M. Tech. Aerospace Engineering (2nd Semester)

Course Name: **MAE21201: Flight Dynamics and Control**

MAE21201	Course Outcomes
CO1	**Describes** the fundamentals of aircraft design and aerodynamic characteristics.
CO2	**Estimate** the drag and thrust of the flightvehicle under given operating condition.
CO3	**Enumerate** steady level flight performanceof an aircraft.
CO4	**Examine** accelerated flight performance ofan aircraft under given loading condition.
CO5	**Examine** the static and lateral stability of anaircraft.

Course Name: **MAE21202: Rocket Propulsion**

MAE21202	Course Outcomes
CO1	**Understand** various concepts of advanced propulsion techniques.
CO2	**Identify** and describe various configurations of nozzles, problems associated with real nozzle and need of idealization.
CO3	**Comprehend** the problems on solid, liquid and hybrid rocket motors and their composition.
CO4	**Solve** the problems on thermodynamic thrust equation and specific impulse.
CO5	**Explicate** the fundamentals of rocket propulsion and working of individual rocket propulsion components.

Course Name: **MAE21203: Aircraft Design**

MAE21203	Course Outcomes
CO1	**Investigate** the preliminary design of an aircraft starting from data collection to satisfy mission specifications
CO2	**Perform** the weight estimation and power plant selection for a specific aircraft
CO3	**Estimate** the geometric and design parameters of an airplane
CO4	**Design** a system, component or process to meet requirements for aircraft systems
CO5	**Demonstrate** complete design of an aircraft to a level of sufficient detail to satisfy given mission specifications

Course Name: **MAE21204: Aeronautical Engineering Lab-2**

MAE21104	Course Outcomes
CO1	**Estimate** the performance of premixed flames and jet engine combustion chamber and ignition delay of solid rocket propellant.
CO2	**Evaluate** the performance of a aviation fuel/ propellant and hybrid rocket propellant.
CO3	**Evaluate** the performance of propeller at different speeds
CO4	Analysis the different Structural configurations of fuselage and wings on 3-D Design Software.
CO5	Understand the simulation3-D Components subjected to various structural loadings.
CO6	Estimate weight and load of aircraft components such as wings and fuselage.

Course Name: **MAE21205- Research Methodology**

MAE21105	Course Outcomes
CO1	**Learn** philosophy of research.
CO2	**Describe** conceptual and methodological issues that will conduct successful research
CO3	**Describe** process of planning and proposing, testing of hypothesis.
CO4	**Describe** different statistical analysis methods.
CO5	**Develop** research and article writing skills.

Course Name: **Program Elective-III** (**MAE21206- Aircraft System)**

MAE21206	Course Outcomes
CO1	**Understand** the need of flight control systems and its various parts Operation of flight control system.
CO2	**Apply** the concept the operation of fire protection system, operation of air conditioning and cabin pressurization system.
CO3	**Describe** the concept of hydraulic and pneumatic systems and eliminate the Problems of these systems
CO4	**Understand** deicing system, its effects in flying and oxygen system layout and utility.
CO5	**Apply** knowledge of electrical system to operate electronic and other Mechanical parts in the aircraft.

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Course Name: **Program Elective-III** (**MAE21207- Fundamentals of Combustion)**

MAE21207	Course Outcomes
CO1	**Identify** the type of combustion instability in different types of rocket motors.
CO2	**Analyze** experimental data on combustioninstability.
CO3	**Identify** measures to be taken for stabilizingunstable combustion.
CO4	**Carry** out linear instability analysis.
CO5	**Design** rocket motors with consideration tothe effects of instabilities.

Course Name: **Program Elective-I** (**MAE21208- Helicopter Engineering)**

MAE21108	Course Outcomes
CO1	**Explain** the different configurations of helicopter.
CO2	**Solve** the problems on the concepts of rotor dynamics and related theories.
CO3	**Compute** the Performance of Helicopter.
CO4	**Examine** the stability and control of forward moving helicopter.
CO5	**Study** the Standards, and Specifications

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Course Name: **Program Elective-III** (**MAE21209- Aviation Management)**

MAE21209	Course Outcomes
CO1	**Understand** the history of air traffic managements and its roles in airlines.
CO2	**Study** about concept of airspace structures and air traffic controller.
CO3	**Apply** the concept of phases of flight in ATM
CO4	**Understand** flight scheduling methods and related practices
CO5	**Identify** the problems solving between ATC and ATM.