

#### **SYLLABUS**

Date/ Revision	5 August 2015		
Faculty	Engineering		
Approval			

# SUBJECT : INTRODUCTION TO AVIATION ENGINEERING

## **1.** Identification of Subject:

Name of Subject	:Introduction to Aviation Engineering
Code of Subject	:IAVE-1000
SKS / ECTS	:1/
Semester	:1
Study Program	:B-AVE
Lecturer	:Neno Ruseno, S.T., M.Sc.

## 2. Competency

After having the course, students are expected to:

- a) Identify significant historical aviation milestones to include both aviation icon figures and individual aircraft recognition.
- b) Define common aviation terminology, definitions, and acronyms.
- c) Describe the aviation industry structure, including the role of air carriers, general aviation, and corporate aviation.
- d) Recall basic aircraft systems, instruments, and components of a conventional airplane.
- e) Summarize the basic principles of flight.
- f) Interpret basic weather principles and their impact of aviation operations.
- g) Apply the basic principles of navigation, aeronautical chart interpretation, and airport symbols.
- h) Compare careers in aviation.

## 3. Description of Subject:

The Introduction to Aviation Engineering course is designed to give the student a solid foundation in understanding where aviation came from starting from the earliest myths and legends through actual developments in flight systems and ultimately to a vision to where aviation may lead us. The course will begin with a history of flight followed by a study of the atmospheric mediums in which aircraft operate. The students will next learn about basic knowledge of aviation and the infrastructure supporting aviation, i.e. airports, aviation organizations, and types of aircraft. The students will be expected to recognize the differences between aircraft and identify them by sight. This will be followed by more specific issues such as aviation weather and the threats weather pose to flight activities as well as a technological look at just what makes them fly and how they are propelled and controlled and how they get from point A to point B.



## 4. Learning Approach

Approach	: Combination of Expository - inquiry and colaborative
Method	: Discussion, question answer, sample problem, group work
Student Task	: Home work, group report, group presentation
Media	: LCD projector, slide.

### 5. Evaluation

- a) Absence maximum : 25%
  b) Participation in discussion : 5 points
  c) Homework, Classwork : 5 points
  d) Presentation, Simulation : 10 points
  e) Daily Quiz : 20 points
- f) Final Examination : 60 points

Total

: 100 points

## 6. Contents/ Topics of Lecturing:

Week	Content/ Topics of Lecturing	Text Book Chapter	Remark
1	Aviation Engineering at a Glance:	Ch1,2,	
	Aviation Engineering in general; Aviation Engineering in IULI;	3,4,5[1]	
	History of Aviation; What is the Future?		
2	Atmosphere and Weather:	Ch18,19,	
	Atmosphere as one medium termed aviation and its weather as	20[1]	
	the day-to-day changes in atmospheric conditions. Standard	And	
	atmosphere properties.	Ch3[2]	
3	Basic of Aerodynamic:	Ch7[1] and	
	Aerodynamic is the science relating to the energy of gases in	Ch4,5[2]	
	motion. It is a relation between the air and the machine that		
	operates in it.		
4	Element of Aircraft Performance:	Ch8[1] and	
	The aircraft will be considered as a rigid body on which exerted	Ch6[2]	
	four natural forces. Concerned will be focused on the movement		
	of aircraft as it respond to these forces.		
5	Principle of Aircraft Stability and Control:	Ch8[1] and	
	Aircraft stability and control are governed by moment about the	Ch7[2]	
	center of gravity with the rotation motion of aircraft as a		
	response to these moments.		
6	Industrial Visit:		GMF
	Students will visit one of aviations industries which related to		
	their field of studies. It purposes to encourage students for their		
	passion in aviation.		
7	Group presentation:		Group
	Groups of students will present their assignment in front of class		presentation
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	to challenge by other students.		
8	Aircraft Propulsion: Propulsion has led the way for all major advancements in flight	Ch8[1] and Ch9[2]	
	velocities. Some of the basic principles of propellers.		
	reciprocating engines, turboiets, ramiets, and rocket will be		
	examined.		
9	Aircraft Structure and Component:	Ch8[1]	
	Aircraft structure must stand many of the forces created by the		
	airfoils and landing gear. It also must be strong in addition to		
	being streamlined.		
10	Cockpit and Avionics:	Ch8[1]	
	Flight instrument is invented to help the pilot in flying an aircraft.		
	It classified by principle of operation into: mechanical, pressure,		
	and electrical instruments.		
11	Flight Navigation:	Ch9[1]	
	Navigation is the method of determining position, course and		
	distance traveled. It concerned with maps and direction-		
	Indicating instruments because pilot may not be able to see the		
10	and for long periods of travel.	Ch1C 17[1]	
12	Aviation Organizations, Regulations:	Ch16,17[1]	
	Aviation business is regulated locally and globally by some		
12	Airport and Aircraft Operators	Ch10 11 12	
15	Regardless of size and function, airport exist for the basic nurnose	13[1]	
	of launching and recovering aircraft. They are made-up of	13[1]	
	several parts, each providing an essential service to accomplish		
	the basic functions of the airport.		
14	Aircraft Maintenance Organization:		
	Regulations: AMTO: AMO.		
15	Final Examination		

## 7. Book Reference:

a) Main Text Book: [1]"Aerospace: The Journey of Flight, 2<sup>nd</sup> Edition, 2008", Authors: Jeff Montgomery, Publisher: Aerospace Education of Civil Air Patrol

#### b) Supplement Textbooks:

 [2] "Introduction to Flight, 8<sup>th</sup> Edition, 2015", Authors: John D. Anderson Jr., Publisher: McGraw-Hill Education, ISBN: 10: 0078027675, 13: 978-0078027673