

# Division of Aerospace Engineering

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## Introduction

KAIST has been a leading education and research institution in Korea since its foundation and instrumental in the evolution of an engineering education in our nation. In particular, our department, Division of Aerospace Engineering, has been a nurturing place for excellent research engineers in the field of Aerospace Engineering in Korea. A graduate program of our division started in 1979, and the undergraduate program was created in 1991. Since then, the department has graduated a total of 299 students with Bachelor's degree, 549 with Master's degree, and 274 Ph. D.'s. The majority of alumni are playing key roles in the aerospace research organizations in our nation (Korea Aerospace Research Institute (KARI), Agency for Defense Development (ADD)) and aerospace industries (Korea Aerospace Industries (KAI), Korea Air, LIG Nex1). A substantial number of alumni are participating in the diverse industrial sectors of electronics, heavy industries, automotive industries. We also have promising alumni who are leading a globalization of Korean aerospace technologies by working for international aerospace companies and renowned overseas universities.

Currently, our department has 19 professors, 2 invited international professors and 2 professors of practice, and they are actively involved in the education and research programs for both undergraduate and graduate students. The Department was reorganized through excellent education programs and leading research activities to be comparable with other aerospace engineering departments of top universities in the world. As of March 2011, our department has 45 undergraduates (juniors and seniors) and 49 graduates with 117 seeking doctorate degrees. In the graduate program, student research activities are integrated into the part of their education and are supported through the research funds, around \$6 million USD in 2010 alone, available by 19 full-time faculty members working closely with our government and the industries.

Aerospace Engineering is an engineering branch that studies about aerospace vehicles operating in atmosphere and space. It is a system-oriented area of study, and the fundamental theories and applied technologies in many disciplines should be synergistically integrated. It contains higher value-added technologies that make significant impacts on other technological innovations. Traditionally, there have been four major fields in aerospace engineering, namely, aerodynamics, structural mechanics, combustion, and flight dynamics. Recently, the department reorganized them into six educational disciplines, which include Aerospace IT and System Engineering in addition to the traditional four in order to encompass emerging technologies in modern aerospace engineering. We also established six strategic research areas in our department - Unmanned and guided vehicle systems, Space systems engineering, Aviation and avionics, Airborne vehicles and systems, Aerospace power green energy, and System of systems - in the vision that innovative research ideas in these six areas will be crucial to resolving our global problems in the world.

In the undergraduate program, the fundamentals of aerospace engineering are taught based on the four major fields, while emphases are made in advanced undergraduate courses on the design and conceptual development of aerospace systems. The graduate program is designed to teach key theories and methodologies in aerospace engineering, and to build the abilities to apply them in advanced research areas.