AQUILA RC - PLANE WORKSHOP REPORT

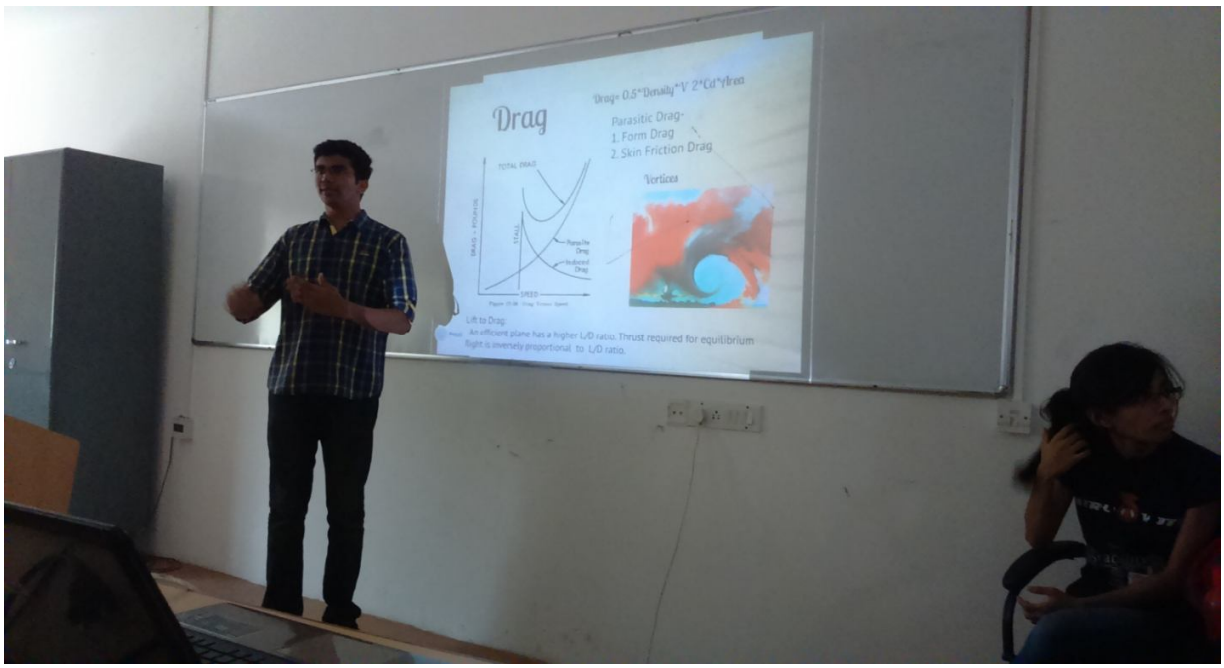
(11th-12th April 2015)

MESA has organized two days workshop on RC – Plane. The Aquila Aero Design workshop was conducted by Aero VJTI team on 11th and 12th of April, 2015. Around 50 students from first and second year mechanical and electrical disciplines had participated. The workshop included basic introduction on design and electrical aspects of airplane and also building a working model.

Working Airplane model

The workshop started with explanation of fundamentals which govern the flight of airplane. Basic terminologies related to plane and their uses like fuselage, wing, rudder, elevator, horizontal and vertical stabilizer, ailerons, flaps, trimming tabs were explained. Then a brief session on airfoil introduced the terms related to airfoil design like

camber, chord, angle of attack, leading and trailing edge and also different wing shapes and airfoil profiles were compared on basis of flight efficiency. Longitudinal and lateral stability including pitching, rolling and yawing of airplane during flight was explained. Various lift theories and terms related like induced and form drag, drag equation, stall etc were elaborated. Different designs of propellers and their performance and working was explained. In later stages, various electrical circuitry which included servo motor, electronic speed controller, power sources, receiving and controlling systems related to model were explained.



Aero VJTI team Member explaining the concept of RC – Airplane

The theory session was followed by making of model. The participants were divided into group of 5. Coroplast and balsa wood was used for making the model lightweight. First, the wing and fuselage were cut according to design from coroplast which has high tensile strength and balsa sticks were glued to both for structural rigidity. Then horizontal

and vertical tails were mounted on the back fuselage with proper alignments. Also, the ailerons made of coroplast were mounted wing which provide roll to the model. Then servo motors and connecting mechanisms which provide movement to ailerons, rudder and elevator were mounted. The mounting of battery, propeller, landing gear, wings onto the fuselage and flight testing sessions still remain which will be completed after end semester exams. This will be accompanied by a flight session in which all 9 aircrafts will actually fly in before the eyes their makers, the student teams.

Participants understanding the concepts

Throughout the construction, members of Aero VJTI team assisted. The MESA committee in-charge, Mrs. Megha Janbandhu and the HOD of Mechanical Engineering Department, Dr. R. B. Buktar extended their full support to make this workshop a grand success.

Nine Working Airplane model along with Participants

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