Undergraduate Program of Aerospace Engineering

Program Name (In Indonesian)	Program Studi Sarjana Teknik Dirgantara
Program Name (English translation)	Undergraduate Program of Aerospace Engineering (UPAE)
Final degree	Sarjana Teknik (S.T.)/Bachelor of Science (B.Sc.)
The standard period of study	Four years
Credit points (according to ECTS)	144 credit points, equivalent to 200 ECTS credit points
Type (several can be indicated)	Full time / ~~part time~~ / ~~distance learning~~ / ~~dual degree~~ / ~~cooperative or sandwich course~~ / ~~intensive program~~/ ~~etc~~
Website of the higher education institution	https://www.ftmd.itb.ac.id/program-s1-s2-s3-teknik-dirgantara/
Programs start date within the academic year	August
Program Inception	1997
Intake rhythm	Yearly
Expected intake number of students	110 students a year
Faculty/department	Faculty of Mechanical and Aerospace Engineering
Official contact person for publication on the web	Rianto Adhy Sasongko, S.T., M.Sc., Ph.D.
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Last accreditation issued by	National Accreditation Agency for Higher Education in Indonesia (BAN-PT)
Duration of the last accreditation	1 Jul 2016 – 30 Sept 2021

The focus of the UPAE including aircraft airframe, construction, aerodynamics, flight mechanics, aircraft systems and spacecraft, and transportation system. Generally, the strict demands on aircraft development and operation and other aerospace industry-related requirements require engineering graduates with the following competencies:

- A solid understanding of basic engineering science, including the functions and instruments used;

- Extensive and detailed knowledge and understanding of basic engineering science and its application in aerospace engineering; and
- Comprehensive and thorough knowledge and understanding of aerospace engineering.

UPAE graduates should be able to apply the above knowledge to "state-of-the-art" problems. Furthermore, they should independently apply their expertise to new conditions using problem analysis, appropriate model selection, and new model development. Lastly, they should absorb new developments in the field, evaluate their practical use, and apply them when needed.

Program Educational Objective (PEO)

Based on the extensive reviews and input from academic staffs, stakeholders, and alumni, the UPAE defines its Program Educational Objectives (PEOs) in 2019 PEO, which consist of:

PEO 1 Objective 1	Have moral integrity, discipline, mutual respect, fairness, and responsibility.
PEO 2 Objective 2	Have a sound understanding of mathematics, science, and engineering sciences, and the ability to apply knowledge and skills in various fields of aerospace engineering.
PEO 3 Objective 3	Ability to create and be innovative, work effectively both individually and in groups, communicate well orally and in writing, learn throughout life, adapt to a career environment.

The UPAE's PEOs are relevant with the Indonesian National Qualification Framework (KKNI) as shown in following table:

Relationship between PEOs of the UPAE and Indonesian National Qualification Framework (KKNI)

PEO	Indonesian National Qualification Framework (KKNI)			
	Qualification A	Qualification B	Qualification C	Qualification D
Objective 1			✓	✓
Objective 2	✓	✓	✓	
Objective 3	✓	✓	✓	✓

Note:

Indonesian National Qualification Framework (KKNI)

- **Qualification A** – Applying science, technology, and/or art in their expertise and being adaptable to various situations faced while solving a problem.
- **Qualification B** - Mastering in-depth general and specific theoretical concepts of certain knowledge and formulating related problem-solving procedures.
- **Qualification C** - Making strategic decisions that build based on the data and information analysis and giving a clue in choosing several alternative solutions.
- **Qualification D** – Being responsible for their own work and accountable for achieving the organization's work.

Program Learning Outcome (PLO)

The same as the Program Educational Objectives (PEOs), the learning program outcome of the UPAE are also formulated based on the result of discussions with academic staff, stakeholders, and alumni. With the spirit of continuous improvement in mind, these PLOs are updated and improved regularly. The current PLOs of the 2019 curriculum is being implemented since 2019–present. In the 2019 curriculum, UPAE sets seven Program Learning Outcomes (PLOs) for its graduates, as listed below,

PLO A

Able to apply the principles of mathematics, science, basic engineering sciences, and aerospace engineering and use engineering methods to identify, formulate and solve complex engineering problems related to the design, production, and operation of flying vehicles.

PLO B

Able to design components, systems, or processes as solutions to problems in the aerospace engineering field by considering social, environmental, cultural, economic, business, and entrepreneurial aspects.

PLO C

Able to communicate effectively with various audiences in Indonesian and English (orally, graphically, and in writing).

PLO D

Understand and commit to ethical and professional responsibilities in carrying out engineering tasks and assess problems in the aerospace engineering field by considering the impact of the solution on environmental, social, and economic conditions, both locally and globally.

PLO E

Able to play an influential role as individuals and multi-disciplinary and multicultural groups who work together to design and carry out activities to achieve predetermined goals.

PLO F

Able to plan and conduct experiments, analyze and interpret data, and draw conclusions based on technical and scientific considerations.

PLO G

Able to learn, do self-improvement, and follow scientific development and implement it in engineering professions.