Erasmus Mundus Joint Master Degree
Europhotonics

Consortium agreement

(Project 599098-EPP-1-2018-1-FR-EPPKA1-JMD-MOB)

N° 2019-2157

The aim of this agreement is to establish the implementation issues of the Erasmus Mundus Joint Master Degree (EMJMD) Europhotonics program between:

Aix-Marseille University, Marseille, France
Public establishment of Scientific, Cultural and Professional character, registered at the following address: Jardin du Pharo, 58 boulevard Charles Livon, 13284 MARSEILLE Cedex 7, FRANCE represented by its legal representative: Eric BERTON

Karlsruhe Institute of Technology (KIT), Germany
Corporation governed by Public Law, registered at Kaiserstrasse 12, DE-76131 KARLSRUHE, GERMANY represented by its President Holger HANSELKA

Universitat Politècnica de Catalunya (UPC), Spain
Public Engineering University in Catalonia, registered at Carrer Jordi Girona, 31, 08034 BARCELONA represented by its Rector Francesc TORRES TORRES

Universitat Autònoma de Barcelona (UAB), Spain
Public Higher Education Institution, registered at Edifici Rectorat, Campus UAB, 08193 BELLATERRA represented by its Rector Margarita ARBOIX ARZO

Universitat de Barcelona (UB), Spain
Public University, registered at Gran Via de les Corts Catalanes 585, 08007 BARCELONA represented by its Vice-Rector for Outreach and Internationalization, Alejandro AGUILAR VILA

Institut de Ciències Fotòniques (ICFO), Spain
Non-profit research Institute, registered at av. Carl Friefrich Gauss, num.3 08860 CASTELLDEFELS represented by its director Lluis TORNER

Vilnius University, Lithuania
Public institution, registered at Universiteto g.3, LT 01513 VILNIUS represented by its Rector prof. Rimvydas Petrauskas

Tampere University, Finland
Public Finnish University, registered at Korkeakoulunkatu 10, FI-33720 TAMPERE represented by Martti KAURANEN, Dean of the Faculty of Engineering and Natural Sciences

hereinafter referred to as “the Partners”.

This agreement provides all parties information about the program structure and management mechanism, common educational responsibilities and the financial management, as defined in the Grant Agreement No 2018-1456 signed by the President of Aix-Marseille University on behalf of all Partners.

Definition and terminology

“Own Property rights”: means every information and technical and/or scientific knowledge and/or any other types of information, in whatever forms they take, whether patentable or not, as well as all the

associated rights belonging to a Party or any rights held by it before the date of entry into force of this Agreement.

The own property rights of the Parties acquired on the date of entry into force of the agreement are specified in the annex 3 of this Agreement. It is up to every Party to inform the other Parties, in written form, of the identification of other related own property rights during the implementation of this Agreement and justify their independence from the present agreement, if need be.

"New Property rights": means all information and technical and/or scientific knowledge, whether patented or not, whether patentable or not, including the know-how, software (whether in source code or object code form), the plans, the patterns, the drawings, the formulas or any other types of information, in whatever form they take and all associated rights established by one or several Parties, in the framework of this Agreement.

"Confidential information": means all information and/or data in whatever form they take and whatever kind they may be, disclosed by one or several other Parties under this Agreement, provided that the disclosing Party clearly and unequivocally shows its confidentiality or in the case of oral disclosure that the disclosing Party has been expressed orally their confidentiality at the time of disclosure and has confirmed in writing obligations on confidentiality within 30 days from the date of the disclosure.

"Partner": means a degree-awarding HEIs from a programme country as defined by the applicable Erasmus+ Programme Guide

"Program": means the Program described in the EUROPHOTONICS project submitted in the Erasmus Mundus Joint Master Degree Call in February 2017

Article 1 – General objectives of the EMJMD Program

1. As part of the Europe 2020 strategy, which is the EU's agenda for growth and jobs for the current decade and Erasmus+ program in the fields of education, training, youth and sport for the period 2014-2020, the present agreement complies with the applicable conditions in this regard to ensure the management of the two-year Europhotonics Master Program (120 ECTS) selected for EU co-funding for 4 successive intakes in 2019-2023.

2. The partners promote:

- a high quality Master Degree in the field of photonics for future Master's students;
- a cooperation between all Partners institutions, to advertise and to promote experience and development in photonics and education,
- a study program including several students mobility paths among the consortium members offering specialization tracks and academic excellence in the thematic fields addressed,
- resources that allow broadening the educational offer in photonics.

3. All the Partners support the promotion and sustainability of the mobilities between the national masters involved in the Program beyond the initial period covered by the current Grant Agreement.

Article 2 – The Europhotonics Consortium

1. Aix-Marseille University is the Coordinating Institution of the Consortium, which includes eight European Partners. All have agreed to make every effort to contribute to the implementation of the degree program named Europhotonics funded by the European Commission within the framework of Erasmus+ Programme.

2. The Europhotonics Consortium is composed of eight European Partners with local academic coordinators:

Aix-Marseille University (AMU) (France)	Dr. Amelie Litman
Karlsruhe Institute of Technology (KIT) (Germany)	Prof. Ulrich Lemmer
Universitat Politècnica de Catalunya (UPC), Universitat Autònoma de Barcelona (UAB), Universitat de Barcelona (UB) and Institut de Ciències Fotòniques (ICFO) (Spain)	Prof. Crina Cojocaru
Vilnius University (Lithuania)	Prof. Valdas Sirutkaitis
Tampere University (Finland)	Prof. Goery Genty

The Partner of Barcelona area, namely, UPC, UAB, UB and ICFO, will accomplish all the obligations included in this article acting in a coordinated way and organizing a joint program. The four Spanish Institutions will design a single Partner Coordinator (to fulfil the tasks specified in the current Consortium Agreement) and a local Executive Committee composed of the Partner Coordinator and one representative of each Spanish Institution. This local Executive Committee will organize and coordinate the joint EUROPHOTONICS program in the four Spanish Institutions and will design the members that, in addition to the Partner Coordinator, will participate in the different Committees and Board established in this Consortium Agreement. From the administrative point of view, UPC will be the Institution that will act as local Coordinator on behalf of all four Spanish Institutions. In particular, UPC will take charge of student registration for the Master Courses as well as administrative support to students. UPC will also be the single interlocutor with respect to the Coordinating Institution for funding distribution and use, as well as for delivery of information concerning the four Spanish Institutions. The four Spanish Institutions will sign an Agreement to regulate particular aspects of their local collaboration.

3. The main governing body of the Master Program is the Europhotonics Consortium Committee. It is composed of the Coordinator, the local coordinators, and one representative of each Consortium Partner, as permanent members. The Administrative officer of the Coordinator, the directors of the involved Departments of the main partner universities, the other teaching staff or consultant (assessor, evaluation committee), the administrative staff involved in the governing and administration of the Master Program, may be invited if the situation will require any specific expertise.

4. The governing body of the EMJMD consortium, the Europhotonics Consortium Committee, is in charge of the general management. Other ad hoc committees can be established by the Europhotonics Consortium Committee (e.g., Pedagogical, Selection, and Evaluation) for specific tasks. The functions assigned to the Europhotonics Consortium Committee are:

- the definition of roles and duties of the Consortium Partners for the implementation of the program, even if each Partner has its own individual responsibility in the fulfilment of its obligations
- the management of human and financial resources of the project, academic supervision, quality assurance, professional advice, changes in the composition of the consortium
- the modifications of the learning- teaching program (following approval by the competent authority in this respect in the universities concerned)
- the modifications of the criteria for student selection,
- the modification of the Associated Partners list,
- the management of student complaints (in connection with the disciplinary proceedings set out in this respect in the universities concerned)
- the debriefing and analysis of the reports sent by the EACA (Education, Audiovisual and Culture Executive Agency),

- the organisation of the quality assessment of the Master Program,
- the search for future sources of support and grants in order to ensure the sustainability of the Master Program.

5. A simple majority of the members physically present or via videoconference shall approve decisions of the Europhotonics Consortium Committee during the plenary meetings, or by written consultation.

6. Associated Partners (the list is given in Appendix III) can also be included in order to take part in the learning-teaching process, but they are not considered as members of the Consortium Committee. They cannot take part in the decision-making process. The Europhotonics Consortium Committee can modify the list of Associated Partners during the period of the program. The participation of the Associated Partners in the program may be supported by the program budget and their roles are defined in Article 7.

Article 3 – The EUROPHOTONICS Master Program: objectives, organisation and description

1. **Objectives**: The Europhotonics Master Program aims at preparing specialists in the field of Photonics. The students receive a high level training program and achieve qualification levels to be able to synthesize, design, evaluate, and develop new components and systems. They will be prepared for studies at Ph.D. level or for working on research projects in industry. The overall structure of the master program is a combination of courses with the intent of offering a dual scientific/engineering education. The mobility scheme and the course structure are based on a progressive learning from basic modules to specializations.

2. **Duration**: The students joining the program in September of Year N must validate a minimum of 120 ECTS by the end of November (to check with EACEA Financial Grant) of the Year N+2 at the latest, unless it is not possible for duly justified reasons approved by the Europhotonics Consortium Committee.

3. **Program conduct**: At the beginning of the program, the students attend an integration week in early September of Year N at the coordinating institution (Aix-Marseille University, Marseille, France). The study program is organized among the European University Partners with 3 academic study Terms and one Term devoted to the Master Thesis:
    - Term 1 = Marseille (30 ECTS).
    - Term 2 = Marseille (30 ECTS) or Karlsruhe (30 ECTS).
    - Term 3 = Marseille (30 ECTS) or Karlsruhe (30 ECTS) or Barcelona (30 ECTS) or Tampere (30 ECTS) or Vilnius (30 ECTS).
    - Term 4 is dedicated to the laboratory works and research in order to present the Master Thesis (30 ECTS). The Master Thesis requirements are detailed in Article 12.

4. During their mobility pathways, the students may perform **non-compulsory traineeships between Terms** to get some practical experience during their university studies, if it does not overlap with the date of ending and beginning of both Terms.

   The mobility rules are described in Article 5.
   The Spring School is an integrated part of the teaching and mobility plan (see Article 14).

Number of students: Each intake has a minimum number of students, between 15 to 19 students who are Erasmus Mundus European scholarship holders. They are hereinafter referred as “EMJMD students”. The total number of EMJMD students (for 4 intakes) is 70. Additional students can benefit from scholarships available at the consortium level (from public and/or private funding). Self-funding students may also participate in the program. The number may vary between 0 and a maximum of 15 students per intake. They are referred to as “Self-funded students”.

5. **Degree-Awarding**:
   The successful completion of the curriculum is rewarded by multiple diplomas. The local diplomas are:

Aix Marseille Université	Master de Physique, Parcours Europhotonics
Universitat Politècnica de Catalunya, Universitat Autònoma de Barcelona, Universitat de Barcelona, Institut de Ciències Fotòniques (ICFO)	Erasmus Mundus Master Degree Europhotonics
Karlsruhe Institute of Technology (KIT)	Master of Science (M.Sc.) in Optics & Photonics
Tampere University	Diplomi-insinööri – Master of Science (Technology) Master's degree program in Photonics Technologies
Vilnius University	Medziagu Technologiju Magistras – Master of Materials Technology

Each student receives multi-diploma from the universities where he/she has studied during his/her chosen EUROPHOTONICS study-path. The diploma /degree is awarded by each university on the condition that the graduate student has validated a minimum of 30 ECTS and has succeeded in achieving the complete 120 ECTS to get Master Degrees in the frame of EUROPHOTONICS Master degree program. The student must comply with the study and examination regulations of each of the Partners, especially the requirements for registration and evaluation procedure concerning the master thesis, in particular for Karlsruhe Institute of Technology and Vilnius University. Failure to observe this regulation may result in the refusal to issue degree-awarding from these 2 universities.

The universities will make every effort to mention on the diploma that the student has obtained it within the Erasmus Mundus Joint Master Degree EUROPHOTONICS program.

A diploma supplement detailing the student's own curriculum, study-path, learning outcomes and the courses taken will be issued for each graduate.

6. **Application**: The Master program is open to excellent European and non-European (third country) students having acquired a BSc or equivalent diploma in Physics, Electrical Engineering, Materials Science, and related fields (the candidate should have completed and validated 180 ECTS to be accepted to the Master course). The candidates apply to Europhotonics Master Program by using the application forms, which can be downloaded from EUROPHOTONICS website http://www.europhotonics.org/. The consortium partners appoint a committee in charge of coordinating and supervising the selection and admission procedures for the purpose of the program. The procedure is defined in Article 9. The evaluation committee will consist of at least:
   - one representative Professor per Consortium Partners
   - representative Researchers/ Scientists from the Associated Partners

Article 4 – Academic program

1. The description of the academic program and the time table of mandatory courses are given in Appendix I.

2. The description of each course will be prepared by the teaching professors and will be available on the program website.

3. The teaching language is English.

4. Modifications of the program must be accepted by the Europhotonics Consortium Committee, in conformity with the provisions and regulations issued by the relevant bodies of the universities concerned.

Article 5 – Mobility rules and registration

1. For each student, the decision regarding the student's mobility must be set midway through the term N-1. The decisions are taken by the Europhotonics Consortium committee, which take the student's wishes and academic grades into consideration, while upholding the principles for mobility detailed afterwards.

2. For each intake, there should be an equivalent number of EMJMD students in Marseille and Karlsruhe during term n° 2, plus or minus one.

3. For term n°3, the distribution of the group that consists of initially 17 EMJMD scholarship holders is carried out on the basis of 5 students in Marseille and 3 students in all other EUROPHOTONICS consortium partners.

4. For term n° 4, the student must register:
   - in the Partner university if the Master Thesis is carried out at this university,
   - or in the Partner university where the student has enrolled during term n° 3 if the Master Thesis is not carried out at one of the Partners.

5. The students must attend at least two terms (30 ECTS courses minimum each) in two different European consortium partner countries (France, Germany, Spain, Finland, Lithuania). At least two of the countries visited during the Master Program must be different from the country in which the student has obtained his/her last University degree.

6. All the students must register at the Coordinating University for the entire duration of the Master program without paying additional tuition fees. Meanwhile, the student must also register at the Partner university for each term he/she spends there, depending on the student's mobility scheme (see Article 10.6). At KIT, the student is entitled to get diploma only if he/she has been registered during the two years of the Master. This applies especially to students, who take only some courses and studies there during term n°2.

7. Changes in the mobility rules must be accepted by the Europhotonics Consortium Committee Partners.

Article 6 – The EUROPHOTONICS Master Program: Responsibilities of all members of the consortium

Aix-Marseille University (AMU) - coordinator

1. The Coordinating Institution, Aix-Marseille University (AMU), Marseille, France, has the financial responsibility of the Program. The Coordinating Institution will provide the European Commission with all reports on the project progress at the reporting periods.

2. The Europhotonics coordinator is the representative of the Coordinating Institution. The Europhotonics coordinator is responsible for drawing up technical reports, financial statements. He/She organizes and coordinates the effective application of the Europhotonics project between Partners in compliance with the proposed EMJMD academic program. He/she is the link between the European Commission and the Partners.

3. The Coordinating Institution manages in particular the following activities:
   - general coordination of Europhotonics program activities in collaboration with the Partners.
   - creation of tools shared between the Partners (evaluation forms, guidelines, project's website …).
   - follow-up of the mobility path for each Europhotonics student

- payment of European grants to EMJMD students and scholars involved in the Europhotonics program.
- signature of the Europhotonics student Agreement for each student enrolled in the program on behalf of the respective responsible Partners
- distribution of the EMJMD student participation costs to the Partners according to the planned budget distribution (see Article 10)
- payments of invoices resulting from Europhotonics program activities, according to the planned budget, even if they are carried out at a Partner institution. The Consortium partners should, however, be agreed on the expenses, which should be fully eligible for the Program grants.
- on request, support may be given to open a bank account for enrolled students and scholars/guest lecturers.
- healthcare coverage and insurances (civil liability + repatriation insurance) exclusively for every enrolled EMJMD student in the Europhotonics Program
- elaboration of technical reports and financial statements on behalf of the Consortium Partners for each intake of the Europhotonics Master Program
- Submission of additional supporting documents, if required by the grant agreement.

Partners (including the Coordinating Institution)

1. The Partners should perform their responsibilities of the Europhotonics Program activities in accordance with the project proposal submitted in the Erasmus Mundus Joint Master Degree Call 2018. The Partners shall cooperate to achieve the goals of the Program and to keep the structure, the quality and the outcomes of Europhotonics education in line with the standards set forth in Article 1 of the Agreement.

2. Each Partner will organize and carry out the Europhotonics Program activities in its own institution, in particular the following actions:
   - The promotion and implementation of the Europhotonics academic Program for students, scholars and researchers from Programme Countries (also referred to as “European”) and Partner Countries (also referred to as “Non-European”)
   - The management of the funds granted by the European Commission and transferred by the Coordinating Institution.
   - Each partner shall have at least one part-time administrative person for the Europhotonics Program implementation, who is in charge of the application and admission process for international students and visiting scholars/guest lecturers.
   - Visa application process: each Partner must assist students or scholars according to their individual needs in terms of visa application.
   - Status regarding the national immigration policy: each Partner should ensure that the necessary steps have been taken with immigration officials in compliance with the standards.
   - Academic admission and registration: each Partner communicates their specific dates regarding the timeframe of the Academic Calendar before the end of January of the year preceding the relevant academic year. Each Partner must ensure that the Europhotonics students are correctly registered as degree students in its university and are definitively enrolled during the corresponding term.
   - Course management and evaluation: each Partner must ensure the smooth running of the academic Europhotonics Program and evaluation assignments for each student studying at the Partner University during the term. Each Partner must also provide a transcript of records of all courses taken and completed locally by the enrolled students, except for a student studying at KIT. The transcript of records can be forwarded only with the consent of the student studying at KIT. For this reason, it is expected that the student gives a prior approval by signing the Student Contract Agreement granting permission to forward the grades to the awarding institutions. Otherwise, the student studying at KIT undertakes to provide the coordinating institution with a certificate of all his/her validated ECTS (ECTS obtained per term) in order to continue his/her studies at the other partner institutions.
   - Master thesis: each Partner is in charge of the Master thesis administrative process (the placement agreement) as well as the required procedure for the thesis defense and evaluation for the students enrolled locally during term n° 4.

- Communication with the students: each Partner timely manages all communication concerning their activity during the term.
- Accommodation: students and scholars pay for their own accommodations. Each Partner will provide guidance to incoming participants in finding accommodation, either for students' mobility for long-term stay at the Partner universities or for short-term mobility for invited scholars.
- Integration: through the programme's mobility scheme, students experience different educational environment and a diversity of learning and teaching methodologies. Each Partner facilitates the successful integration of students by organising cultural integration days and providing the students with all the facilities and the learning support.
- Awarding diploma: According to the rules specified in article 3.4, the Partners provide each graduating student with a legally recognized diploma. All partners must collect from the coordinating institution the grades of the students concerned in order to deliver the diploma and the diploma supplement, with the exception of KIT. The grades can be forwarded only with the consent of the student studying at KIT. For this reason, it is expected that the students give a prior approval by signing the Student Contract Agreement granting permission to forward the grades to the awarding institutions. Otherwise, the student studying at KIT undertakes to provide the coordinating institution with a certificate attesting to his/her success of the term (s) of studies taken at KIT.
- Physical mobility: The Europhotonics program is based on physical mobility between partner universities where students are expected to be present according to their mobility path agreed by all Partners. Students cannot follow the program through online or distance learning, except in cases when physical presence is not possible because of "force majeure" that will be approved by the Europhotonics Consortium Committee partners. The placement of the student for his/her Master thesis is an individual agreement between the student, the supervising university and the Europhotonics Consortium Committee partners.
- Complaint handling: after adequate warning, the Partners may report to the Europhotonics Coordinator any serious problem with the students or the visiting scholars/guest lecturers receiving an Erasmus Mundus scholarship (no-show of a student candidate or student drop-out). If necessary, the competent disciplinary bodies of the university can be implicated.
- Academic misconduct: each Partner follows its own policy. If a student is found guilty of academic misconduct, the partner university will inform the consortium/coordinator. Concerning possible disciplinary measures against student studying at KIT, the law and regulations for data protection apply at KIT. However, the local program coordinator must be informed, if the student has given his/her prior approval in the Student Contract Agreement.

3. For each Partner, a local program coordinator (list provided in Article 2) shall organize and coordinate with his/her local collaborator(s) the activities and the organisation of the Europhotonics Program in the Partner institution. He/she is the link between the Partner institution and the Europhotonics Coordinator. He/she attends regularly the Europhotonics Consortium Committee, the main governing body of the Master Program.

Article 7 – Specific roles of the Associated Partner Universities

1. The participation of Associated Partners (see list in Appendix III) is considered as an adequate complement to the course content and activities. The Associated Partners play an advisory role in the implementation of Europhotonics program in the External quality assurance Committee. This Committee is taking account of the employment needs in the national and EU labour market contributing to the adjustments required to tune the choice of course to meet employers' demands in terms of occupations and skills in Europhotonics.
2. The Associated Partners are strongly encouraged to host Europhotonics students in their respective laboratories (academic or industrial) for their research work during term n°4 (Master thesis). The Associated Partner institutions reserve the right to reject a student's application for practical training inside their institution.
3. The Associated Partners favour the master promotion around the world (Education & Career Exhibitions, International Education Fairs …)

4. The Associated Partners professors may be invited to participate in teaching units of the Europhotonics Program.
5. The Associated Partners professors can participate in the Spring Schools organized every year for Europhotonics students
6. The Associated Partners can propose placements to the Europhotonics students and graduates.

Article 8 – Quality assurance

The Europhotonics Consortium partners establish a quality assurance process on an internal and external basis.

Internal quality process

The Partners shall be individually responsible for the quality of their education, according to the principles, rules and procedures established by their national regulation. The courses, the organization of the corresponding assessments and examinations, the composition of the Examination Board or other means of evaluating and assessing attainments, will be set up in compliance with the applicable regulations in the host university. The Partners shall maintain the Quality Assurance conditions for their participation in the Europhotonics Program. This includes undergoing accreditation, inspection, reporting, quality controls required by the Partner's national legislation.

All Partners have in place internal evaluation procedures for their teaching staff (annual job performance, reports, student questionnaire, and scientific output evaluation). In addition, the Partners agree on the following special procedures to ensure the quality of the Europhotonics Program.

On the basis of an anonymous questionnaire, students have to fill-up assessments at the end of each term by the partners where the students are enrolled. The main topics to be addressed are quality of lectures, validity of content, outcome related to specific learning, clarity and accessibility of lectures (oral presentations and lecture notes), contribution of the teaching staff to the learning process, examination procedures. A second part of the questionnaire is devoted to the assessment of the general management of the Master Course: visas, diffusion of information, choice of the mobility track, and assistance for finding Master Thesis topic and possible placement, assistance to find a position or to obtain a research grant after the Master course. A similar survey will be performed at the end of the intake by the coordinator for the global evaluation of the program. The Spring school is evaluated independently at the end of the meetings.

At the Consortium level, during the meetings of the Europhotonics Consortium Committee, a general self-assessment based on internal evaluations, as described above, is conducted by the Europhotonics members and administrative staff to review and follow up performance indicators such as: professional positions after graduation, number of students continuing PhD studies, evolution towards a sustainable Master Course, academic standard of scholars applying for mobility.

External quality process

External quality assurance is guaranteed by an external evaluation committee. The president of this evaluation committee is the General Secretary of the T.I.M.E Association. The consortium partners appoint 3-5 members of the **External evaluation committee** proposed by the president**.** The members are selected from other educational institutions and leading photonics university programs. The funds for this external evaluation Board are included in the EMJMD budget. The external evaluation is organized at the periods specified in the grant agreement. The assessment outcomes are communicated to the consortium members. As a result of such consultation, relevant actions are proposed to amplify the positive outcomes and correct points of criticism. Actions are undertaken before the selection of a new intake.

Article 9 – Students application rules

1. Every applicant for the EMJMD Europhotonics Master Program (scholarship holders or not) apply online through the Europhotonics website.
2. All the applications are evaluated by two evaluators of two different Universities on the basis of the documents uploaded by the applicants.

3. The Evaluation criteria for students applying to the Europhotonics Master Program are the following:
   For each item, a mark from 0 to 5 is given following the following grid:
   - Outstanding : **5**
   - Excellent : **4**
   - Very good : **3**
   - Good: **2**
   - Average : **1**
   - Poor : **0**

   The items are:
   - Academic Excellence and CV (weight **4**)
   - Quality of home institution (weight **3**)
   - Letter of motivation (weight **2**)
   - Recommendation Letters (weight **2**)

   To be selected, students must show a proof that their English level is sufficient (level B2 is required) to follow the courses that are all taught in English.

4. An automatic ranking is built based on the evaluators' assessment.

5. From this ranking, the selection committee composed by a representative of each Partner defines the Main List, the Reserve List and the Non-Selected List of students.

6. Applicants have to meet the admission requirements of the Partner institution at which he/she will spend the respective term. The final decision on the admission to the Master course at the Partner university is at the discretion of that Partner University.

7. Results of rankings are communicated to the applicants, by e-mail including information on their ranking position in the Main List or the Reserve List or the Non-selected list.

8. Once received the official approval of the Selection list by the European Committee, official letters of admission are sent by e-mail and by Air Mail (with original signature of the Coordinator) to the selected students with all necessary information for starting their VISA application. The selected students are asked to sign a student agreement in order to confirm their decision to study in the EUROPHOTONICS EMJMD program at the beginning of the next academic year.

9. Students of the Reserve List are offered to join the master as self-funded students.

10. The final list of the selected students should be approved by the EACEA (Education, Audiovisual and Culture Executive Agency) from the European Commission. After having notified it to the EACEA, the students can be registered at the Coordinating University for the entire duration of the two-year Master program, as well as at the Partners according to the mobility schemes of each student.

Article 10 – Funding distribution and use

1. The Executive Agency EACEA (Education, Audiovisual and Culture Executive Agency) acting under powers delegated from the European Commission is funding the Project on the date given in the grant agreement. The funds are paid to the Coordinating Institution, which will forward them to the individual partners via a separate agreement, and can be summarized as follows:

– Contribution to the management costs: 20,000 € (twenty thousand Euros) for the preparatory year and annual flat rate of 50,000 € (fifty thousand Euros) for each intake (4 times). This sum also covers the cost of invited scholars.

– Grants: scholarships within the Erasmus Mundus program are allocated and paid monthly and directly to students effectively involved in the Europhotonics mobility Program during 24 months.

– The participation costs are used to pay any costs related to the program and compulsory mobility (including tuition and registration fees, full medical insurance and cultural integration).

2. If an enrolled EMJMD student fails to participate in the Europhotonics Master Program (either in whole or in part), he cannot be replaced by another student. The EMJMD scholarship can be put on hold if the student has to temporarily leave the EMJMD course following duly justified and well documented reasons. If an EMJMD scholarship holder is not able to finish the course activities within the respective student intake due to the above-mentioned reasons, then the consortium has to find acceptable ways to allow the student to finish the Master within one of the following intakes.

3. Changes in the participation cost distribution must be accepted by the Europhotonics Consortium Committee partners.

4. The lump sum contribution to the consortium management costs and costs for invited scholars and guest lecturers (maximum 220,000 €) are used to cover the amount expenses resulting from the organization and the logistic of the Europhotonics Consortium partners` activity: website management, dissemination, organisation of specific events (Spring School, meetings). Each partner will receive 4,000 € for the preparatory year expenses, paid after the signature of this agreement.

5. Each partner involved only in the 2nd year (Barcelona, Vilnius, Tampere) will receive 5,000 € in a single payment for each intake (paid at the beginning of September 2020, 2021, 2022 and 2023) to cover specific expenses related to the organization of terms n°3 and n°4.

6. Each partner university will receive 2,328€ for each EMJMD student studying one term in its university. The payment covers the tuition fees and the registration fees. It is done when the student starts his/her mobility, at the beginning of each term.

7. EMJMD students do not have to pay any tuition and registration fees themselves. The Coordinating Institution is dealing with the transfers of funds that correspond to these costs. Self-funded students only have to pay tuition and registration fees, according to their mobility path (see Article 3.3).

8. Students, who are liable to pay tuition fees according to national legislation in Finland and Germany, receive a tuition fee waiver scholarship based on EUROPHOTONICS consortium agreement during their studies at Tampere University and Karlsruhe Institute of Technology. However if a student is studying in master's degree for a second time in order to get a second university degree from KIT, the tuition fee waiver is not applying for the student enrolled in KIT.

9. Bank account information: The Coordinating Institution shall transfer the funds to the following bank account:
Aix-Marseille Université: TRESOR PUBLIC, IBAN number FR76 1007 1130 0000 0010 2006 780, BIC number TRPUFRP1

Karlsruhe Institute of Technology (KIT): BBk Karlsruhe, BIC: MARKDEF1660, IBAN: DE57660000000066001508 PSP-Element 02 06707 0032

Universitat Politecnica de Catalunya (UPC): the Caixa d'Estalvis i Pensions de Barcelona, Bank account of code SWIFT CAIXESBB, IBAN: ES68 2100 3648 9725 0000 1071

Vilnius University: Vilniaus universitetas, AB Swedbank, IBAN: LT32 7300 0100 0246 2504, SWIFT: HABALT22

Tampereen korkeakoulusäätiö sr: Danske Bank A/S Bank account code SWIFT: DABAFIHH IBAN: FI81 8919 9710 0008 56

Article 11 – Selection and engagement of scholars/guest lecturers

The invited scholars/guest lecturers come mainly from the Partners and from the Associated Partners, but they might also be from non-educational institutions or other universities outside the consortium.

The main objective of invited scholar's teaching activity is to provide the current state-of-the-art knowledge of photonics progress. As photonics is a very dynamic field of activity, the Consortium is committed to keep up with the newest trends mainly through the inviting scholars' support. The selection criteria are based on the scientific achievements made in this field, the excellent performance of proposed teaching materials and the ability to ensure lectures/presentations/conferences in English.

For each intake, a total of 12 weeks is scheduled for invited scholars. Each scholar will receive 1.800€ per week in order to cover travel and subsistence costs. His/her stay must last at least 1 week. A week is defined as a minimum of 4 out of 7 consecutive calendar days. Travelling is included in the period of stay.

The scholar must give at least 1 seminar to the students and participate as possible in other pedagogical activities. He/she must write a report at the end of his/her stay.

Article 12 – Master thesis

Master theses are results of the research project carried out by a student during the term n°4 of the Master program. A Master thesis subject may be proposed by all the partners (including Associated Partners), but can also be suggested directly by the student.

During the placement in the term n°4, the student must be registered in the host institution where he or she prepares the Master thesis. If the host institution is not a Partner, the student must be enrolled in the Partner University where he/she has spent the term n°3. This University of the term n°3 is therefore responsible for the academic and administrative part of the Master Thesis, even if the placement of the Master thesis is not performed at the Partner university.

Article 13 – Welcome integration week and welcome meeting

The integration week in Marseille plays an important role to initiate the integration of the students in the EUROPHOTONICS program. It is designed to give more academic information about the Partners, mobility schemes, registration procedures, course contents and language courses.

Every year in September-October, a welcome meeting is organized in Marseille for the new intakes. During this meeting, representatives of every Partner of the consortium discuss with the students:

1. The Europhotonics Program and the possibilities of mobility, the role of the Spring school and of the Associated Partners
2. The differences between the learning environments proposed by the Partners
3. The student's rights and duties
4. The current perspective and the correlation between the field of studies and its related jobs in this area.

Article 14 – Spring school

The Spring school is an important part of the master program to enhance an effective integration in a professional environment. The Spring school is organized every year at the end of March/beginning of April. The location of the Spring school is decided by the Europhotonics consortium partners. Each Spring School has a Scientific Chairman proposed by the coordinator and accepted by the Consortium partners. It is financed by the Participation costs from the EU budget. This period allows the students to be in close contact with invited scholars, guest lecturers and researchers from industrial labs. It is a good opportunity for the students to get in touch with experts from the field of photonics and to talk about their future plans concerning internship and employment. Associated partners are invited to provide speakers.

Article 15 – Student issues and services to the students

1. A student online handbook is distributed to the students during the welcome week. It provides information/services to the incoming students.

2. Students with special needs will receive a specific assistance for lecture note (special arrangement for studies at AMU) and for exam organization (longer time given to them, depending on their disabilities and on the Partner procedures as regards the organization of the studies during the term concerned. Each University of the Europhotonics Master Program has a dedicated office for students with special needs. These offices coordinate, monitor and support all activities aimed at facilitating the integration into the University life.

3. Before the arrival of students to Europe, the Administrative officer of Aix-Marseille University sends the students e-mail with a detailed guide containing all useful practical information “from airport to classroom” itinerary and information (map of the campus and its neighborhoods, the names and mobile phone numbers of the teachers responsible for the courses, the location and the program for the welcome meeting). All information is also available on the Europhotonics website.

4. Each Partner provides students with the complete schedule of courses and exams at the very beginning of the term. A cultural program is offered to the student in each country.

5. The arrival of students is scheduled at least one week before the courses start, to take an active part at the welcome integration week in each partner university, if it exists. After the registration in Marseille, information about the students (list, contacts, nationality) is forwarded to the other Partners.

6. The Partners provide guidance to incoming students in finding accommodation.

7. Language/culture courses are offered free of charge to the enrolled students.

8. Local bank accounts are open in Marseille for every EMJMD student. This issue is organized by the staff of Aix-Marseille University, through the local initiative facility “guichet unique”, which is a unique portal, which considerably simplifies the administrative obligations of international students. Throughout the duration of the Master, EMJMD students receive scholarships via bank transfer from the Coordinating institution.

9. The medical and accident insurance is included in the participation costs for the EMJMD students. The insurance provides protection for
   - risks such as illness, accident, death, permanent disability, third-party liability
   - worldwide travel required for the participation in the EMJMD program
   - mobility periods in both program and partner countries

   All of these elements are covered through a global insurance contract with an insurance company. The payment is ensured globally for each intake during a two-year period coverage. The bank transfer is made from the Coordinating institution to the Insurance Company.

10. Resolution of complaints and appeals will be analyzed by the Europhotonics Consortium Committee, in connection with the competent bodies in charge of these issues in the universities concerned.

Article 16 – Joint Assessment methods of students' performance

The evaluation procedures of the Europhotonics master program are set out as follows:

1. Examinations take place at the end of each term. These examinations are organized at the local level, according to the local evaluation rules.
2. In each partner university, marks are given following the Studies and Examination Regulations. The correspondence between the marks is given by this table:

ECTS Scale	Barcelona	Karlsruhe	Marseille	Tampere	Vilnius
A EXCELLENT	9.0-10	1.0	18-20	5	10
B VERY GOOD	8-8.9	2.1 – 1.0	15-17.9	4	9
C GOOD	7-7.9	2.8 – 2.1	13-14.9	3	8
D SATISFACTORY	6-6.9	3.6 - 2.9	11-12.9	2	7 ; 6
E SUFFICIENT	5-5.9	4.00 - 3.6	10-10.9	1	5
FX (FAIL) F (FAIL : no credit)	0-4.9	5.0 – 4.0	0-9.9	0	4; 3; 2; 1

3. Marks are collected from all partners to calculate an arithmetic average grade.
4. Examinations for terms n°1, n°2, n°3 are written/oral exams, reports on lab-works, reports on the projects and oral presentations.
5. Defense and evaluation of the Master thesis are performed in respect with the local rules of the Partner University where the student has registered for term n°4.
6. If the student does not pass every exams of the term, a retake session can be organized. The student's performance is assessed through the course of the Program in accordance with the methods of assessment for each course undertaken. Assessments are graduated according to the delivering Partners. Reassessments of taught courses are arranged with local policies, procedures and practices at the relevant host Partner Institution.
7. The grades received by a student are forwarded to the coordinator, who in turn informs the other partners, except for a student studying at KIT. The grades can be forwarded only with the consent of the student studying at KIT. For this reason, it is expected that the student gives a prior approval by signing the Student Contract Agreement granting permission to forward the grades to the awarding institutions. Otherwise, the student must forward to the coordinator a certificate recognizing the academic success of the term(s) of study that he/she has taken at KIT. Additional discussion on the students results are being held during the two biannual meetings of the Pedagogical Committee. The Pedagogical Committee involves two academic representatives of each Institution. They are in charge of the final validation decisions.
8. Students have the possibility to discuss with the teaching staff about their assessments and grades obtained during the three first terms.

Article 17 – Promotion and dissemination of the Europhotonics Master Program

1. The website of Europhotonics provides all information about the Master course: admission criteria, information about funding and scholarships, objectives of the master, detailed contents of each course, evaluation criteria.
2. The non-educational actors play also an important role in the Master Program implementation. The program is an attempt of a new approach to the science-engineering educational methodology that gives priority to the interaction with non-educational (industrial) partners in the development of the program.
3. The use of the networks of collaborations and colleagues can contribute to the promotion of the Master program. External advertisement at the national and international level can also insure the selection and recruitment of the best students.

Article 18 – Continuity of the program, after the end of EMJMD funding

1. The participation in the management and evaluation of the Europhotonics Master studies has to be built on a sustainable model to continue after the end of the initial program.
2. The Europhotonics Master will be presented by all Partners to the important companies in the field of photonics throughout its existence to be able to construct positive bonds with non-educational actors.

3. Financial support possibilities are actively investigated during the coming years to increase the number of additional scholarships. The Europhotonics Consortium Committee defines the sources of possible support and the strategy to solicit them

   General funding: the possibility to establish a foundation, which can actively collect funds for the realization of the project objectives and the possibility to collect cash money from companies, which choose to put their tax at the disposal of the Europhotonics Master program.

   Direct scholarship: various funding sources may be called upon
   - from partner institutions,
   - from regions for local students, who would like to apply to EMJMD program
   - from the network of Embassies (ex. Campus France) and a variety of other bodies
   - from self-funded students
   - from research proposals including a certain number of scholarships for graduate students (master level)
   - from a research network including the participation of universities and industrial partners. In such cooperation group, it is easier to justify and convince industrial companies to fund a number of scholarships.

Article 19 – Intellectual property

19.1 Own Property rights

Each Party keeps the full and whole ownership property of their own property rights.

19.2 New Property rights belonging to one Party

The new Property rights are the property of the Party, which has carried out alone the work resulting from it. The possible new patents arising from it are filed in the Party's name and cost and at its own initiative.

19.3 Common new Property rights

19.3.1 Principles of ownership

In the case where new property rights result from staff work of two or several Parties, in such way that they cannot be separated, these new common property rights are the co-ownership of these Parties, referred to hereinafter as "joint owners" in proportion to their substantive intellectual, human, material and financial inputs, unless the contracting Parties decide in agreement with the other Party (ies), on the transfer of ownership of one of them.

In the case of new property rights resulting from the work performed in a common research structure without legal entity (i.e. joint research unit (UMR), evolving research training (FRE)) which is composed of several Parties, they are considered as owned by the parties participating in the research structures on a pro-rata basis, taking into consideration their intellectual, human, material and financial inputs.

In the case of common new property rights achieved by the staff from at least two research units, the ownership of new common property rights shall be shared among the Parties supervising the two research units on a pro-rata basis, taking into consideration their intellectual, human, material and financial inputs, given the fact that within each research structure, the Parties composing the research structure mutually agree to share the intellectual property rights, in the framework of an agreement.

Any common new Property rights consisting in a new patent, software or new knowledge protected by intellectual property rights is subject to co-ownership regulations, which are established by the co-ownership Parties, as soon as needed and in any case before industrial and/or commercial exploitation.

19.3.2 Common patentable new Property rights

The co-ownership Parties of joint patentable new property rights decide whether a patent application should be filed on behalf and in the name of the Parties. They shall appoint amongst them a coordinator authorised to carry out the formalities for acquiring patents and keeping them in force.

If one of the co-ownership Parties refrains from applying for a patent or from keeping on the new patents in force in its own country or abroad, the Party shall give notice to the other co-ownership Parties sufficiently in advance to allow them to obtain patents in their names, to proceed with the grant of the patents and keeping them in force at their own costs and to their own profit. The Party, which has renounced its rights, commits itself to sign every legal documents necessary to allow the other co-ownership parties to become the only co-owners of the new patent (s) in the country (ies) concerned.

It is understood that the Party which has renounced its rights may not be entitled to receive remuneration for the operational use of the new patent (s) concerned in the country (ies) in question.

The parties will agree upon the details in a separate agreement.

Each co-ownership party manages individually the possible remuneration for the inventors.

Any new Property right created or developed by a student under this program is the Property of the student. If any of these property rights are relevant within the framework of this Agreement, the Partners must make every effort to obtain from the student this specific right. If the student takes part in creating new intellectual property rights, the partners undertake to make every effort to obtain the rights from the student.

Article 20 – Liability

1. Each Partner shall be solely liable toward the other Partners for loss, destruction, damage or injury resulting from its own intentional or grossly negligent actions in the execution of this Consortium Agreement. Notwithstanding the foregoing, a Partners' aggregate liability shall be limited to once the Partner's share of the total cost of the project, provided such damage was not caused by a wilful act or gross negligence. As for the rest, the partners assume no liability towards each other except in cases of personal harm or injury.

2. The consortium partners assume no responsibility for damage caused to a third party by a Partner. When such damage is caused, this Partner alone shall be only responsible towards third parties.

3. Each Partner shall be solely liable towards the Coordinating Institution for any breach or non-compliance. If the Coordinating Institution has to pay any damages or penalties to the European Commission for such breach or non-compliance by a Partner, the Coordinating Institution shall be entitled to be fully reimbursed from the said Partner.

4. Each Partner shall be fully responsible for the performance of any part of its share of the Consortium Agreement and for the requirements of insurance and social security for its personnel, involved herein.

Article 21 – General Terms

1. All parties are subject to the rules and regulations set up by the Education Audiovisual and Culture Executive Agency (EACEA) in the agreements mentioned above regarding the responsibilities towards the EACEA and towards other parties to this agreement.

2. All parties are subject to the rules and regulations set up in their own respective country, in particular, visa and long term regulations, insurance regulations (medical coverage, accident, civil liability and repatriation).

3. All parties have to pay attention to the rules and regulations set up in each Partner University, in particular, with respect to any modifications of the program and any situation of disciplinary or complains problem.

4. According to the laws that regulate "Transparency, access to public information and good governance", the UPC will publish information on the signatory parts, including the economic conditions and all modifications that arise in future, related to this Consortium Agreement.

Article 22 – Dispute resolution

1. All disputes arising from the interpretation, development, modification, resolution or execution of the present Consortium Agreement, shall be settled by joint agreement and through consultation or negotiation between the Consortium Partner Universities through the Europhotonics Consortium Committee or through any other mechanism agreed to by the Consortium Partner Universities. If at any time a dispute arises in connection with this Consortium Agreement, the Partners agree to use all reasonable efforts to resolve the dispute in good faith.

2. If the dispute has not been resolved within a delay of ninety (90) days, either the complaining Partner or the concerned Partner (s) may take such further steps as they consider appropriate to resolve the dispute, including the initiation of an International Arbitration and/or court proceedings.

3. Nothing in this Article shall operate to restrict any Partner's rights to apply to a court for the preservation of its legal rights or for the emergency or interlocutory or interim relief (including for the avoidance of doubt).

Article 23 – Signature and Entry into Force

1. The legal representative of each Partner of the Consortium partners shall sign the present Agreement in eight originals. This agreement shall come into force on the day it has been signed by each of the parties but shall have retroactive effect from the date of decision of acceptance from the EACEA (Grant agreement signed on 27/07/2018).

2. The local coordinators bear responsibility toward the Consortium partners for the validity of the signature of their university's legal representative. Each local coordinator shall keep one original for the records of the Partner. Every amendment to this Agreement shall be signed in five originals by each Partner's legal representative for endorsement. Each local coordinator shall retain one original of every Partner's endorsement. The original endorsement shall be attached to each original of the present Agreement together with a copy of the European Commission's decision to approve the amendment.

Signad for an on behalf of Aix-Marseille Université

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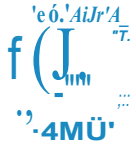
Legal represen tat M!,
Prof. Eric BERTON



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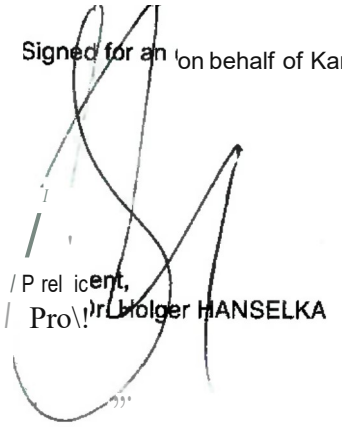
Signed for and on behalf of Karlsruhe Institute of Technology by



Vice-President,
Prof. Dr. AlexanderWANNER

In KARLSRUHE, on . 04. 2020

Signed for an on behalf of Universitat Pojj.técnica de Catalunya by

UN IVERSITAT POLIT CNCA
DE CATAWNVA
BA RCEL ONATECH

Rector,
Prof. Francesc TORRES TORRES

In Barcelona, on "30 / c,r;; / '"2. 02.C>

Signad for an on behalf of Universitat Autónoma de Barcelona by

Rector
Prof. Margarita ARBu 1DX"ARZO,

Unlfflr•ltat Autbnomade Botl:d&M

Rectora

In Barcelona, on

Signed for an on behalf of the Universitat de Barcelona

Vice-Rector,
Alejandro AGUILAR VILA,

In Barcelona, on

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UNIVERSITAToE
BARCELONA

Vic-e Re ctorare for Outreacha n d
I nterna aonaliZ<l tion

Signed for an on behalf of the Institut de Ciencies Fotóniques (The Institute of Photonic Sciences)

Director;
Prof. Lluis TORNEA,

In Barcelona, on

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Signed for an on behalf of Vilnius University

Vilnius University
Pro-Rector far Studies
Assoc. Prof. Valdas Jaskunas

Rector,
Prof. Rimvydas '¡JJ rnskas

InVilnius,on f / ;tf ,dpb-::>

VILNIAUS UNIVERSITETAS
LIETUVOS RESPUBLIKA

Signed far an on behalf of Tampere University

Martti Kauranen
Dean

Dean of the Faculty of Engineering and Natural Sciences
Prof. Martti KAURANEN

In Tampere; on April 20, 2020

TAMPERE UNIVERSIIY
Faculty of Engineering and Natural Scienc

List of Annexes

Appendix I – List of the Europhotonics courses
Appendix II – Initial budget prevision
Appendix III – List of Associated Partners

Appendix I – List of the Europhotonics courses

Term 1 - Marseille

- Fundamental in Optics .....(6 ECTS)
- Light Emission, Laser sources .....(3 ECTS)
- Imaging and Instrumentation in Optics .....(3 ECTS)
- Physics for Photonics – Part I .....(6 ECTS)
- Laboratory Practice.....(3 ECTS)
- Personal Project.....(6 ECTS)
- French Language / Culture.....(3 ECTS)

Term 2 - Marseille

- Advanced Electromagnetics I.....(3 ECTS)
- Physics for Photonics - Part II .....(2 ECTS)
- Nonlinear Optics.....(2 ECTS)
- Guided Optics-Applications of optoelectronics components..... (3 ECTS)
- Properties-fabrication-characterization of Optoelectronic devices..... (3 ECTS)

4 ECTS to choose among

- Electron Spectroscopy .....(4 ECTS)
- Photon Spectroscopy .....(2 ECTS)
- Introduction to molecular cell biology .....(2 ECTS)

- Signal and Image Analysis.....(3 ECTS)
- Lab project and Practice work.....(3 ECTS)
- French Language / Culture 2.....(2 ECTS)
- Internship .....(5 ECTS)

Term 2 - Karlsruhe

- Theoretical optics.....(4 ECTS)
- Nonlinear optics .....(4 ECTS)
- Optoelectronic components.....(4 ECTS)
- Spectroscopic methods .....(3 ECTS)
- Fabrication & characterization of optoelectronic devices(3 ECTS)
- Lab courses .....(6 ECTS)
- German Language / Culture.....(1 ECTS)
- Internship .....(5 ECTS)

Term 3 - Marseille

- Tutorials.....(2 ECTS)
- Quantum Optics .....(3 ECTS)
- Analysis on research or technological intelligence.....(2 ECTS)
- Laser sources and application / Matter interaction.....(3 ECTS)

- Optical components and optoelectronics.....(3 ECTS)
- Photonics for biomedical applications.....(3 ECTS)

9 ECTS to choose among

- Experimental projects A (apprenticeship training) .....(3 ECTS)
- Experimental projects B (apprenticeship training).....(3 ECTS)
- Advanced methods for optical instrumentations.....(3 ECTS)
- Advanced Electromagnetism II .....(3 ECTS)*
- Numerical methods for electromagnetism.....(3 ECTS)*
- Instrumentation for astronomy from ground and space . (3 ECTS)*
- Nanophotonics .....(3 ECTS)*

- French Language / Culture 3.....(2 ECTS)

Term 3 - Karlsruhe

- Additive key competencies .....(3 ECTS)
- Seminar course (research topics).....(4 ECTS)
- Photonics Materials and devices .....(16 ECTS)*
    - Optical Waveguides and Fibers .....(4 ECTS)
    - Optical Transmitters and Receivers .....(6 ECTS)
    - Field Propagation and Coherence.....(4 ECTS)
    - Solid-state Optics.....(6 ECTS)
    - X-Ray Optics.....(3 ECTS)
    - Optical Network and Systems .....(4 ECTS)
    - Laser Physics .....(4 ECTS)
    - Quantum Optics .....(4 ECTS)
    - Adaptive Optics .....(3 ECTS)

- Solar Energy .....(16 ECTS)*
    - Solar Energy .....(6 ECTS)
    - Solid-State Optics .....(6 ECTS)
    - Plastic Electronics.....(3 ECTS)
    - Nano-Optics.....(6 ECTS)
    - Electric Power Generation and Power Grid.....(3 ECTS)
    - Solar Thermal Energy Systems .....(3 ECTS)
    - Computational Photonics.....(4 ECTS)

Term 3 - Barcelona

- Additive key competencies: Business and patents in photonics..... (5 ECTS)*
- Active and spectral imaging.....(3 ECTS)*
- Nanophotonics .....(3 ECTS)*
- Laser systems and applications.....(3 ECTS)*
- Measuring with light.....(3 ECTS)*
- Visual optics and biophotonics.....(3 ECTS)*

- Integrated photonics .....(3 ECTS)*
- Non Linear Optics II .....(3 ECTS)*
- Fibers and telecommunications .....(3 ECTS)*
- Laser applications in remote sensing: LIDAR .....(3 ECTS)*
- Experimental optical techniques in biology .....(3 ECTS)*
- Image processing in biophotonics .....(3 ECTS)*
- Quantum Optics .....(3 ECTS)*
- From cooling and trapping of neutral atoms to Bose-Einstein condensates (3 ECTS)*
- Quantum simulators with ultracold quantum gases .....(3 ECTS)*
- Quantum information theory: communication and computation ..... (3 ECTS)*
- Advanced quantum optics with applications .....(3 ECTS)*
- Machine learning on classical and quantum data .....(3 ECTS)*
- Ultrafast and ultra-intense laser light.....(3 ECTS)*

Term 3 - Tampere

- Additive key competencies = Starting Finnish..... (3 ECTS)
- FYS-5527 Ultrafast nonlinear optics..... (5 ECTS)
- FYS-2506 Surface Science of Photonic Nanomaterials (5 ECTS)
- FYS- 6107 Optoelectronics devices and technology ..... (5 ECTS)
- FYS-6656 Photonic materials..... (5 ECTS)
- FYS-5456 Applications of Laser Technology ..... (5 ECTS)
- FYS-5427 Advanced laser technology.....(5 ECTS)

Term 3 - Vilnius

- Additive key competencies = Lithuanian Language..... (5 ECTS)
- Technological Equipment for Laser Processing..... (5 ECTS)
- Technologies of Optical and Laser Related Components (5 ECTS)
- Scientific research work ..... (10 ECTS)
- Fiber Physics and Technology ..... (5 ECTS)*
- Electronics and Photonics Market..... (5 ECTS)*

Term 4

- Spring School .....(2 ECTS)
- Master Thesis .....(28 ECTS)

Minimum 30 ECTS per Term
*: elective courses

Appendix II – Initial budget prevision

4 INTAKES: 12 EU students, 58 non EU students (48 Partner country, 6 heading 4, 4 EDF) 70 students, 4 editions = **17.5 students/edition**		
1. **Total income**	**2 170 000 + 1 152 000 + 220 000 =**	**3 542 000 €**
2. **Scholarships**		
Monthly scholarships : 70 x 24 000 €		**1 680 000 €**
Travel and installation : 70 x 7 000 €		**490 000 €**
TOTAL Scholarships		**2 170 000 €**
3. Participation costs		
Participation cost (12 EU students) 12 x 9 000 €		**108 000 €**
Participation cost (58 non EU students) 58 x 18 000 €		**1 044 000 €**
TOTAL Participation costs		**1 152 000 €**
4. **Lump sum**		
Preparatory year (20 000 €) + 4 x 50 000 €		**220 000 €**

PART A: Participation cost distribution (Total: 1 152 000 €)					
Category of expenditure	**Costper student/year (4 terms)**	**Number of students**	**Cost per Intake**	**Number of Intakes**	**Total cost**
Marseille, KIT, Barcelona, TUT, Vilnius costs including registration and tuition fees	**9 314,28 €**	**17,5**		**4**	**652 000,00 €**
Fixed amount (5000€) for Vilnius, TUT, UPC			**15 000,00 €**	**4**	**60 000,00 €**
Health and Travel Insurance (taxes included)	1 000,00 €	17,5	17 500,00 €	4	**70 000,00 €**
Spring School : student full board and travel			24 000,00 €	5	**120 000,00 €**
Spring School : invited speakers and accompanying staff (travel and subsistence)			16 000,00 €	5	**80 000,00 €**
Management costs specific for the coordinating institution (mailing, advertising, trips etc.)			5 000,00 €	4	**20 000,00 €**
Half salary of the Management Officer for 6 years					**150 000,00 €**
TOTAL					**1 152 000,00 €**

PART B: Consortium Management costs (Total: 220 000 €)			
Category of expenditure	**Cost per Intake**	**Number of Intakes**	**Total cost**
Preparatory year: travel between Partners, web site construction…			**20 000,00 €**
Visiting Scholars (6 scholars x 2 weeks x 4 cohorts)	21 600,00 €	4	**86 400,00 €**
Website management	5 000,00 €	4	**20 000,00 €**
Development of network tools for program dissemination	5 000,00 €	4	**20 000,00 €**
Participation in Summer School and visits (Program Partners travel and subsistence)	8 400,00 €	5	**42 000,00 €**
Other (reserve+trips of non EU partners+trips of committees)	7 900,00 €	4	**31 600,00 €**
TOTAL			**220 000,00 €**

Appendix III – List of Associated Partners

The associated partners of the Europhotonics program are:

- University of Rochester (USA)
- University of Gondar (Ethiopia)
- UM-SJTU Joint Institute, Shanghai Jiao Tong University (China)
- University of Sydney (Australia)
- Universidad Nacional Autonoma de Mexico (Mexico)
- T.I.M.E. Association