SUBJECT NO-AE49003, SUBJECT NAME- AIRCRAFT DESIGN
LTP- 1-0-3,CRD- 3

SYLLABUS :-

Prerequisites: AE21002, AE21004, AE21006, AE31001, AE31003, AE31005, AE310070 - 0 -3: 2 CreditsDefinition of aircraft application and its performance requirements on a priority basis; Optimization techniques: classical methods and genetic algorithms; Aerodynamic design: basic configuration development, selection of wing planform, fuselage shape, preliminary weight and CG estimation, sizing of fuselage, wings, horizontal tail/canard, fin, control surfaces and power plant, power plant selection and aerodynamic integration with the airframe, preliminary design optimization with aerodynamic parameters only; Structural design: V-n diagram, estimation of design loads under different flight conditions, structural layout: wing, tail, control surfaces, fuselage, landing gear, design of spars, ribs and bulkheads, power plant selection and structural integration with airframe, preliminary design optimization with structural parameters only; Design optimization with aerodynamics, structures, power plant and control parameters.Books:E L Houghton and A E Brock, Aerodynamics for engineering students, Edward ArnoldT H G Megson, Aircraft structures for engineering students, 3rd Ed., Edward Arnold R L Fox, Optimization methods for engineering design, Addison-WesleyD E Goldberg, Genetic algorithms in search, optimization, and machine learning, AddisonâWesley