JEMARO
Erasmus Mundus Joint Master Degrees
Agreement number 2019-1909/001-001

With the support of the Erasmus+ Programme of the European Union

JEMARO PROGRAMME DIPLOMA SUPPLEMENT

ERASMUS MUNDUS JOINT MASTER DEGREE

Japan-Europe Master on Advanced Robotics: JEMARO

This Programme Certificate follows the Diploma Supplement model developed by the European Commission, Council of Europe and UNESCO/CEPES. The purpose of the certificate is to provide sufficient independent data to improve the international « transparency » and fair academic and professional recognition of qualifications (diplomas, degrees, certificates, etc...). It is designed to provide a description of the nature, level, context, content and status of the studies that were pursued and successfully completed by the individual named on the original qualification to which the supplement is appended. It should be free from any value judgements, equivalence statements or suggestions about recognition. Information in all eight sections should be provided. Where information is not provided, an explanation should be given why.

1. INFORMATION IDENTIFYING THE HOLDER OF THE QUALIFICATION

- Family name(s): IANNONE
- First name(s): Antonio
- Date of birth (day/month/year): 17/11/2000
- Nationality: Italy

2. INFORMATION IDENTIFYING THE QUALIFICATION

2.1. Name of qualification:

By successfully completing JEMARO, "Japan-Europe Master on Advanced Robotics", Erasmus Mundus Master's programme, the student obtains two of the following Masters degrees:

- Master of Science, technology, Health from "Ecole Centrale de Nantes" (France) with the specialism "IMARO – Advanced Robotics" of the mention "CORO (Control and Robotics)"
- Master diploma in Engineering in Robotics and Automatic Control ("Robotyka i Automatyka" in Polish), from Warsaw University of Technology (Poland)

- Master diploma in Robotics Engineering (Laurea Magistrale in Robotics Engineering) from University of Genoa (Italy)
- Master of Science in Engineering from Keio University (Japan) 修士（工学)

2.1. Main fields of study opened with the qualification:

JEMARO is **the first joint Japan-Europe programme offering high-level academic and industrial training across the whole span of robotics** (Mathematical modelling, Control engineering, Computer engineering, Mechanical design) with the technological specialisation of the associated industrial partners. JEMARO graduates are prepared for all executive positions in industry, scientific research and academic career, at both national and international levels.

The aim of the first two semesters is to provide the students with a **solid interdisciplinary background across the main areas of robotics (Mathematical Modeling, Control Engineering, Computer Engineering, Mechanical Design and Artificial Intelligence)**. Then, all JEMARO students will spend their second year at Keio University in Japan. During the third semester, students will follow courses related to **Control, Mechatronics, Robotics, Human Interface, Signal Processing and Biological Information**.

2.2. Name and status of awarding institutions

- Ecole Centrale de Nantes (ECN), France, public higher education institution
- Politechnika Warszawska (WUT - Warsaw University of Technology), Poland, public higher education institution
- Università di Genova (UniGe - University of Genoa), Italy, public higher education institution
- 慶應義塾大学 (Keio University), Japan, private higher education institution.

2.3. Name and status of institutions administering studies

Idem.

2.4. Language(s) of institution/examination

English.

2.5. Further information

JEMARO, "Japan-Europe Master on Advanced Robotics", is an integrated Master course conducted by the following three European institutions and one Asian institution:

- Ecole Centrale de Nantes (ECN) - France (European coordinator)
- Keio University (Keio) - Japan (Japanese coordinator)
- University of Genoa (UniGe) - Italy
- Warsaw University of Technology (WUT) - Poland

In addition to these 4 partner institutions, 2 higher education institutions and 8 industrial partners are involved as Associated partners in JEMARO, namely:

- Jaume I University (UJI) –Spain
- Shanghai Jiao Tong University (SJTU) – China
- YASKAWA, Japan
- Soft Servo Systems, Japan
- Inc., NTT Data, Italy
- Motion Lib, Inc., Japan
- BA Systèmes, France
- PIAP, Poland
- PIAP-Space, Poland
- IRT Jules Verne, France

JEMARO has been designed and accepted in the framework of the European Union ERASMUS-MUNDUS programme since 2019.

"An Erasmus Mundus Joint Master Degree (EMJMD), is a **prestigious**, **integrated**, **international** study programme, **jointly delivered** by an international consortium of higher education institutions."[1]

Erasmus Mundus programmes aim at enhancing the quality of higher education and at promoting dialogue and understanding between people and cultures through mobility and academic cooperation. Their goal is also to foster excellence, innovation, and internationalisation in HEIs, to boost the attractiveness of the European Higher Education Area (EHEA), to support the EU's external action in the field of higher education and to improve the level of competences of Master graduates and their employability.

The partners of the Consortium jointly deliver this programme certificate. In addition to this document, each partner institution may also deliver their local diploma supplement.

3.

INFORMATION ON THE LEVEL OF QUALIFICATION

3.1. Level of qualification

- Master degree – level 7 EQ
- Five years - 10 semesters, i.e 300 ECTS (European Credit Transfer and Accumulation System) of high education studies.
- Bologna Process: second-cycle qualification

3.2. Official duration of the programme in credits and/or years

JEMARO programme lasts two academic years split into four semesters each worth 30 ECTS.

[1] https://eacea.ec.europa.eu/erasmus-plus/emjmd-catalogue_en

3.3. Access requirements

The masters course applies to students who already hold a first university degree with the equivalent of at least 180 ECTS[2], after at least three years of university studies (at the level of bachelor of science), in a field related to Robotics such as: mechatronics, automatic control, computer science, electrical engineering, mechanical engineering, and applied mathematics. The applicants have to be fluent in writing and reading in English.

Students apply through a dedicated online portal, the partner institutions review their applications and select the students jointly. The Selection Committee awards Erasmus Mundus Scholarships or Consortium Scholarships to the best applicants.

INFORMATION ON THE CONTENTS AND THE RESULTS GAINED

4.1. Mode of study

- Full time
- Mobility of at least one semester in at least 2 partner institutions
- Mandatory local language courses
- Number of credits per semester: 30 ECTS
- Duration of the programme: 2 years (4 semesters, 120 ECTS, 30 Japanese Credits[3])

4.2. Programme requirements

A. Contents

The aim of the first year is to provide the students a solid interdisciplinary background across the main areas of robotics: perception (computer vision, sensors, signal processing), cognition (computer science, artificial intelligence, human computer interaction), action (kinematics, dynamics, control), and mathematical foundation (modeling, simulation, optimization).

The programme of the second year includes courses related to control, mechatronics, robotics, human interface, signal processing and biological information, and research activities conducted under a joint supervision from EU and Keio University professors. Students also complete the Research Track to conduct their own research and to earn Research Credits.

For the second year, the Research Track will end with the Master's Thesis Defence. Associated partners (academic and industrial) could also be involved in the courses and in the thesis supervision.

[2] In the case of a Japanese student applying through Keio University, the student must hold at least 138 Japanese Credits, after at least four years of university studies

[3] Will be referred to as « JC » in the rest of the document

The students may choose to engage a mobility at one of the European partners institutions based on their local specialisations:

- ECN: Automatic Control (60% of the staff involved) and Mechanical Engineering (40% of the staff involved),
- WUT: Computer sciences (50% of the staff involved) and Mechanical Engineering (50% of the staff involved),
- UNIGE: Computer Engineering (80% of the staff involved) and Mechanical Engineering (20% of the staff involved).

B. ECTS and JC

- Lectures, Tutorials, Experimental work, Reports: 90 ECTS or 24 JC
- Master thesis: 30 ECTS or 6 JC

C. Skills developed:

JEMARO graduates are trained to develop the following competences:

- Ability to master the modern techniques related to Advanced Robotics using software tools of modelling, simulation, optimisation, analysis, synthesis
- Ability to work as an expert in interdisciplinary team working on a variety of Engineering Systems,
- Ability to communicate effectively both by written and oral presentations in an international context,
- Ability to adopt the method most suitable for the problem at hand and select the technological components needed to implement the proposed solution,
- Ability to transfer high techniques methodology from university to industry,
- Ability to carry out research work and to join PhD study.

4.3. Programme details

The list of the courses attended by Antonio IANNONE and the corresponding results are included in the official transcript sheets provided by the institutions of the educational path (item 6.1).

4.4. Grading systems and equivalences

The lowest grade to pass in each institution is detailed below:

- ECN: D
- UniGe: 18
- WUT: 3
- Keio: C

To convert from European institutions (ECN, UniGe, WUT) grades to Keio University grades, the following conversion tables are used:

ECN	A+	A	A-	B+	B	B-	C+	C	C-	D
Keio	S			A		B		C		

UniGe	30 e lode	30	29	28	27	26	25	24	23	22	21	20	19	18
Keio	S					A			B			C		

WUT	5	4.5	4	3.5	3
Keio	S	A	B	C	C

To convert from Keio University grades to their local grades, European institutions (ECN, UniGe, WUT) use the corresponding conversion in the following table:

Keio	S	A	B	C
ECN	A+	B+	B-	D
UniGe	30	26	23	18
WUT	5	4.5	4	3

4.5. Information about the thesis

- Student's thesis title: Development and Evaluation of Supernumerary Robotic Limb Control Strategies and Sense of Embodiment in a Virtual Reality Environment
- Supervisors: Rebecca Fribourg, Maki Sugimoto

INFORMATION ON THE FUNCTION OF THE QUALIFICATION

5.1. Access to further education

The obtained Master's degree allows the students to start a PhD programme.
JEMARO master's is a level 7 qualification and gives access to a level 8 qualification.
JEMARO gives access to the equivalent of third-cycle studies as per the Bologna process.

5.2. Professional status conferred

JEMARO graduates can work as expert or project manager upon graduation.

ADDITIONAL INFORMATION

6.1. Educational path

Antonio IANNONE has been admitted to JEMARO according to item 3.3. The student must obtain the equivalent at least 60 ECTS from two different partner institutions of JEMARO consortium (Ecole Centrale de Nantes, Keio University, University of Genoa, Warsaw University of Technology).

The mobility scheme of the student is described in the chart below. The consortium acknowledges the credits obtained in any institution. The student is awarded the Masters degrees of one European institution and of Keio University, Japan.

Year	Institution	Language of Instruction
First Year	Ecole Centrale de Nantes (ECN)	English
Second Year	Keio University	English

Table 3: Educational path

6.2. Examination boards of the consortium institutions decide to deliver the following degrees (09/09/2024)

- Master of Science, technology, Health from “Ecole Centrale de Nantes” (France) with the specialism “IMARO – Advanced Robotics” of the mention “CORO (Control and Robotics)”
- Master of Science in Engineering from Keio University (Japan) 修士（工学)

6.3. Further sources of information

- https://jemaro.ec-nantes.fr/
- https://jemaro.st.keio.ac.jp/

7.

CERTIFICATION OF THE SUPPLEMENT

Date (Day/Month/Year): 23/09/2025
Signature: Vincent FREMONT
Capacity: Coordinator of the Master’s programme JEMARO, Professor at Ecole Centrale de Nantes

Official Stamp and Signature:

ADDITIONAL INFORMATION ON THE HIGHER EDUCATION SYSTEMS IN THE CONSORTIUM COUNTRIES

The higher Education systems in France, Poland, Spain and Italy follow the Bologna process[4]. The Licence (Bachelor) is the first university degree, it leads to 180 ECTS for 3 years of study, up to 240 ECTS for 4 years of study. The Master is the second university degree, it leads to 60-120 ECTS carried out in one or up to two years of full time-study and contains a research work of 30 ECTS. The Ph.D. degree is carried out within at least three years of full time study and contains research results.

In Japanese Master's programmes in engineering, students take lectures and spend most of their time in laboratories to conduct their own research. Master's degree is awarded with 20 Lecture Credits and 10 Research Credits together with a master thesis and a thesis defence. A typical course registration consists for the first year of 10 lectures (20 lecture credits) and 1 research activity referred to as "Independent Study" (4 research credits), and for the second year, no lectures and 1 research activity referred to as "Graduate Research 1" (6 research credits).

4 https://education.ec.europa.eu/education-levels/higher-education/inclusive-and-connected-higher-education/bologna-process