



# **SNS COLLEGE OF TECHNOLOGY**

**An Autonomous Institution  
Coimbatore – 35**

Accredited by NBA – AICTE and Accredited by NACC – UGC with ‘A++ Grade  
Approved by AICTE , New Delhi and Affiliated to Anna University , Chennai.

## **DEPARTMENT OF AEROSPACE ENGINEERING**

### **19ASO301 BASICS OF AERONAUTICAL ENGINEERING**

#### **UNIT 1 –HISTORY OF FLIGHT**





# HISTORY OF FLIGHT



- *History of Flights*
- *Ornithopters*
- *Hot Air Balloon*
- *Development of Flight - 18<sup>th</sup> & 19<sup>th</sup> century*
- *Development of Flight - 20<sup>th</sup> century*
- *Summary*



## TEXT BOOK



- *Anderson. J D, “Introduction to Flight”, McGraw-Hill, 1995*
- *Richard S. Shevel, “fundamentals of Flight”, Prentice Hall, 2010*

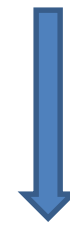


## DEVELOPMENT IN 18<sup>TH</sup> & 19<sup>TH</sup> CENTURY



- *Aeronautics comes to America*

*After the advent of ballooning in France due to Montgolfiers*



*Progress in heavier-than-air machines was focused in England  
until 1850's*



*Contributions of Cayley, Henson & Stringflow*



## DEVELOPMENT IN 18<sup>TH</sup> & 19<sup>TH</sup> CENTURY



- *Aeronautics comes to America*

*England also gave birth to Industrial revolution during the 18<sup>th</sup> & 19<sup>th</sup> century*



*Spotlight moved to European continent*



*Contributions of Du Temple, Mozhaiski, Lilienthal & Others*



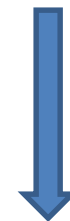
## DEVELOPMENT IN 18<sup>TH</sup> & 19<sup>TH</sup> CENTURY

- *Aeronautics comes to America*

*During the 18<sup>th</sup> & 19<sup>th</sup> century, no notable progress was made by USA, view consolidating the Govt & expansion of frontiers*



*The silence was broken by Octave Chanute (1832-1910), a French-born, lived in Chicago*



*Chanute – Civil Engineer, interested in Mechanical Flight in 1875*



## DEVELOPMENT IN 18<sup>TH</sup> & 19<sup>TH</sup> CENTURY

- *Aeronautics comes to America*

*For next 35 years (1875-1910), he collected, absorbed & assimilated every piece of aeronautical information*

*1894 - He published “**Progress in Flying Machines**”  
This book ranks Otto Lilienthal’s “Der Vogelflug Als Grundlage Der Fliegekunst”  
Meaning – “**The Bird Flight as basis of Aeronautics**”*

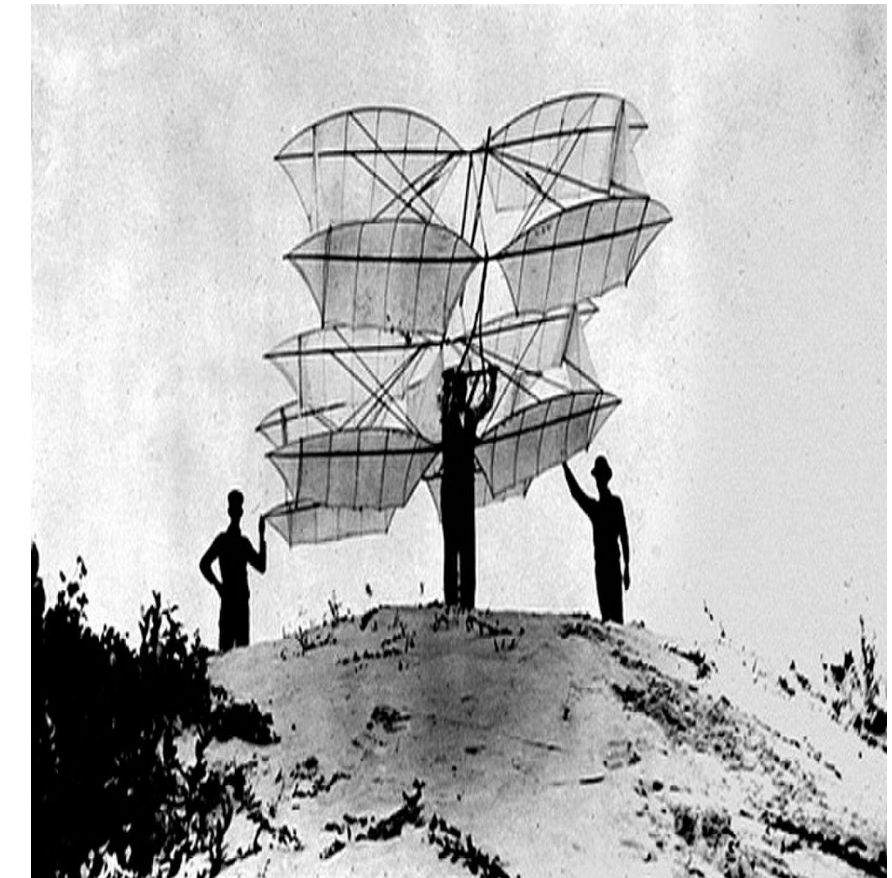
*Wright Brothers avidly read “Progress in Flying Machines” and sought Chanute in 1900. Friendship developed between Wright Brothers & Chanute’s till his death in 1910*



## DEVELOPMENT IN 18<sup>TH</sup> & 19<sup>TH</sup> CENTURY



- *Octave Chanute (1832-1910)*

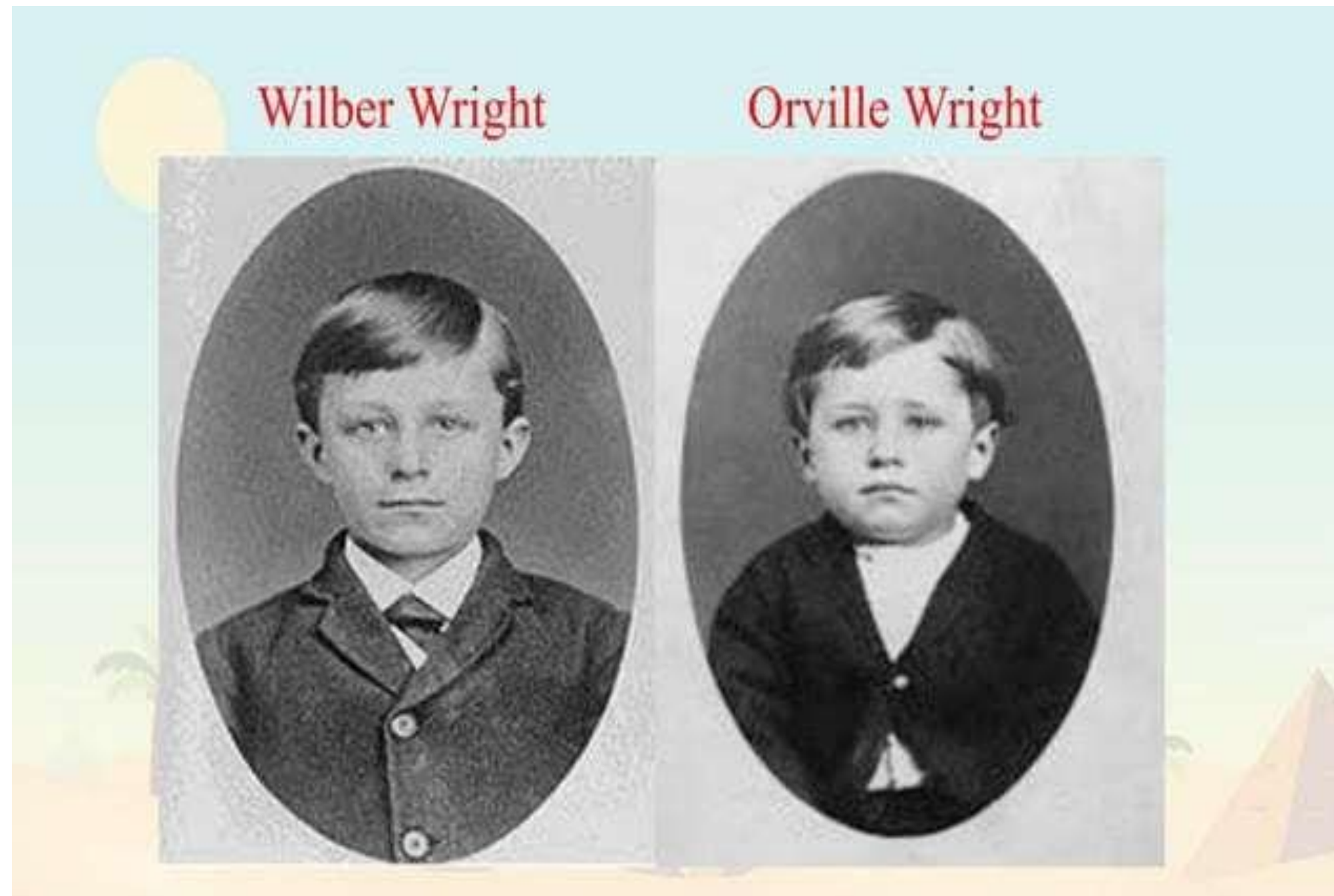


*Glider Designs*





## DEVELOPMENT IN 20<sup>TH</sup> CENTURY



- *Wright Brothers*

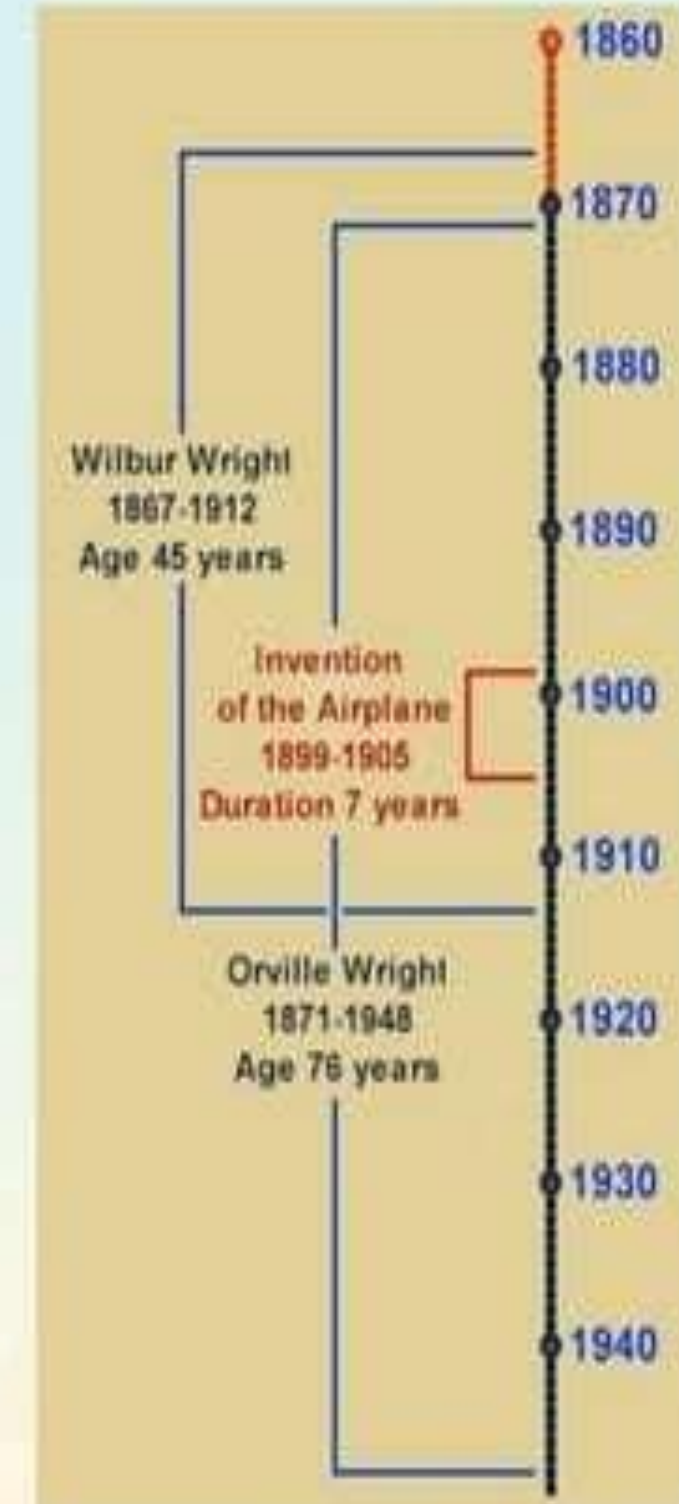


## DEVELOPMENT IN 20<sup>TH</sup> CENTURY



### CHILDHOOD

- There were 7 children in their family. Wilbur was the 3<sup>rd</sup> child was born in 1867 at Millville, Indiana and Orville the 6<sup>th</sup> child 1871 in the place Dayton, Ohio.
- In 1878 their father, a bishop in the Church of the United Brethren in Christ
- Mother was a home maker but they have a great interest towards mechanical techniques and she was working in her father car carriage shop
- Even she used to make home appliances and toys for her kids





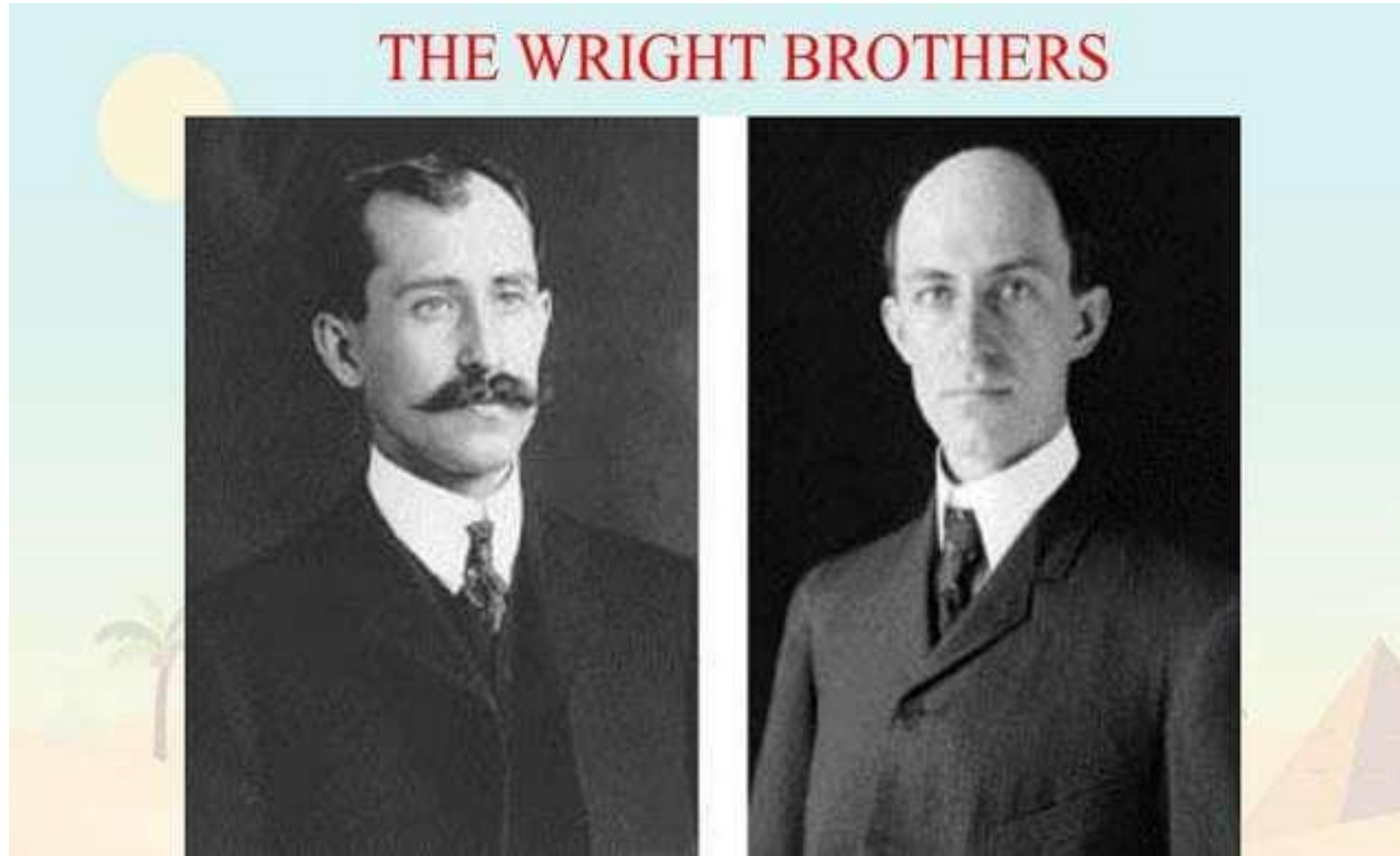
## DEVELOPMENT IN 20<sup>TH</sup> CENTURY



The Wright House, 7 Hawthorne Street , Dayton, Ohio



## DEVELOPMENT IN 20<sup>TH</sup> CENTURY



• *Orville Wright*

• *Wilbur Wright*

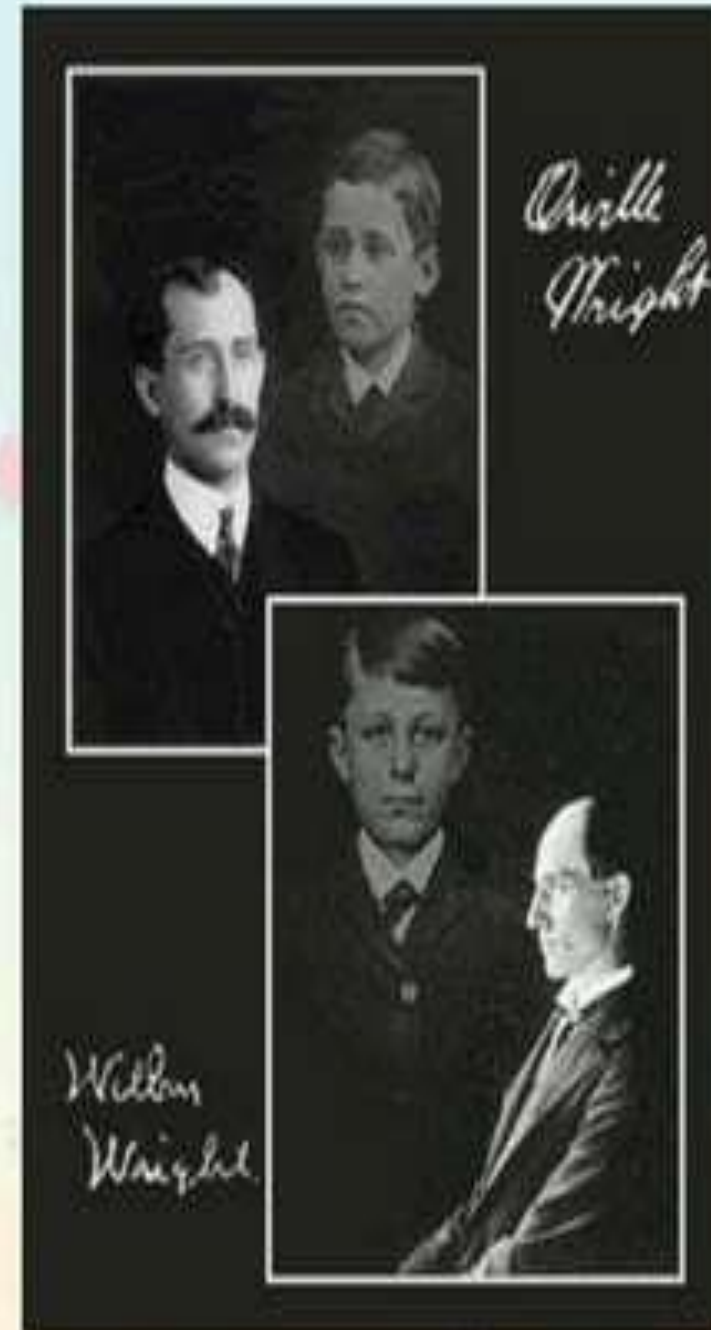


## DEVELOPMENT IN 20<sup>TH</sup> CENTURY



### INTRODUCTION

- Two American brothers, inventors, and aviation pioneers
- Credited with inventing and building the world's first successful powered airplane.
- Neither went to university or ever married.





## DEVELOPMENT IN 20<sup>TH</sup> CENTURY



### PLANE MOTIVATION

- In the 1890s they saw newspaper articles of McClure's Magazine and photographs of the dramatic glides by Otto Lilienthal in Germany.
- 1896 brought three important flying events.
  - Samuel Langley successfully flew an unmanned steam-powered fixed-wing model aircraft.
  - Octave Chanute and others flew gliders over the sand dunes along the shore of Lake Michigan.
  - In August, Lilienthal was killed in the fall of his glider.
- In May 1899 Wilbur wrote to the Smithsonian Museum requesting Lilienthal's reports and flight test results, They received the brief bibliography of flying including the work of Chanute and Langley



## DEVELOPMENT IN 20<sup>TH</sup> CENTURY



1899

- Study of bird flight as a guide on path towards mechanical flight.
- Regain their lateral balance to turn by gust of wind by torsion of the tips of the wings
- Therefore the wing twist to control airplanes in lateral motion.



29-07-2020

Fundamentals of Aeronautical Engineering  
KIT - Kalsikarunamidhi Institute of Technology