

AGREEMENT FOR DOUBLE PhD PROGRAMME BETWEEN

# POLITECNICO DI MILANO

**PhD Programme in Structural, Seismic and Geotechnical Engineering**

# and

**UNIVERSITY OF KURDISTAN**

**Doctoral Degree Programme in Structural Engineering**

## Preamble

In consideration of laws and regulations governing the co-operation between public institutions of a scientific, cultural and professional nature and other public or private organizations in Italy and abroad;

In consideration of the Decree of the Ministry of Universities and Research no. 226 of 14/12/2021;

In consideration of the Regulations on the PhD Programmes at Politecnico di Milano;

**the Politecnico di Milano**

with legal domicile at piazza Leonardo da Vinci 32, 20133 Milano (Italy), represented in this deed by its Rector, Prof. Donatella Sciuto and

**the University of Kurdistan in Iran**

with legal domicile at Pasdaran Street, 66177, 15175 Sanandaj, (Iran), represented by its Director Professor Hamed Ghaderzadeh

agree to develop a system of academic exchanges that will allow a PhD candidate to perform coordinated doctoral studies at both Institutions by spending periods of similar duration at both sites, jointly guided by scientific supervisors from both Institutions, aimed at obtaining the doctoral title from each Institution by satisfying the requirements and quality standards of the doctoral studies of each Institution.

This agreement is based on the principles specified hereunder.

## Part 1 - General principles

1. Admission

The admission to each doctoral programme is by two separate and independent selection processes, in accordance with the respective regulations of each Institution.

Each Institution will inform the other about the admission.

1. Language requirements

The PhD candidate must have a good knowledge of the languages of the two Institutions or at least of the language of one of the two Institutions and of the English language.

1. Starting date

The starting date of the double Ph.D. programme coincides with the beginning date of the doctorate which has the latest starting date.

1. Duration of studies

The duration of the doctorate will be four years after the starting date of the double Ph.D. programme, unless extraordinary, exceptional and clearly motivated situations justify a reduction or extension. In particular, if the double PhD specified objectives are not reached, the duration may be extended beyond the four years for up to an additional year and in accordance with the regulations of the two Institutions.

1. Residency

The research and study activities will be carried out at the two Institutions during alternated or consecutive periods. The total duration of the periods spent at each of the two Institutions is expected to be approximately equal and to be concerted by the supervisors (art. 7).

Visits at Institutions other than the hosting one can be authorized, if useful to the studies.

1. Enrolment and fees, health insurance and protection measures

The PhD candidate will be enrolled annually at both Institutions.

However the enrolment fees will be paid only to the home Institution (i.e. the Institution of origin), as specified in Part 2 of this document.

The PhD candidate will be required to show proof of health insurance before assuming her residency at the hosting Institutions.

Each institution shall maintain policies of insurance and safety for staff and students within the law of its own country.

1. Supervision of the PhD candidate

Each Institution will appoint a professor as thesis supervisor. The PhD candidate will turn to the supervisor for advice or assistance during her/his residence at that Institution. The two supervisors will jointly exercise the function of scientific guide of the PhD candidate and are responsible for the PhD candidate doctorate education and research training.

1. Studying activities

The main activities that the PhD candidate must carry on during the doctoral programme include taking advanced level courses, doing research work and elaborating and defending the doctoral thesis. The PhD candidate may take courses and the associated exams at each of the two Institutions, in accordance with the study curriculum concerted with the supervisors.

At least 30 ECTS credits related to courses must be obtained in both Universities; 10 of which must be obtained at the Politecnico di Milano.

The PhD candidate shall fulfil all requirements and regulations ruling the Ph.D. programmes of both Institutions, particularly with regard to the course credit recognition, qualifying examination (if requested) etc.

The doctoral thesis is expected to contain research material of relevance superior to that attainable by work performed within a single PhD programme. It will be written in English, with two extended summaries in the languages of the two involved Institutions.

1. Intermediate evaluations

Each Institution will separately examine and evaluate the progress of the PhD candidate annually or with the prescribed frequency, and transmit the result of the evaluation to the other Institution.

1. Final evaluation and award of the title

After completing the double doctoral program and satisfying all the associated requirements (in particular the fulfilment of the coursework credits and the positive committee’s evaluation of the thesis work) the PhD candidate will be awarded the “Dottorato di ricerca in Ingegneria Strutturale, Sismica, Geotecnica” by Politecnico di Milano and the title “Doctoral Degree in Structural Engineering” by University of Kurdistan in Iran.

1. Composition of final evaluation committee

The defence of the thesis will be independently held two times, at host institution (Politecnico di Milano) and home institution (University of Kurdistan).

The defence of the thesis will be held at the host institution (Politecnico di Milano) in English. The committee for the thesis defence at Politecnico di Milano and the defence procedure will be according to regulations of Ph.D. programs of Politecnico di Milano.

The defence of the thesis will be held at the home institution (University of Kurdistan) either in Persian or English. The committee for the thesis defence at the University of Kurdistan will be according to regulations ruling the Ph.D. programs of the University of Kurdistan.

The two committees will be independently appointed by each partner institution and approved by the Rector of Politecnico di Milano for the host institution, and by the Rector of the University of Kurdistan for the home institution.

Two professors from Institutions different from the two engaged in this agreement will have to prepare a written relation on the thesis work.

1. Financial matters

The PhD candidate is expected to be financially supported by a scholarship or grant from either one of the Institutions or from a third party.

The PhD candidate will assume expenses for travel, accommodation and all living expenses.

For the PhD candidate’s activities each Institution will freely make available its own resources, including laboratories.

The travel expenses for the Politecnico di Milano thesis supervisor will be in charge of the supervisor own research funds and/or of the Department of Civil and Environmental Engineering.

The travel expenses for the University of Kurdistan thesis supervisor will be in charge of the supervisor own research funds and/or the Department of Civil Engineering.

The travel expenses for the external members of the committee will be in charge of the PhD candidate’s home Institution.

There are no other financial charges for the Institutions.

1. Research results protection

The protection of the content of the thesis and the publication, exploitation and protection of the results of the research work developed by the candidate during the work carried out in both Institutions will be submitted to the regulations in force in both Countries and will be guaranteed according to specific procedures in force in each Country.

14. Controversies

The parties agree to solve in a friendly manner any controversy arising from the interpretation of the present agreement. In the event that the disagreement cannot be resolved, the issue(s) will be submitted for arbitration; each party will appoint a member of the arbitration panel and an additional member will be chosen by mutual consent.

1. Expiration of this agreement

This agreement for a double PhD for the PhD candidate indicated in Part 2 of this document will expire when both PhD titles are conferred, and in any way will expire five years after the starting date of the double PhD programme.

Should the PhD candidate decide not to proceed with the program, or be denied authorization to proceed, the two Institutions will end jointly the present agreement.

# Part 2

# Individual data and conditions

1. The PhD candidate

LAST NAME Azizi FIRST NAME Samira

Born in Sandaj (Iran) on 27/05/1992

Admitted to the 34th cycle (3rd entrance) of “PhD Programme in Structural, Seismic and Geotechnical Engineering” at Politecnico di Milano, on 01/06/2019

and

admitted to the PhD programme in Structural Engineering at University of Kurdistan, on 23/09/2018

starts the programme for the double doctorate on 01/06/2023.

1. **Schedule**

Work on the dissertation will be carried out at both Universities, in alternating periods, according to the following calendar:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **YEAR** | **Institution** | **PERIOD** | **ACTIVITY** | |
| **2018** | *Univ. Kurdistan* | *September - December* | Elective Courses | |
| **2019** | *Univ. Kurdistan* | *January - Jun* | Elective Courses | |
| *September - December* | Preparation for MSRT exam & 1st Stage of Research: Study and Implement Blind Source Separation methods. | |
| **2020** | *Univ. Kurdistan* | *January - Jun* | Preparation for Comprehensive Exam & 2nd Stage of Research: study and implement different Image processing approaches to find features. | |
| *September - December* | 3th Stage of Research: Making the video of vibrating structures and apply PCA-CP, ICA and  SCA to find mode shapes and frequencies. | |
| **2021** | *Univ. Kurdistan* | *January - Jun* | Write a Ph.D. Proposal and defence of the Proposal. | |
| *September - December* | 4th Stage of Research: Design a spherical filter type that does not need to select the direction of the filter and works for all edges | |
| **2022** | *Univ. Kurdistan* | *January - Jun* | 5th Stage of Research: Apply the BSS on the phase from spherical filter | |
| *Univ. Kurdistan* | *September - December* | 6th Stage of Research: Apply the methods on different video examples as well as a real bridge and compare the result | |
| **2023** | *Univ. Kurdistan* | *January - March* | 7th Stage of Research: Apply Optical flow estimation methods on Videos |
| *POLIMI* | *March-October* | 8th Stage of Research: Studying and Implementing Practical Vision-Based Methods and Taking the Advantage of Using Data Science Techniques Applied to SHM & Elective Course |
| *Univ. Kurdistan* | *November* | **FINAL DEFENCE (**At least one paper must be accepted**)** |
| **2023** | *POLIMI* | *December* | 9th Stage of Research: Studying and Implementing SHM methods |
| **2024** | *POLIMI* | *January - June* | 9th Stage of Research: Studying and Implementing SHM methods |
| *POLIMI* | *June* | **FINAL DEFENCE** |

1. **Enrollment and scholarships**

The PhD candidate will get a scholarship from (home Institution) University of Kurdistan for the duration and according to the regulation of the Institution.

The PhD candidate will not pay the enrolment fees at Politecnico di Milano (host Institution)

1. **Supervisors of the thesis**

Under this agreement, the Advisors named below will be jointly responsible for directing, controlling and monitoring research conducted by the Candidate at both Universities:

for the Politecnico di Milano, prof. Stefano Mariani

for the University of Kurdistan, prof. Kaveh Karami

1. **Thesis title**

The thesis has the tentative title Vision-Based structural health monitoring using blind source separation and data science techniques.

The defence of the thesis will be independently held two times, at host institution (Politecnico di Milano) and home institution (University of Kurdistan). Remote participation of jury members by videoconference is allowed.

Signatures

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| --- | --- |
| **For the University of Kurdistan in Iran** | **For Politecnico di Milano** |
| Prof. Hamed Ghaderzadeh  Director | Prof. Donatella Sciuto  Rector |
|  | …. |
|  |  |
| Prof. Kaveh Karami  Supervisor | Prof. Stefano Mariani  Supervisor |
|  |  |
|  |  |
| date | *Date* |

Samira Azizi

PhD Candidate

*date*