

Evolution of the (Aero)Space Engineering Studies in Italy in the past 20 years

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Abstract:

The paper presents the evolution and trends in the Master studies in aerospace engineering in Italy, looking at the last 20 years.

In the year 2000, a major reform of the higher education in engineering took place in Italy, with the introduction of the so-called "Bologna system" and the clear separation of Bachelor and Master studies. With this reform, a relatively high flexibility was given to universities to define their program structures. The ministerial rules defined only broad subject areas within which courses and credits should be allocated. This reform allowed to diversify the educational profile within each University and, even more relevant, allowed to create mobility across the country between Bachelor and Master study programs.

In the broad area of aerospace engineering, the reform defined a group of disciplines as "core". These disciplines are in the broad areas of flight mechanics, aerospace structures, aerospace systems, aerodynamics, and propulsion. Each master course classified in the group of "aeronautics and astronautics" must provide a minimum of 45 credits in the core disciplines, the rest being autonomously defined by each University. This created a variety of different, but coordinated, programs across the country, with a high appeal for students.

The first graduates at Master level (5 years of higher education studies) defended their thesis in 2006 and, since then, there is a clear trend in the increase of students and graduates in Italy. It is notable to highlight that, depending on the number of students and faculty, some Universities are now offering separate Masters in Aeronautical Engineering and in Space Engineering, whereas other are offering distinct educational profiles (often referred to as "curricula") within a common Aerospace Engineering Master.

The figures below depict the number of aerospace graduates in Italy in the period 2010-2019, according to official data provided by the Ministry of University and Research, as well as the percentage of female graduates. It is noted that in recent years the trend is toward a rapid growth of the aerospace students, with a relatively stable female population around 15%.

The paper will show the basic facts and figures in the 6 Italian Universities participating in the PEGASUS network (Politecnico di Milano, Politecnico di Torino, Sapienza Università di Roma, Università degli Studi di Napoli "Federico II", Alma Mater Studiorum - Università di Bologna, Università di Pisa), elaborating on the impact of the potential workforce for the sector.

