academic networks within or outside EU.

An alumni network addresses the increasing needs for sustainability. This network is to include prospective applicants, students, academic staff and industrials, through a Facebook group. Both academic and industrial associate partners ensure effective integration of the EMJMD–IUEP student into their relevant networks by contributing actively to the staff mobility (lectures, seminars and tutorials) and by organizing student visits to their facilities as included in the programme. The programme has at least 4 scholars per intake and invites guest lecturers for short visits allowing students to create networks beneficial in both present and future.

Regular interaction between students and company representatives is provided. During the annual IMLEX day, students also get the opportunity to meet industrials. At this event, organized in September during the induction week, industrials and employers learn more about IMLEX and the collaborative opportunities offered to companies wishing to support the programme. Industrials provide and attend oral/poster presentations given by newly postgraduate students.

I.   Entrepreneurship[55]

In order to encourage entrepreneurship an optional course on "digital innovation and entrepreneurship" is developed under the coordination of UJM. The course is tailored to personal needs, pace of learning and maturation level of the entrepreneurial/professional project of each student to improve their entrepreneurial competences. The contents are available at any moment and regardless of the geographical location of the learner during their project. The content is guided and assessed with the Entrecomp tool. The Entrecomp skills assessment, a reference at the European Union level [4], are used to define a target of progression which the individualized courses fulfil. Furthermore, the optional but

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[53] IMLEX project description, paragraph 1.5.
[54] IMLEX project description, paragraph 2.6.
[55] IMLEX project description, paragraph 4.3.

encouraged industrial internships learn students to understand the importance of being creative and taking initiative.

J. Internships[56]

An optional internship of a couple of months in one of the Partner Countries in a research centre or in the private sector is programmed between semester 2 and 3. Each year, the consortium provides a list of host institutes or companies willing to accept a student. Ideally, the number of offers in the list should be at least twice the number of students showing their interest during semester 2. The positions available at the associate partners offer a good starting condition to reach a sufficient number of opportunities offered to students. Of course, students can propose host institutes or companies themselves. The AMB manages, negotiates and designates the student-host allocations. A full time stay of a few months provides an exceptional experience for the student and an opportunity to learn, understand and adapt to a different academic or industrial environment. Students can opt to get business experience in an industrial environment relevant to the topic or IMLEX-related research experience when selecting an academic partner.

K. Thesis supervision[57]

Thesis supervisions in IMLEX are done so that in each thesis, there is supervisor from TUT. Also in those theses done outside from TUT, the local academic member or industrial representative is named as co-supervisor. This way, students are supervised by the most specialist academic member (either a full or an associate partner) depending on the thesis topic. This specific academic supervision guarantees both fulfilment of the scientific expectations of the thesis work and support of the students. Additionally, this fulfils the bureaucratic requirements of both Japanese and European HEIs.

L. Learning Management System[58]

In order to guarantee this academic excellence, all partners of IMLEX share a Learning Management System (LMS) based on the UEF Moodle platform. It is used to monitor student progress and performance, track skills and certification, personalize and optimize the online training experience, improve eLearning accessibility, etc. This LMS also establishes reports and analytics for the pedagogical team.

M. Open Educational Resources[59]

The Learning Management System (LMS) is based on the UEF Moodle platform and uses standard storage formats, allowing teaching teams to produce innovative sharable pedagogical contents. Some of the contents on this LMS are opened with intellectual property licenses allowing its use, adaptation and distribution free of charge. This Open Educational Resources (OER) part of the LMS includes: tutorials, corrected exercises, frequently asked questions, code examples, interactive demos, online training methods, video-recorded courses, and all non-confidential Master Theses.

Moreover available in open data: a set of conventional and non-conventional images produced and used as part of the courses of this master degree: colour and HDR images and videos, spectral images, 360° images, stereoscopic images and videos, 3D captures, etc. These data sets are linked to the LMS for easier usage. These only use standard formats except for specific non-conventional images which are not yet standardized. All data is freely available for pedagogical and research purpose.

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[56] IMLEX project description, paragraph 2.6.
[57] IMLEX project description, paragraph 1.4, 2.1.
[58] IMLEX project description, paragraph 2.1.
[59] IMLEX project description, paragraph 4.5.

Some seminars are recorded as standard videos or as 360° videos. These videos are freely available through a web interface dedicated for VR headsets.

For student projects not based on confidential themes proposed by industrialists or researchers, students are asked to distribute all elements related to their project (source code, documents, etc.) with licenses allowing its use, adaptation and distribution free of charge for pedagogical and research purpose.

Distribution is organized by IMLEX on a common distribution platform. Remote lab sessions in Sm4rtLab, with a co-funding from UEF, are available (part of the UEF open science strategy).

N. Notes by the QAB[60]
- Related to challenges posed by COVID19: discuss the feasibility of online/blended learning for each course unit for the next semesters. It is important to avoid dissimilar competences for students on campus compared to students enrolled remotely. If certain content cannot be taught remotely, discuss whether it can be skipped or if it is possible to postpone.
- Continue to implement adaptations in the next semesters as well to compensate for the disadvantages of remote learning (COVID19 safety measures). E.g. record theoretical classes so students can watch these in their own time; plan interactive sessions at reasonable time slots taking into account each partner's time zone; provide a social media platform for students to stay connected to peers and lecturers (Moodle, WhatsApp, Discord, …).

O. QA responsibilities summary[61]

Ref.	Topic(s) to be discussed	Key player	Target audience	Instrument/medium	Timing
QA14	Knowledge, skills and competences	Teaching staff	Students	Teaching approach (labs, projects, sprints, workshops, multidisc group work, technological platforms, …)	As part of modules
QA15	Scientific expectations related to master's thesis	Master thesis supervisor	Students	Project updates	As part of module
QA16	Research related to courses taught	Each lecturer		Own academic research	Continuously
QA17	Networking, relevance to industry and society	Teaching staff	Professional field, teaching staff, students	Guest lecturers, site visits, internships, third places at each university dedicated to	As part of modules or optional

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[60] QAB minutes 28 January 2021.
[61] QAB meeting 28 January 2021; IMLEX project description, paragraph 2.2.

				creativity and entrepreneurship	
QA18	(Self-)evaluation of informal learning	Teaching staff	Students, teaching staff, scholars	Questionnaire	As part of each module
QA19	Student progress and performance, skills, certification, learning analytics	Pedagogical team	Students	Reports generated by Learning Management System (LMS)	Continuously
QA20	Study programme, teaching units, training activities, learning outcomes evaluation	Local course director	Students	Oral discussion	2x/sem
QA21	Curriculum, course contents, acquired competencies, lecturers' teaching skills	QAB	Students	Online survey	End of each sem
QA22	Individual mentoring (coursework, grades, progress, mobility, personal study plan, personal issues, informal learning questionnaire results)	Local academic advisors (typically alumni)	Students	Informal contacts, face to face meeting, tutoring sessions	Min. 1x/month

QA23	Ad hoc questions and issues	Teaching staff, local academic advisors, local coordinator, course director	Students	Informal contacts, email	During office hours

Related KPIs:

- **Criteria C3: Students-centred teaching, learning and assessment**
  - KPI/C3/1: Checking by the QAB that all dimensions of the teaching and training program (teaching methodologies, learning methodologies, training methodologies, unit learning outcomes evaluation, etc.) is coherent with the European Higher Education expectations;
  - KPI/C3/2: Monitoring by the QAB of the quality of learning and teaching activities, formal, non-formal/informal learning outcomes (low level objective), course coherency and units sequencing (at semester and program level, and across partner sites), course learning outcomes, teaching coordination among semesters and partners (higher level objective);
  - KPI/C3/3: Monitoring by the QAB of the adequacy of the educational program with academic expectations and industrials needs identified and the relevance of related changes or updates proposed within the curriculum (long term objective).
- **Criteria C6: Provision of learning resources and students support**
  - KPI/C6/1: Checking by the QAB that sufficient and adequate learning resources and support is provided to the students during their studies;
  - KPI/C6/2: Checking by the QAB that sufficient and adequate teaching resources and support is provided to the teaching staffs.

Section VII. Academic results and learning outcome evaluation

A.   Purpose[62]

All ULOs are evaluated using a variety of instrumental assessments (formal and informal, summative and formative assessments). For each unit, these assessments are designed so, that they evaluate how well the student has reached the ULOs of the unit. A common framework between the partners for achievement of credits, subject to qualification descriptors of national authorities and relevant sectorial and professional bodies, guarantees academic integration and quality assurance across the programme. The validation of learning outcomes is embedded in the learning process, so as to make this a part of the holistic learning activity.

After successful completion of the curriculum, students receive multiple degrees from the full partners according to their mobility and the national legal systems. Students spend their 1st semester in Finland, the 2nd semester in France or Belgium, and their 3rd semester in Japan. They consequently receive three or four diplomas:

- Finland, UEF: Master of Science in Computer Science, specialization Imaging and Light in Extended Reality;
- France, UJM: Master of Science in Optics, Image, Vision, Multimedia (OIVM), specialization Imaging and Light in Extended Reality;
- Belgium, KU Leuven: Master of Science in Imaging and Light in Extended Reality;
- Japan, TUT; Master of Engineering degree in Computer Science and Engineering, specialization Imaging and Light in Extended Reality.

In addition, students receive official transcripts detailing the studied curriculum. Following the guidelines by the EC, Council of Europe and UNESCO/CEPES, successful students are delivered, by the Consortium, a Joint Diploma Supplement. It is issued by the coordinating institution and signed by the four Full Partners' legal representatives. It describes the specific curriculum contents and certify the degree and the results obtained. This single document specifies the nature of the IMLEX programme (selection process, mobility, joint educational programme, graduation process, etc.). For each student, it gives information on the different units studied, the grades obtained in each unit, the host institutions, the specializations followed and additional information such as the language of instruction, the subject of the Master thesis and any additional training of the student (e.g. extra optional units validated by ECTS). The Joint Diploma Supplement is delivered in English (the language of the Programme) by the coordinating institution.

The Consortium Agreement (CA) signed by all partners makes it mandatory for full partners:

- To fully recognize the degrees in each corresponding country;
- To jointly recognize the units and corresponding ECTS awarded in each higher education institution acting as full partners for the award of their own national diploma;
- To recognize the mandatory mobility periods at host institutions and to linked these to the awarded degree.

B.   Assessment procedure[63]

Each of the IMLEX partner universities follows their national legislation for the processes of examination, course evaluation and thesis defence. Nevertheless, the rules are harmonized to create a joint procedure. The instructor of each course explains the evaluation system in the beginning of each course, and the

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[62] IMLEX project description, paragraph 1.2, 1.4, 2.2.
[63] IMLEX project description, paragraph 3.3.

grading is also explained in the course description. If a course is evaluated using a course exam, the students always have two examination opportunities to pass the exam. If the re-sit exam takes place after the student has moved to the new semester destination, an exam session is organized separately in the student's current destination.

Assessment is performed through various assessment modes:

- formal (laboratory reports);
- informal (academic advisor feedback), formative (intermediate reports);
- summative (exams), self-assessment (Seminar series, internship), peer-assessment (project questionnaire).

ECTS credits are used to recognize and quantify learning achievement (unit specific objectives & transferable skills across several disciplines).

From semester 1 to 3, examinations consist of a mix of written exam (only one final exam or a middle term & a final exam), coursework, and practical work. Evaluation of each unit has been jointly defined by the AMB, each unit having its own assessment mode.

The Master Thesis is assessed based on four elements: a public defence presenting the work realized during the semester 4, a written report, a jury committee formal written feedback on the student's team work ability and to reach the objectives initially defined, the supervisor(s) formal written feedback on the student's progress made along the internship. The thesis defence is coordinated by TUT. Thesis defence evaluation can be performed via video conferencing, but students need to be physically in Japan. The theses are co-evaluated by two consortium academic staff members (not supervisor of the thesis and from two different universities of the consortium) following the evaluation criteria set in the consortium agreement. At the same time, evaluation is performed by thesis evaluation committee members elected from faculty members at TUT to fulfil the Master Degree regulations of TUT.

C.   Assessment scale[64]

The IMLEX full partner universities' grading scales and a score conversion table are published in the student agreement. The table has been updated after signing the student agreements for 2021-2022, and the version that is valid starting from the academic year 2021-2022 is included below.

ECTS		UEF	TUT	KU Leuven	UJM	% of marks/points (if applicable)
A	excellent	5	S (excellent)	$x \geq 17$	$x \geq 16$	$90 \leq X < 100$
B	very good	4	A (very good)	$15 \leq X < 17$	$14 \leq X < 16$	$80 \leq X < 90$
C	good	3	B (good)	$13 \leq X < 15$	$12 \leq X < 14$	$70 \leq X < 80$
D	satisfactory	2	C (sufficient)	$11 \leq X < 13$	$11 \leq X < 12$	$60 \leq X < 70$
E	sufficient	1	D (fail)	$10 \leq X < 11$	$10 \leq X < 11$	$50 \leq X < 60$
F	fail	0	D (fail)	$X < 10$	$X < 10$	$X < 50$

Whether students will be awarded levels of achievement (cum fructu, cum laude, magna cum laude, …) when obtaining the diploma is to be discussed and decided by the AMB by the start of academic year 2021-2022.

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[64] IMLEX student agreement, edition 15/01/2019, p. 2.

D.   Multiple degrees[65]

The IMLEX consortium has chosen to strive for a joint degree in future years, but the present status of legislation in Finland, France, and Japan prevents the joint degree at the present moment. It is not likely that a joint degree can be offered very soon. As a first step, the programme will focus on a specific target, that is the delivering of 4 Master degrees of the same name.

E.   Notes by the QAB[66]

- Discuss whether students will be awarded levels of achievement (cum fructu, cum laude, magna cum laude, …).
- Look into the options for a revision of the score conversion table in the student agreement.

F.   QA responsibilities summary[67]

Ref.	Topic(s) to be discussed	Key player	Target audience	Instrument/medium	Timing
QA24	Consistency of examination criteria, achievement of learning outcomes, learning and examination materials	QAB	AMB	Validation review	End of each sem

Related KPIs:

- **Criteria C2: Processes for the design and approval of the program**
  - KPI/C2/1: Approval of the program (course structure, credit recognition, curriculum/modules content and assessment/examination rules, etc.) by the AMB;
  - KPI/C2/4: Checking by the QAB that any issue arising (e.g. non-available units, credits deferred) and remedial, reported by the AMB are enough documented.
- **Criteria C3: Students-centred teaching, learning and assessment**
  - KPI/C3/1: Checking by the QAB that all dimensions of the teaching and training program (teaching methodologies, learning methodologies, training methodologies, unit learning outcomes evaluation, etc.) is coherent with the European Higher Education expectations;
  - KPI/C3/2: Monitoring by the QAB of the quality of learning and teaching activities, formal, non-formal/informal learning outcomes (low level objective), course coherency and units sequencing (at semester and program level, and across partner sites), course learning outcomes, teaching coordination among semesters and partners (higher level objective).
- **Criteria C4: Students admission, progression, recognition, and certification**
  - KPI/C4/2: Checking by the QAB that the students' progression/achievement is, throughout the Master's cycle, monitored and documented by the AMB;
  - KPI/C4/3: Checking by the QAB of the recognition(s)/certification(s)/diploma(s)/diploma supplement obtained by the graduated students.

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[65] Erasmus+ technical report, Dec. 2020, p. 9.
[66] QAB minutes 2 September 2020 and 3 June 2021.
[67] QAB meeting 28 January 2021.

Section VIII. Socio-cultural and professional integration

A. Purpose[68]

Each HEI offers dedicated support services to develop, boost, student's professional integration. During each study period, students get the opportunity to interact and get support from services related to professional integration to help them develop horizontal skills.

B. Socio-cultural integration[69]

To ensure the effective integration of students within the socio-cultural environment of the partners, the IMLEX programme proposes

   a) optional courses on local language and culture (Finnish, French, Dutch, Japanese);
   b) social events (e.g. cultural sightseeing tour, intercultural shared lunches, meeting with national/ international students registered in other master programmes), socio-cultural university events (e.g. concerts, cultural visits), socio-cultural university activities and facilities (e.g. sport). All these actions are organized by each of the partners.

C. Professional integration[70]

Integration of students in the professional environment is facilitated in two directions:

   1) inviting associate partners to the class; and
   2) bringing the students to the partners.

In a number of courses, guest lecturers/scholars from the industrial associate partners are scheduled, establishing a direct contact of the students with representatives of the industrial and societal actors in the relevant fields (photonics, rendering, lighting, ER). Since these guest lectures are not limited to technical issues, but also touch on topics related to business practice, students at the same time get in touch with selected socio-cultural sensitivities regarding these aspects.

Another way of improving integration and networking is to make dedicated courses available to staff from companies. When regular students and company staff members join forces – doing practical sessions, preparing a presentation or elaborating on a project together – a very direct and intense mutual interaction emerges and strong micro networks can be created which expand during the master thesis (fourth semester).

In the programme, company visits are scheduled. As some of the associate partners have multi-national representations, visits to company plants located in the neighbouring countries are also possible. Other optional visits are encouraged and supported by the IMLEX budget or by industrial partners (e.g. visits to professional fairs such as the Salon "Vision" in Paris, attending workshops). Furthermore, (optional) internships are programmed and the professional environment is explored intensively during the master thesis. IMLEX students are encouraged to take an additional summer internship between the first and the second academic year. In addition, many students will have their Master's thesis project in a company or other institution, which can give them similar practical experience as an internship period.

Professional integration services at each HEI can be consulted by students to help them with career profiles, CV design, interview practices, job search, etc.

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[68] IMLEX project description, paragraph 4.3.
[69] IMLEX project description, paragraph 2.6.
[70] IMLEX project description, paragraph 2.6, 4.3 ; Erasmus+ technical report, Dec. 2020, p. 13.

The services are introduced to students during the start of semester presentations in all four host university. The consortium actively seeks for potential collaborators from research institutions and companies to:

- teach, train and supervise activities as guest lecturers or scholars;
- initiate research or industrial projects, and offer internships;
- contribute to AMB and QAB activities and to provide strategic advices;
- develop horizontal skills.

During their study, students acquire horizontal soft skills, such as the culture of:

- mobility;
- teamwork (e.g. through the industrial project);
- management (e.g. through the digital entrepreneurship course);
- working with professionals on real study cases;
- working with new technologies and to anticipate new uses for these technologies;
- working efficiently with researchers on industrial topics; etc.

D. Alumni community[71]

Students become part of the IMLEX community during their studies and are stimulated to remain involved upon graduation. Alumni are invited to stay connected through social media channels, are represented in the Quality Assurance Board and join the annual IMLEX Days, either in person or remotely. In addition, alumni questionnaires collect feedback on the learning outcomes and career paths of alumni. To achieve this, alumni are asked to give some permanent contact email where the programme can reach them.

E. QA responsibilities summary[72]

Ref.	Topic(s) to be discussed	Key player	Target audience	Instrument/ medium	Timing
QA25	Strengths and weaknesses of IMLEX programme & own career development	QAB	Alumni	Online survey	As of end 2022-2023

Related KPIs:

- **Criteria C3: Students-centred teaching, learning and assessment**
    - KPI/C3/4: Monitoring by the QAB of the satisfaction level of all the graduates during their studies, after 6-months/1-year after graduation for the education received, and 6-months/1-year after professional insertion.

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[71] Erasmus+ technical report, Dec. 2020, p. 13.
[72] QAB meeting 28 January 2021; IMLEX project description, paragraph 2.2.

Section IX. Consortium collaboration, staff and staff development

A.   Purpose[73]

IMLEX contributes to the competitiveness of the Japanese and European partners both by the choice and uniqueness of its curriculum topics, by the multidisciplinary approach and the truly international mobility between Europe and Japan. The IMLEX master can contribute to scientific/technical developments in the fields of imaging and lighting and transfer knowledge from academia to industry and vice versa. The master thesis at the end of the programme is executed in cooperation with industrial partners, involving scientists and research laboratories. Partners collaborate on other matters and subjects through bilateral agreements, extension of relationship to other fields and disciplines, thus reinforcing the relationships at institutional level, strengthening links between Partner and programme Countries, and building reputation for all stakeholders involved.

The academic fields in IMLEX are in line with the strategies of EU and Japan.

- In Finland, the proposal is related to one of the six "National Finnish Flagship Programme" of the Academy of Finland.
- In France, the proposal is related to the "GDR 2044 Appamat" (Group of Research on Appearance of Materials) coordinated by UJM and labelled by the CNRS (Centre National de la Recherche Scientifique).
- In Japan, the proposal is related to "The Fifth Science and Science and Technology Basic Plan" (Japanese Council for Science, Technology and Innovation) in which a core concept is "super smart society (Society 5.0)".
- In Belgium, the Flemish government launched "Visie 2050" with key topics such as "Industry 4.0" and "Smart houses and smart living", perfectly fitting to the imaging, XR and smart lighting aspects of IMLEX.

Partner institutes also learn from each other with respect to organization, innovative teaching methods, implementation of research into the education and quality assessments. By mutual exchange of best practices, each partner institute is able to excel in their educational methodology and pedagogical approach.

Students are to be effectively integrated within the socio-cultural environment of the partners as well as integrated in the professional environment. An active and updated online community at consortium level enhances the programme's attractiveness to students.

Lecturer mobility promotes inter-university exchanges between Japan and Europe. Japan's photonics education, research and industry in general and in the field of the disciplines in this project gives an advantage for the research activities and academic education of the European partner universities, and vice versa. Combining the expertise of the European and Japanese academia provides a competitive advantage in the field of imaging, lighting, and XR.

Relevance of the programme for teaching staff (and guest lecturers from the academic world):

- Improve teaching and training competences and increase the quality of their work and activities in favour of students by encouraging teaching staff to follow professional training programmes;
- Increase mobility and lecturer exchanges outside their own HEI;

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[73] IMLEX project description, paragraph 1.4, 1.5, 2.1, 2.6, 4.2, 4.4.

- Develop the use of English language in professional activities by encouraging lecturers to teach in English in other MSc courses in their HEIs, by encouraging lecturers to follow English units to develop their skills;
- Increase capacity to trigger changes in terms of modernisation and international opening within educational organisations by developing online training methods based on evidence-based practices and Open Educational Resources, by developing a new curriculum that meets the demand of the market and the new trends in the knowledge domain (e.g. data science), by developing curriculum in collaboration with other HEIs open to international applicants;
- Increase the understanding of interconnections between formal and non-formal education, vocational training and the labour market respectively by encouraging lecturers to experiment this kind of training activities, to share their experience, to learn more about good practices in the domain, to develop self-evaluation & self-analysis;
- Increase opportunities for professional and career development and mobility by new professional experiences & responsibilities, by recognized involvement in a renowned curriculum.

Relevance of the programme for guest lecturers from industry:

- Improve teaching and training competences linked to their professional profiles by contributing to teaching, training and supervision activities of students;
- Enhance understanding of practices, policies and systems in education and training across EU countries and Japan by contributing to the management board & the quality assurance board of an EMJMD;
- Increase the understanding of interconnections between formal & nonformal education, vocational training and the labour market by exchanging their own experience with representatives of the academic sector, by explaining the needs of the labour market and discussing them with academics;
- Increase exchanges and collaborations between the professional world, the labour market, and the educational world by contributing actively to curriculum developments and implementation.

Relevance of the programme for administrative staff:

- Improve their ability to operate on the international scene and to participate to largescale structuring projects (e.g. develop skills to set up manage projects);
- Improve foreign language skills;
- Improve the ability to provide services to international students (e.g. to solve administrative issues).

IMLEX allows students to interact with senior and junior researchers as well as industrials. The academic subjects are taught by internationally reputed experts and the topics are related to their research activities. Recruitment is to result in attracting those scholars/guest lecturers that bring particular added value to the programme and thus benefit IMLEX students the most. Visits of industrial scholars/guest-lecturers are included so as to

- Highlight entrepreneurial aspects to students;
- Create networks that benefit students in their further work life;
- Be integrated into programme as seminar series, which include company and lab visits;
- Enrich the programme through the inclusion of diverse cultural backgrounds.

The programme overcomes differences in higher education systems between Japan and Europe so as to facilitate inter-university exchange.

B.   Distribution of responsibilities[74]

The consortium is responsible for the follow-up of academic, administrative and financial activities. All mechanisms are detailed in the Consortium Agreement. This agreement describes the institutional commitment of all partners, specifies their role and tasks in the EMJMD implementation, outlines the working mechanisms of the governing bodies and management tools in place, and explicitly makes reference to the joint delivery of the EMJMD. As coordinating institution, UEF manages the EMJMD grant according to the EACEA financial rules and to the budget jointly decided by the partners, and has the responsibility to apply academic & administrative procedures jointly defined related to the implementation and monitoring of this EMJMD programme. UEF, UJM, KU Leuven and TUT have the responsibility to apply academic & administrative procedures (jointly defined) related to the implementation and monitoring of semesters 1, 2, 3 and 4, respectively.

- The consortium coordinator coordinates the consortium, performs as the chair for the AMB, and is specifically responsible for Semesters 1 and 4 (student internships) and for the design of the induction week.
- The administrative coordinator coordinates social networks, web pages, newsletter activities, organisation and follow-up of the students/scholars selection process, students & scholars application server and the IMLEX intranet (this secured-access intranet is used to share online information with students (e.g. lectures, exercises, learning agreement, appeal policy), teaching staffs (e.g. examination rules, educational issues, quality assurance issues), academic and management staffs (e.g. time schedules, academic results, AMB meeting reports and actions lists), quality assurance board (e.g. questionnaires, QAB and AMB meeting minutes and reports, actions lists), liaising with the consortium partners (communication, information).
- The chair of the QAB coordinates the internal QAB activities and is responsible for units evaluations; as well as the relationships between internal and external quality assurance bodies.
- The learning outcomes coordinator coordinates joint actions between teaching staffs (e.g. internal workshops on good practices, on teaching practices; cooperative teaching methods and materials; open educational resources) and experimental teaching activities (e.g. online training methods based on evidence-based practices, learning and training activities students-centred) the Learning Diary process; activities related to the evaluation of units/course learning outcomes, and activities related to course promotion/marketing.
- A coordinator coordinates the consortium relationships with enterprises, socio-economic structures & professional agencies, internal workshops on university/business cooperation (e.g. on knowledge alliance, capacity building, fund raising) and on collaboration projects between partners on Joint doctorate and Integrated MSc and PhD programmes.
- A coordinator coordinates the consortium activities with EU and Japan academic partners and internationalization development projects with associate partners.
- Full academic partners have dedicated international administrative staff to follow up various aspects of the EMJMD.
- As Coordinating institutions, UEF and TUT are in charge of the general coordination, implementation and management of the COSI programme in collaboration with the partners, providing the necessary information (administrative and financial) to the AMB and to the QAB; the delivering of the Joint Supplement Diploma Award; the eligibility check of all completed online applications, the scholarships payment to students and scholars involved in the IMLEX programme, the management of financial resources (participation costs and incomes distribution

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[74] IMLEX project description, paragraph 3.2.

between partner institutions when applicable); the reporting activities to the EU and Japanese agencies.

The AMB relies on administrative staff members at international or registration offices in each host university to guarantee the efficient running of the programme, such as welcome and induction, housing and practical information, collection and monitoring of students curriculum choice, support the organization of common and compatible modules schedules, and preparation, collection and distribution of periodic reports.

A 100% position at UEF and a 100% position at TUT are dedicated to the administrative coordination. Those include various roles and responsibilities such as 1) coordination of the overall master programme's cycles, 2) administrative, contractual and financial aspects, 3) coordination of students' information, selection, admission, induction, mobility, registration, professional integration, and 4) coordination and centralization of programme documentation and information: academic, administrative, financial, students' information, consortium, reporting, IMLEX website, marketing and promotion. In addition, they ensure the local administrative coordination at UEF and TUT.

C.   Financial agreements[75]

UEF is in charge of receiving the EU funding and distributing to the consortium (JMD financial resources including student scholarships and the consortium contribution, students' participation costs) to students, scholars and Partners: i.e.

-    the payment of students monthly allowances and contributions to travel & installation;
-    expenses for external experts;
-    payment of the administrative coordinator salary;
-    financial management of the pool of money.

The incomes (contribution to consortium and students' participation costs) are managed by UEF and TUT to cover the consortium grants, the students' insurances, tuition fees, the external experts' fees, the induction period costs, the common marketing items etc., and inviting associate partners to IMLEX workshops/meetings and supporting associate partners to promote IMLEX. The full partners' part is shared equally among the full partners to cover JMD running costs at local level (e.g. company visits, guest lecturers, local administrative coordination, QAB and AMB meeting costs, etc.), individual monitoring of EMJMD students, and equipment purchase etc.

Payments to partners are made in 2 instalments (November of year N, and June of year N+1) by the coordinating institution. The ratios and sharing rules can be annually revised by the AMB depending on:

-    the number of students enrolled each semester;
-    the local running costs of the IMLEX programme.

The costs of the teaching activities are mainly taken care by the full partners. Most of courses offered in the IMLEX programme are mutualized with other international master degrees coordinated locally by one full partner. The Lump Sum is used by priority to cover the administrative cost of the Master. After the partners' contribution, the second largest income is from participation costs covered by EMJMD scholarships.

In consortium management, the local academic coordinators are allocated by the Japanese and EU funding. The AMB and QAB as well are funded by Japanese and EU funding. Running costs include fees for

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[75] IMLEX project description, paragraph 3.4, 4.1.

QAB and AMB boards and their external members also. Travel fees include travel between EU and Japan. For the annual IMLEX days, all consortium members can send a representative. The graduation ceremony for every intake Japan and travel costs from EU partners are also covered by the consortium. The consortium moreover supports scholars if their expenses are more than 1200 euro for their visits.

A number of selected courses (specialization courses rather than the general courses) are offered as company courses to industrial partners for a market-conform price. The intention is to use this income as a fund to provide grants to self-paying students after the EU funding period.

D. Teaching staff composition[76]

For the theoretical part, IMLEX benefits from teaching by specialists in the fields. The entire teaching team is composed of lecturers who conduct their research in the fields they teach, an essential factor to ensure delivery of excellent academic content. The IMLEX consortium partners have agreed to attract university chairs (i.e. university professor chairs funded by an external organisation or company) to be able to guarantee the system of international scholars teaching in the course.

This teaching team is completed, for some practical work and project monitoring, by doctoral students and post-doctoral researchers.

Guest lecturers are involved in seminars and offer visits to companies and laboratories that are state-of-the-art in the technologies/techniques studied in IMLEX.

E. Guest lecturers and scholars[77]

Guest professors are invited to visit the consortium universities to provide lectures, exercise sessions and short courses in organizations during their stay. Their fields of expertise allow to meet the highest learning outcomes for students. Scholars from industry provide an industrial view to teaching and may inspire students to experience how skills are applied in industry. The scholars and guest lecturers are asked from top research group in the fields of the programme. Some come from academic associate partners from Utsunomiya University and Chiba University, and some from industrial associate partners. The added value of each scholar/guest lecturer is evaluated carefully from both academic and industrial viewpoints in respect to consortium strategy, excellence, and effectiveness of engagement.

The consortium publishes detailed calls for scholars/guest lecturers on the consortium web page, describing all essential information related to academic information, application process and practical matters.

- Academic information includes academic schedule and mobility scheme, course catalogue and schedule, learning outcomes, consortium partners, and their areas of expertise, responsible staff members, and available research facilities.
- Application process info includes eligibility, selection criteria, deadlines for applying, required documents and proofs, funding options, link to online application system, contacts for queries, and appeal process.
- The practical matters section provides info on accommodation, travel, visa, and financial issues.

At least 4 invited scholars/guest lecturers are funded per intake for at least 8 weeks in total. The aim is to have a scholar in each consortium partner, i.e. one for each organization, in each intake. Calls are

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[76] IMLEX project description, paragraph 2.1.
[77] IMLEX project description, paragraph 1.4, 2.3, 3.1.

advertised and distributed effectively by all members of the consortium in order to secure the best possible worldwide visibility.

F.   Industrial partnerships[78]

The Business Assistant in charge of industrial partnerships:

- develops a proactive action plan to promote, prospect, solicit and visit prospective industrial partners to negotiate grants and follow project activities carried out by students in relationship with the industrial world;
- identifies the list of possible funding in each country connected to the IMLEX programme;
- identifies the most relevant portals, mailing lists, student fairs to promote the IMLEX programme (to attract self-funded students);
- identifies potentially additional funding opportunities;
- contacts private partners and potentially sponsors to provide additional funding, etc.

G.   Intellectual property rights and dissemination of results[79]

Project results (e.g. obtained by students during their Master Thesis or projects) are disseminated thanks to publications and scientific journal and participation to international conferences, workshops.

Intellectual Property Rights (dissemination versus exploitation) are managed following the recommendations and guidelines of the EU. The consortium agreement addresses in context of Intellectual Property Rights the following items: confidentiality agreement, licensing and commercial agreement, co-ownership agreement, transfer of ownership, and other R&D agreements.

The decision to disseminate/share (e.g. publications, or access to data or software free of charge, or restricted access) or to exploit, protect research results (e.g. by patenting, copyright) are managed by the AMB in close cooperation with relevant stakeholders.

Partners maintain a close relationship with a set of industrials, in terms of collaboration research, bi-directional advertising, organizing online seminars or OERs (e.g. eBook). An online community at consortium level is stimulated using a range of tools such as social networks, web pages, newsletters, etc.

H.   Notes by the QAB[80]

- The collaboration between European and Japanese institutions will require the consortium to be aware of cultural differences, as these will influence student expectations. Expectations, moreover, will be very high because of the high tuition fee.
- It might be interesting to collect feedback from lecturers about consortium policy and practices. Even those who do not take up a key role in the consortium structures may have something to say related to the IMLEX's special features and practices. An explorative survey (to loosen their thoughts, make experiences top of mind) could provide a good starting point; next one could go into the results in a discussion. They do not monitor this in every EMJMD project but it is important for the success of the programme.
- Make sure to provide guest lecturers as well with information which can help them to get in touch with the overall programme: time schedules + links to ECTS course descriptions or study material to give insight in the table of contents of related course units + how to's for online learning

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[78] IMLEX project description, paragraph 3.4.
[79] IMLEX project description, paragraph 4.4.
[80] QAB minutes 2 September 2020, 28 January 2021 and 3 June 2021.

platforms. If possible even invite them to join part of a lecture of a colleague to get some feeling with the used (videoconference) applications, the students, interaction styles and customs, …
- Check whether all members of the teaching staff have access to the necessary training or support to switch adequately to online/blended education (especially in the context of the current COVID19 pandemic) and to continue improving their teaching and learning material.
- The consortium partners may need to start writing the next EACEA report before the start of summer and to involve others to provide useful input (e.g. if there is a section on the QA: to contact the QAB in time to provide a contribution).
- Conduct the provided questionnaire on consortium impressions to establish a baseline and to trigger attention to the consortium among its stakeholders. We will not get perfect scores yet, but it could help the consortium to make progress.
- Reflect on plans for scholar mobility and in case necessary, discuss how to boost the related numbers.

I. QA responsibilities summary[81]

Ref.	Topic(s) to be discussed	Key player	Target audience	Instrument/ medium	Timing
QA26	General coordination between partners	QAB	Teaching staff, academic advisors, course directors, consortium coordinator, industry partners	Online survey and/or interviews	End of each sem

Related KPIs:

- **Criteria C5: Competences and qualifications of the teaching staff**
    - KPI/C5/1: Checking by the QAB, on an annual base, of the competences and qualifications of the teaching staff;
    - KPI/C5/2: Checking by the QAB that the scholars' selection process is implemented as stated in the QASPH.
- **Criteria C6: Provision of learning resources and students support**
    - KPI/C6/2: Checking by the QAB that sufficient and adequate teaching resources and support is provided to the teaching staffs.
- **Criteria C7: Information management for effective management**
    - KPI/C7/1: Checking by the QAB that the implementation of the technical and administrative operations (such as welcome and induction, housing and practical information, collection and monitoring of student's curriculum choice, support the organization of common and compatible modules schedules, and preparation, collection

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[81] IMLEX project description, paragraph 2.2.

and distribution of periodic reports) by full partners is monitored and documented by the AMB;

- KPI/C7/2: Checking by the QAB that the annual budgetary redistribution between partners (and participation costs, scholarships policy, sustainability policy, etc.) is formally approved by the AMB;
- KPI/C7/3: Checking by the QAB that reporting to EACEA and full partners is clear and available and well anticipated (in connection with C16).

Section X. Monitoring and review

A.   Purpose[82]

The course director is in charge to manage the coordination & organization of the teaching activities and general counselling of the students, manage the coordination & organization of learning outcomes evaluation and of individual monitoring sessions between each student and his/her academic advisor.

The internal quality of IMLEX is assessed at local level by local coordinators. The local coordinator is in charge of the educational activities as well as the local application of the QAB decisions implemented by the AMB. They organize meetings between stakeholders so as to monitor (and improve eventually) the quality of the course.

Feedback questionnaires are employed to improve the educational content (at low level objective, i.e. at unit level and at higher level objective, i.e. at course level), monitor and review the student experience, improve logistics and administrative organization of the master, ensure that the experiences of current and past students, on the inter-institutional movement process, have been recovered and embedded in the information provided to new students.

The questionnaires are used in order to ensure that the programme:

a) states the transversal and specific abilities expected from the students (expressed in terms of knowledge, professional abilities & skills linked with current & future job market);
b) defines the objectives of the programme;
c) includes lectures and activities that allow the deepening of knowledge & skills in connection with the learning contents & objectives;
d) indicates the unit descriptions, the learning outcomes & the assessment methods of all units including the Master Thesis.

The questionnaires also help the local coordinators to adapt the module contents in order to ensure the coherence during the four semesters of study, to take into account the needs of industry and alumni feedback (long term objective), and to confirm the relevance of the following documents:

a) Information Package and International Student Handbook (IPAISH);
b) Course Catalogue including learning outcomes;
c) Learning Agreement;
d) Diploma Supplement;
e) Student Agreement;
f) Consortium Agreements;
g) Quality Assurance System and Procedures Handbook (QASPH).

B.   Monitoring[83]

The QAB generates questionnaires to distribute to students, teaching staff, scholars/guest lecturers, academic advisors, course directors, consortium coordinator and administrative coordinator, and industrial partners. Recipients of the questionnaire are asked to complete them online at the end of each semester regarding the local induction week, services provided (housing, etc.), information package, units content (theoretical and practical content), teaching skills of the professors, specific skills acquired (formal learning outcomes), generic competencies acquired (non-formal/informal learning outcomes), curriculum content (coordination, coherency of units), professional content (industrial units and study cases content),

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[82] IMLEX project description, paragraph 2.2.
[83] IMLEX project description, paragraph 2.2; QAB minutes 3 June 2021.

professional competencies acquired (e.g. during the Master Thesis), general coordination between partners etc. (criteria C5 and C6).

The QAB also prepares two questionnaires for alumni to survey the strengths/weaknesses of this master course and their career development.

The QAB checks if the IPAISH in place is "fit for purpose", timely, accurate, and regularly reviewed.

The questionnaires are scrutinized by the QAB and the results are summarized in a summary report (within one month, see Table below). This report is published on the internal platform accessible by all IMLEX students and partners (transparency criterion).

Steps of the **Annual Monitoring Procedure in IMLEX**:

Semester i Ti	Semester i+1 Ti +8 months	Semester i+2 Ti +12 months	Semester i+3 Ti +18 months
Report from AMB to QAB →	Recommendation from QAB to AMB →	Improvements implemented by the AMB →	Report of the AMB to the QAB about improvements →

Step 1	Step 2		Step 3	Step 4	Step 5	Step 6	Step 7
Any semester	1st questionnaires	Draft report / 1st questionnaires & discussion with students	Final report/ 1st questionnaires	Recommendation from QAB to AMB	Improvements implemented by the AMB	Report of the AMB to the QAB about improvements	Report of the QAB about these improvements
Ti - Ti+6	Ti+6	Ti+7	Ti+8	Ti+8	Ti+12	Ti+18	Ti+20

The policy with regard to the provided questionnaires (survey templates) is:

- Use of the questionnaires is optional; consortium members may also opt to use existing own QA tools.
- The questionnaires are provided in revisable format
  - o Which can be used in printed form; the design is fit for processing with Optical Mark Recognition software (e.g. Remark Office OMR)[84];
  - o Which may be implemented into own survey applications by partners (e.g. Qualtrics);
  - o Which may be adapted and tailored to the own context;
  - o Which may also be used as inspirational guidelines on which topics to tackle with other types of QA initiatives (e.g. qualitative interviews or focus group interviews during the current pandemic in case a temporarily different QA approach is deemed advisable).
- Either way, stakeholders are requested to provide the resulting report of their QA initiatives to the QAB for further follow-up and monitoring.
- Remarks and suggestions for improvement to these first editions of the templates remain welcome and can be addressed to the QAB members.

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[84] http://download.remarksoftware.com/demo/ and the relevant OMR Bubble Font included in this template is available for download at http://remarksoftware.com/support/office/form-design/fonts/

C.   Notes by the QAB[85]

- Most institutions have tools in place to collect feedback from students about course units, such as questionnaires, anonymous online surveys. Using these will provide an efficient way to get feedback. The QAB prefers to use the institutions' existing tools. These are tailored to the context which is more important than comparability between partner institutions. And for some topics, the tools used for common programmes can just as well be transferred to the IMLEX context. In case new surveys need to be developed, useful examples and templates from other EMJMD programmes are available.
- Additionally, it would be relevant to set up specific questionnaires or interviews with the first cohort of students because of the specific challenges of an international collaboration and arising from cultural differences. Repeating a similar questionnaire at the start and finish of the study trajectory might help to measure whether expectations have been met.
- As the first cohort is only a limited number of students, it will be important to get a high response for surveys (make them obligatory?) or to opt for a more qualitative method to get usable results. It is a good practice for lecturers to inform students about intended improvements based on the results, as this raises awareness on the surveys and stresses the importance of filling these in.
- Collect feedback from the students after each course unit to check whether their expectations have been met, and provide the feedback to lecturers.
- Organise an online event at the end of the first semester, where lecturers from Finland can inform their colleagues from Belgium, France and Japan about experiences with this cohort of students, lacks in prior knowledge etc. so as to adequately prepare for the next semesters.
- It may be advisable to use a different QA approach in the current COVID19 context. Existing questionnaires are based on normal circumstances and the switch to online/blended education has temporarily changed several aspects of our curricula. Topics such as study progress, motivation, etc. have moreover gained in relevance as these are impacted by the pandemic. Custom QA will be most viable to get valid and reliable feedback. We should adapt questionnaires or in some cases temporarily use qualitative methods for deeper discussions instead, and pay attention to the fact that not all students are able to travel abroad (e.g. do a focus group conversation with students on campus + one with students enrolled remotely).
- Related to bullet above: we should collect input from students on issues in the first semester, and try to get an idea of their cause: were these a consequence of errors in student selection, or related to the pandemic?
- In case issues were related to the pandemic: it is one of the responsibilities of the QAB to monitor whether we have dealt adequately with unexpected challenges. Some laboratory sessions have been replaced by remotely controlled labs, simulations, videos, lab work on other locations. Student workload may have increased as a result of blended teaching. Etc. We should monitor whether these solutions were (perceived as/in fact) adequate to achieve the learning outcomes and continue to guarantee educational quality by including this in questionnaires and/or discussions.
- Depending on the subject and target audience a different format may be preferable. In small groups of students, a discussion may provide more useful input than a survey – yet students may also feel inhibited to give certain feedback verbally.
- To get a good response rate, it is advisable to organize a physical meeting (e.g. at the end of a course lecture) and distribute a questionnaire on paper, asking students to fill it in before leaving.

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[85] QAB minutes 2 September 2020, 28 January 2021, 11 March 2021 and 3 June 2021.

- Preferably questionnaires also include open questions where they can write remarks instead of just ticking boxes. Starting with a paper questionnaire and subsequently discussing answers during an informal conversation may also help to gain insight into students' experiences.
- The ideal timing to collect feedback may be different in an EMJMD context than in other programmes: the European Commission has its own timing regarding intermediate reporting. It may be interesting to collect certain feedback sooner so follow-up advice or remarks from the QAB can be included in intermediate reports to the European Commission.
- Give visibility to the fact that we have already implemented processes even if these are in a preliminary phase/a work in progress, as a means of public information.

D. QA responsibilities summary[86]

Ref.	Topic(s) to be discussed	Key player	Target audience	Instrument/ medium	Timing
QA27	Summary of all questionnaire results	QAB	IMLEX partners, students	Report	Within 1 month of end of each sem
QA28	Self-assessment and external evaluation	Each university	AMB, QAB	National QA procedures	Min. 1x/7 years

Related KPIs:

- **Criteria C3: Students-centred teaching, learning and assessment**
    - KPI/C3/3: Monitoring by the QAB of the adequacy of the educational program with academic expectations and industrials needs identified and the relevance of related changes or updates proposed within the curriculum (long term objective);
    - KPI/C3/4: Monitoring by the QAB of the satisfaction level of all the graduates during their studies, after 6-months/1-year after graduation for the education received, and 6-months/1-year after professional insertion.
- **Criteria C8: Public information: clear, accurate, objective, accessible**
    - KPI/C8/1: Checking by the QAB that the information available on the IMLEX website is clear, accurate and objective;
    - KPI/C8/2: Checking by the QAB that the information sent to students and stakeholders is clear, accurate and objective;
    - KPI/C8/3: Checking by the QAB that the QASPH is publicly available on the IMLEX website;
    - KPI/C8/4: Checking by the QAB that the annual QAB summary edited by the QAB is publicly available on the IMLEX website (in connection with C15)
- **Criteria C9: On-going monitoring and periodic review**
    - KPI/C9/1: Checking by the AMB that the KPIs managed by the QAB are in progress (improvement made from one year to another one) and are relevant, efficient,

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[86] QAB meeting 28 January 2021; IMLEX project description, paragraph 2.2.

implemented consistently and auditable (in connection to C11 and C13) and that all stakeholders (students, alumni, teaching staff, etc.) are involved in an appropriate manner in the quality assurance process (in connection to C14);

- KPI/C9/2: Checking by the QAB that the periodic reviews edited by the QAB are monitored by the AMB and that necessary actions are undertaken;
- KPI/C9/3: Sharing of information (and dissemination) on good practices within IMLEX and outside IMLEX;
- KPI/C9/4: Monitoring by the QAB of the quality of academic coordination, board-level coordination, academic partner coordination, partners' involvement in the program, partnerships and relationships with industrials.

Section XI. Grievance

A. Purpose[87]

Joint master programmes are expected to develop a common appeal procedure, covering the selection phase, the examination and evaluation of results and other matters of academic life of students. Although treatment of appeals is sensitive and can be done on a case-by-case basis, the consortium needs to ensure a joint reaction to all appeals by students. Moreover, individual appeals can be an important indicator of how the joint programme is implemented by all partner institutions. Therefore, even though EMJMD students are enrolled in their hosting universities, the final responsibility for their studies, performance, evaluation lies within the consortium of the joint programme.

The QAB is responsible for checking that student selection rules in particular are strictly followed.

B. Student selection appeals[88]

If an applicant appeals his/her ranking/evaluation or if discrepancy between marks (i.e. more than 10% of difference), two members of the QAB re-evaluate the application. In the case of a discrepancy between the QAB marks and the AMB marks, the QAB asks the selection committee to reconsider the final selection lists before sending these lists to the EACEA. If changes occur student(s) are duly informed.

C. Other complaints[89]

The requirements and modalities for appeals are to be made known to the students via the project website and documented in the student agreement. Appeal procedures depend on the case and level of the appeal. Some appeals can be handled locally, if the AMB approves it, but programme specific cases will be handled by the AMB. The aim is to keep the discussion open between students and staff, to avoid problems and to act quickly if any problem does arise.

D. Notes by the QAB[90]

- Ensure a joint reaction to appeals. A first step would be to clarify: which appeals will be managed at consortium level, which local; which procedures will be used; what is the timing for the involved stakeholders to file and respond to an appeal; …?

E. QA responsibilities summary[91]

Ref.	Topic(s) to be discussed	Key player	Target audience	Instrument/medium	Timing
QA29	Student selection appeals	QAB	Student selection committee	Re-evaluation of application	Ad hoc
QA30	Management and academic issues	Local coordinator	Course directors	Video-conference	Start of each sem

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[87] Feedback European Commission to technical report, March 2021, p. 2; IMLEX project description, paragraph 3.3
[88] IMLEX project description, paragraph 3.3.
[89] Erasmus+ technical report, Dec. 2020, p. 8 ; QAB minutes 3 June 2021.
[90] QAB minutes 3 June 2021.
[91] IMLEX project description, paragraph 3.3.

Related KPIs:

- **Criteria C2: Processes for the design and approval of the program**
  - KPI/C2/4: Checking by the QAB that any issue arising (e.g. non-available units, credits deferred) and remedial, reported by the AMB are enough documented.
- **Criteria C4: Students admission, progression, recognition, and certification**
  - KPI/C4/4: Checking by the QAB that students' complaints and appeals are monitored and well documented by the AMB (in connection to C17).
- **Criteria C8: Public information: clear, accurate, objective, accessible**
  - KPI/C8/1: Checking by the QAB that the information available on the IMLEX website is clear, accurate and objective;
  - KPI/C8/2: Checking by the QAB that the information sent to students and stakeholders is clear, accurate and objective.

Section XII. Crisis management

A.   Purpose[92]

Crisis management should allow the programme to deal with unexpected developments in an adequate manner, so as the continue to guarantee educational content and quality in particular as well as stakeholder wellbeing in general. By reacting to the crisis collectively and making necessary adjustments without compromising programme objectives, stakeholders will generate mutual empowerment to endure unforeseen challenges.

B.   Curriculum adaptations[93]

Teaching methods are to be adjusted to meet the context requirements. In all institutions, teachers are to maintain relatively strong independence in planning the teaching methods, in collecting feedback and in implementing the necessary changes, so as to be able to adapt the curriculum swiftly, befitting the conditions.

Face-to-face instruction and physical presence in courses may be replaced by online classes and alterations in the mobility scheme of students and/or lecturers to adapt to restrictions. Likewise, integrated internships may be substituted by other flexible and resourceful opportunities for students to get in contact with employers.

Examinations are organized following the local regulations and procedures of each partner, and there can be adjustments because of the mobility or other joint aspects of the programme.

C.   Mobility[94]

Crisis restrictions may affect programme plans for hosting academic guest lecturers and scholars. The EMJMD protocol warrants certain requirements related to engaging invited guest lecturers and scholars for a defined period. The programme management is to check whether these requirements remain in place during the crisis, and whether any alternatives may be considered. In case scholars' mobility is not possible, for example, the use of e-teaching may provide a valid alternative option.

D.   Stakeholder support[95]

The social and/or mental wellbeing of stakeholders may be threatened by the crisis situation. Programme actors are expected to stay in touch with stakeholders, and to consider developing coaching instruments, to offer support, to facilitate stakeholders interactions, or similar where deemed necessary. This can be achieved in several ways, e.g. through website blogs, student stories, server platforms, wellbeing guides for peer support.

E.   Notes by the QAB[96]

- The evaluation criteria will possibly need to change as Japanese students can not travel to Finland due to COVID19 and will only get online education. Check in the student agreement if new evaluation criteria have been set for students. Make sure we do not privilege students who are in Finland versus those following the course at a distance.
- Context is a determining factor for process implementation, monitoring and evaluation. The pandemic during programme start-up has resulted in exceptional circumstances; monitoring

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[92] Erasmus+ technical report, Dec. 2020, p. 8; feedback European Commission to technical report, March 2021, p. 2.
[93] Erasmus+ technical report, Dec. 2020, p. 8; feedback European Commission to technical report, March 2021, p. 3.
[94] Feedback European Commission to technical report, March 2021, p. 2.
[95] Feedback European Commission to technical report, March 2021, p. 2.
[96] QAB meeting 2 September 2021, 28 January, 11 March 2021 and 3 June 2021.

should give special attention to how has been dealt with these challenges (e.g. exceptions to the rule that students should include mobility to at least 2 institutions).
- Find out if the teaching staff has experienced issues during the COVID19 safety measures. Have them discuss with the teaching staff of the next semesters whether they have had to skip parts or adjust assignments, so as to anticipate overlaps or incoherencies, and to benefit from lessons learned. Have lecturers from sem1 and sem2 communicate early enough to the teaching staff of sem3-4 which contents to include in the final year, if there is a need to catch up [due to the online approach during the pandemic].
- In the context of the current pandemic it might be beneficial to intensify student recruitment in partner countries so as to attract more local students.
- Continue to check during teacher meetings whether teachers have anticipated issues related to the pandemic for the next AY and whether a new switch to online education may be needed.
- Reflect on plans for scholar mobility and in case necessary, discuss how to boost the related numbers.
- Start the next active recruitment campaign already in September-October. We have to succeed to attract the necessary number of students from these regions and to make the programme known. And in particular for this cohort: to convince both students and their parents that the pandemic is currently manageable to provide a good study experience, that there is no reason to postpone an international study programme (is interesting for their future career but also a good programme in terms of organization and with regard to safety precautions).

F.   QA responsibilities summary

Ref.	Topic(s) to be discussed	Key player	Target audience	Instrument/ medium	Timing
QA31	Required temporary/emergency adaptations to procedures	AMB and QAB	All relevant stakeholders	Oral discussion	ASAP
QA32	Required temporary/emergency to curriculum	Local coordinator, course director	Local teaching staff	Oral discussion	ASAP

Related KPIs:

- **Criteria C2: Processes for the design and approval of the program**
    - KPI/C2/4: Checking by the QAB that any issue arising (e.g. non-available units, credits deferred) and remedial, reported by the AMB are enough documented.
- **Criteria C3: Students-centred teaching, learning and assessment**
    - KPI/C3/1: Checking by the QAB that all dimensions of the teaching and training program (teaching methodologies, learning methodologies, training methodologies, unit learning outcomes evaluation, etc.) is coherent with the European Higher Education expectations;

- **Criteria C6: Provision of learning resources and students support**
    - KPI/C6/1: Checking by the QAB that sufficient and adequate learning resources and support is provided to the students during their studies;
    - KPI/C6/2: Checking by the QAB that sufficient and adequate teaching resources and support is provided to the teaching staffs.
- **Criteria C7: Information management for effective management**
    - KPI/C7/3: Checking by the QAB that reporting to EACEA and full partners is clear and available and well anticipated (in connection with C16).
- **Criteria C8: Public information: clear, accurate, objective, accessible**
    - KPI/C8/1: Checking by the QAB that the information available on the IMLEX website is clear, accurate and objective;
    - KPI/C8/2: Checking by the QAB that the information sent to students and stakeholders is clear, accurate and objective.