Aerospace Seminar

Syllabus Number 2H203
Special Subjects
Elective 2 credit
NAKAMIYA. Masaki

1. Course Description

In the lecture, broad subjects relevant to aerospace engineering are taken up. They include, for instance, engineering experiences (manufacturing of model aircraft, man-powered aircraft, airships and small satellites), tour of factories and institutions, video teaching materials on the theme of aerospace engineering, desirable student image viewed from the viewpoint of the company, etc.
We will take some time for free discussion by students. Teachers select a theme. Moreover, the teachers will guide the discussion, and also will give students advice. Moreover, lectures on aerospace by external experts may be held instead of lessons inside or outside the campus.
(1)Students deepen their understanding of the selected aerospace teaching materials (internet, DVD, video, etc.) by discussing them.
(2)Students deepen their understanding the contents of the tour by discussing what they have learned through the factories and facilities tours conducted as departmental events by the 3rd grade.
(3)The teacher's experiences on aerospace and engineering and desired person figures view from the company side are introduced, and students deepen their understanding of the contents by question.
(4)Through above discussion, question, and answer session, we will try to improve student's debate abilities.
Students will have the knowledge and techniques for the calculation related to DP1 and DP2.

2. Course Objectives

This course aims that students can understand the spirit of innovation of aerospace engineering through the learning of broad themes on aerospace engineering or science.

3. Grading Policy

This lecture is done in omnibus format. That is, every time different teachers provide different topics. Then students discuss about the topic selected for each lesson and submit the contents of the discussion in a report. The grade is evaluated in the report, the attitude towards the discussion during the lesson, and participation situation of the factories/facilities tours conducted as part of class and its reports. The method of feedback is set by each teacher such as report return and explanation.

4. Textbook and Reference

Textbook
No text is used.
Reference
Prints about the topics will be distributed when necessary.
Use teaching materials; slide, internet, DVD etc.

5. Requirements(Assignments)

Preparation (about 1.5 hour);Please deepen your knowledge about aerospace beforehand, for example by actively participating in factories and facilities tours hosted by the department of aerospace engineering that will be held by grade 3. Please research on the next theme by using the library and the internet beforehand and write down the question items in a notebook.
Review (about 1.5 hour);Please investigate the contents learned in the lecture and try to broaden your view further. Also since there will be some lecture present materials in LMS, please use them to deepen understanding of the contents

6. Note

The schedule of the following classes was implemented in FY 2020. In FY 2021 as well, schedule will be implemented according to one of 2020, but the contents of the theme will be changed for items by external experts. Also the order and contents of the topics may be changed due to teacher's convenience.
Attendance is checked every time. Please do not be late for active participation in discussion.

7. Schedule

[1] Learn from failure of rocket engine development
[2] Model aircraft and flight dynamics
[3] To achieve space exploration mission!
[4] About operation of helicopter
[5] Star, planet, comet, meteor, satellite
[6] Aeronautical engineering in an aviation movie
[7] About JAXA Distributed and Revolutionarily Efficient Air-traffic Management Systems (DREAMS) project
[8] Basic research on numerical simulation in JAXA
[9] Video work and space development ～ Between fiction and real
[10] Toward realization of reusable atmospheric reentry system
[11] Surface treatment in jet engines
[12] Thinking about future course of those who study in the aerospace field
[13] Past, present, future of unmanned aerial vehicles

[14] Space utilization becoming familiar

[15] Failure examples of spacecraft