



Annex 1

Table 1 – Structure of the double diploma

	Sapienza, Università di Roma, Laurea Magistrale in Ingegneria Gestionale. Students must elect to take the <i>Business Intelligence and Analytics (BIA)</i> curriculum	ENSEA Engineering degree in Electrical and Computer Engineering <i>Signal Processing and Artificial Intelligence</i> track	ECTS
1st year	Courses taken at Sapienza transferrable to ENSEA	Transferred courses from Sapienza *	60
2nd year	Transferred courses from ENSEA	Courses taken at ENSEA transferrable to Sapienza	30
	Thesis		30
Total ECTS			120

* Students from ENSEA would join La Sapienza after their second year of Engineering Cycle (equivalent to first year of Master) so they would only have to transfer 30ECTS of courses from La Sapienza + the Master Thesis

** As our students leave ENSEA with only 30 ECTS of courses to validate, we authorize them to pick courses from first and second year of Master in their 30ECTS transferred credits plan. This means that upon validation of 30ECTS out the recognizable courses listed below, we would recognize the corresponding semester at ENSEA. Here are the courses we would transfer and the corresponding validated semester at ENSEA. For a mobility from La Sapienza to ENSEA, you will find the list of courses we can propose for you to see which ones you would recognize at La Sapienza.

Sapienza’s students will come to ENSEA the second year. They will take 30 ECTS choosing either the Signal Processing and Artificial Intelligence track or the Computer Science track, and will do their thesis at ENSEA.

Sapienza courses recognizable by ENSEA**	ECTS	Courses recognized at ENSEA upon validation of 30ECTS from the listed courses at La Sapienza	ECTS**
Year 1 1st Semester:		Semester 9 of the Engineering Cycle :	
		Signal Processing	6
		Digital and Image Processing	6
		Artificial Intelligence	5
Year 1 2nd Semester:		Hardware for signal processing	3
BIA 5 Integer Programming and Combinatorial Optimization	12	Project	5
BIA 9 Data Driven Economics	6	Humanities (Management & Languages)	5
BIA 7 Probabilistic Models for Finance	6		
BIA 10 Statistical Learning	6		
BIA 11 Artificial Intelligence	6		
Year 2 1st Semester:			
BIA 6 Optimization Methods for Machine Learning	6		
BIA 11 Machine Learning for Industrial Engineering	6		
Total ECTS for Courses	30ECTS to validate from these subjects		30
Year 2 2nd Semester:			
Tesi	18	Projet de Fin d'Etudes (PFE)	30
Total ECTS	30ECTS of courses + Tesi (out of 120ECTS)	Total ECTS	60ECTS

Courses held at ENSEA for La Sapienza students	ECTS		Recognition at La Sapienza	ECTS
First year (IN ENGLISH)				
1st semester				
Signal Processing & Mathematics	6			
Computer Science	6			
Control and Power Engineering	4			
Electronic Systems	4			
Management & Project	6			
French & English	4			
2nd semester				
Signal Processing & Mathematics	6			
Electronic Systems	4			
Artificial Intelligence & Big Data	6			
Management & Project	6			
French & English	4			
Internship	4			
Second year (IN FRENCH)				
1st semester				
Choose 1 track :				
Semester 9 of the Engineering Cycle (Signal Processing and Artificial Intelligence track) :				
Signal Processing	6	}		
Digital and Image Processing	6		BIA 9 Data Driven Economics	6
Artificial Intelligence	5		BIA 7 Probabilistic Models for Finance	6
Hardware for signal processing	3		BIA 10 Statistical Learning	6
Project	5		BIA 11 Artificial Intelligence	6
Humanities (Management & Languages)	5		BIA 6 Optimization Methods for Machine Learning	6
Semester 9 of the Engineering Cycle (Computer Science track) :	OR		BIA 11 Machine Learning for Industrial Engineering	6
Digital Circuit Design	5	}		
System and Networks	5			
			30 ECTS to validate from these subjects in correspondence of the <i>Signal Processing and Artificial Intelligence</i> track or of the <i>Computer Science</i> track	
Algorithmic	5			
System on Chip	5			
Software Engineering	5			
Humanities (Management & Languages)	5			
2nd semester :				
Projet de Fin d'Etudes	30		Tesi	18
Total ECTS	120		Total ECTS	
			30ECTS of courses	
			+ Tesi	
Total ECTS	120		(out of 120ECTS)	

Information about the courses taught at Sapienza are available at web page:
<http://www.ingegneriagestionale.uniroma1.it/laureamagistrale/insegnamenti> **Information about the courses**
taught at ENSEA are available at <https://www.ensea.fr/en/exchange-degree-programs-698/>.