POLITECNICO
MILANO 1863

AGREEMENT FOR DOUBLE PhD PROGRAM BETWEEN

POLITECNICO DI MILANO
Dottorato di Ricerca in Ingegneria Strutturale, Sismica, Geotecnica
Structural Seismic and Geotechnical Engineering

and

FERDOWSI UNIVERSITY OF MASHHAD
Doctoral Degree Program in Civil Engineering-Structure

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 Italian Ministerial Decree no. 45 of 08.02.2013;

In consideration of the Regulations on the Doctoral Research Program of the 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. Ferruccio Resta and

the Ferdowsi University of Mashhad

with legal domicile at Azadi Square, Mashhad, Razavi Khorasan Province (Iran), represented in this deed by its Rector, Prof. Mohammad Kafi

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 program 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.

2. 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. In the latter case, the PhD candidate

must engage to learn the language of the Institution not known. To this aim, the two Institutions will offer the PhD candidate the possibility to follow specific courses in order to learn the local language.

3. Starting date

The starting date of the double Ph.D. program coincides with the beginning date of the doctorate which has the earliest starting date.

4. Duration of studies

The duration of the doctorate will be at least four years after the starting date of the double Ph.D. program, 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.

5. 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.

6. 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 his/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.

7. 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.

8. Studying activities

The main activities that the PhD candidate must carry on during the doctoral program 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. programs 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 program. It will be written in English, with two extended summaries in the languages of the two involved Institutions.

9. 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.

10. 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 (Structural Seismic and Geotechnical Engineering)" by Politecnico di Milano and the title "Doctoral Degree in Civil Engineering-Structure" by Ferdowsi University of Mashhad.

11. 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 (Ferdowsi University of Mashhad).
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 (Ferdowsi University of Mashhad) either in Persian or English. The committee for the thesis defence at Ferdowsi University of Mashhad will be according to regulations ruling the Ph.D. programs of Ferdowsi University of Mashhad.
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 Ferdowsi University of Mashhad 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.

12. 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 Dipartimento di Ingegneria Civile e Ambientale.
The travel expenses for the Ferdowsi University of Mashhad 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.

13. 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 Alireza Entezami 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.

15. 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 program.
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

ENTEZAMI ALIREZA
Born in Mashhad, Iran on 26/08/1983
Admitted to the XXXI cycle of "Dottorato di Ricerca in Ingegneria Strutturale, Sismica, Geotecnica (Structural Seismic and Geotechnical Engineering)" at Politecnico di Milano,
on December 13, 2018
and
admitted to the PhD program in Civil Engineering-Structure at Ferdowsi University of Mashhad,
on 23/09/2014

starts the program for the double doctorate on December 13, 2018.

2. Enrollment and scholarships

The PhD candidate will get a scholarship from Ferdowsi University of Mashhad for the duration and according to the regulation of the Institution.
The PhD candidate will not pay the enrolment fees at Politecnico di Milano

3. The supervisors of the thesis are:

for the Politecnico di Milano, prof. Stefano MARIANI
for the Ferdowsi University of Mashhad, prof. Hashem SHARIATMADAR

4. Thesis title

The thesis has the tentative title
"Structural health monitoring based on statistical pattern recognition methods and vibration data"

Signatures

For the Politecnico di Milano

Prof. Ferruccio Resta
Rector

Milano, date

23 GEN. 2019

For the Ferdowsi University of Mashhad

Prof. Mohammad Kafi
Rector

Mashhad, date

Annex 1

Double PhD Study Plan

Project: **"Structural health monitoring based on statistical pattern recognition methods and vibration data"**

PhD Candidate: Alireza Entezami

Supervisors:
Prof. Stefano Mariani (Politecnico di Milano)
Prof. Hashem Shariatmadar (Ferdowsi University of Mashhad)

Schedule

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

YEAR	Institution	PERIOD	ACTIVITY
2014	*FUM*	*September - January*	Elective Courses
2015	*FUM*	*February - July*	Elective Courses & State of Art
		September - January	Elective Courses & 1st Stage of Research: Studying and Implementing of the Selected Algorithms in Vibration based Statistical Time Series Methods to Structural Health Monitoring (SHM)
2016	*FUM*	*February - December*	Preparation for Comprehensive Exam & 2nd Stage of Research: Conducting Efficient Research on the Data-Driven SHM Strategies
2017	*FUM*	*January - March*	Preparation for Comprehensive Exam & 3rd Stage of Research: Evaluating the Applications of Statistical Pattern Recognition in Terms of Feature Extraction and Statistical Decision-Making on SHM
		March 10th	Candidacy Exam
		March- June	Preparation for Defensing of Ph.D. Proposal
		June 6th	Proposal Approval
		June - December	4th Stage of Research: Categorizing and Studying the Main Challenging Issues Regarding the Modern SHM Strategies
2018	*FUM*	*January - August*	5th Stage of Research: Multidisciplinary Studies
	POLIMI	*August - December*	6th Stage of Research: Assessing the Variations of the Operational and Environmental Conditions on Damage Diagnosis Approaches
2019	*POLIMI*	*January - April*	7th Stage of Research: Studying and Implementing Practical Methods by Using Statistical and Mathematical Concepts
	FUM	*April*	FINAL DEFENSE
	POLIMI	*April - August*	8th Stage of Research: Implementing Algorithms on the Large Scale and Complex Structures
	POLIMI	*August - October*	Yearly evaluation and admission to final defense
2019/2020	*POLIMI*	*November - March*	FINAL DEFENSE