

Course Outcomes (COs)

Department of Aeronautical Engineering

Programme Name: B.E.-Aeronautical Engineering

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2022 Scheme (UG)

Course Outcome for B.E.-Aeronautical Engineering

Course Outcomes of Second -Year Courses

Course Name	AIRCRAFT MATERIALS AND PROCESSES
Course Code	BAE301
Course outcomes (COs): At the end of the course the student will be able to:	
BAE301.1	Apply the knowledge about the mechanical behavior of different aircraft & aerospace materials.
BAE301.2	Explain the applications of Aluminum alloys
BAE301.3	Explain the applications of Ceramics and Composites Materials.
BAE301.4	Evaluate the importance of high temperature materials and their characterization

Course Name	ELEMENTS OF AERONAUTICS
Course Code	BAE302
Course outcomes (COs): At the end of the course the student will be able to:	
BAE302.1	Appreciate and apply the basic principle of aviation.
BAE302.2	Apply the concepts of fundamentals of flight, basics of aircraft structures,
BAE302.3	Aircraft propulsion and aircraft materials during the development of an aircraft.
BAE302.4	Comprehend the complexities involved during development of flight vehicles.

Course Name	FLUID MECHANICS
Course Code	BAE303
Course outcomes (COs): At the end of the course the student will be able to:	
22BAE303.1	Evaluate the effect of fluid properties.
22BAE303.2	Apply the governing laws of fluid flow.
22BAE303.3	Classify different types of fluid flows.
22BAE303.4	Acquire the knowledge of types of fluid flows

Course Name	MECHANICS OF MATERIALS
Course Code	BAE304
Course outcomes (COs): At the end of the course the student will be able to:	
22BAE304.1	Apply the basic concepts of strength of materials.
22BAE304.2	Compute stress, strain under different loadings.
22BAE304.3	Distinguish the different failure theories.
22BAE304.4	Comprehend the basic concepts of strength of materials

Course Name	Computer Aided Aircraft Drawing
Course Code	BAEL305
Course outcomes (COs): At the end of the course the student will be able to:	
BAEL305.1	Distinguish drawings of machine and aircraft components
BAEL305.2	Identify assembly drawings either manually or by using standard CAD packages.
BAEL305.3	Practice with standard components and their assembly of an aircraft.
BAEL305.4	Familiarize with standard components and their assembly of an aircraft.

Course Name	Ethics, Technology and Engineering
Course Code	BAE358B
Course outcomes (COs): At the end of the course the student will be able to:	
BAE358B.1	Develop Ethical values in engineering and Technology
BAE358B.2	Adopt ethical practices
BAE358B.3	Assimilate the ethics in Engineering and Technology
BAE358B.4	Understand how ethics are followed in technology and engineering

Course Name	Aero Engineering Thermodynamics
Course Code	BAE401
Course outcomes (COs): At the end of the course the student will be able to:	
BAE401.1	Apply the concepts and definitions of thermodynamics.
BAE401.2	Differentiate thermodynamic work and heat and apply I law and II law of thermodynamics to different process.
BAE401.3	Apply the principles of various gas cycles
BAE401.4	Comprehend the I-law and II-law of thermodynamics

Course Name	AERODYNAMICS
Course Code	BAE402
Course outcomes (COs): At the end of the course the student will be able to:	
BAE402.1	Evaluate typical airfoil characteristics and two-dimensional flows over airfoil
BAE402.2	Compute and analyze the incompressible flow over finite wings
BAE402.3	Apply finite wing theory and design high lift systems from the aerodynamics view point
BAE402.4	Calculate the lift and drag & apply the flow visualization techniques

Course Name	AIRCRAFT PROPULSION
Course Code	BAE403
Course outcomes (COs): At the end of the course the student will be able to:	
BAE403.1	Apply the basic principle and theory of aircraft propulsion.
BAE403.2	Explain the functions of centrifugal, axial compressors, axial and radial turbines
BAE403.3	Analyse the performance of nozzles & inlets and combustion chamber.
BAE403.4	Analyse the cascade testing of axial compressor and axial turbine blade row.

Course Name	AIRCRAFT MATERIAL TESTING & PROCESSING LAB
Course Code	BAEL404
Course outcomes (COs): At the end of the course the student will be able to:	
BAEL404.1	Differentiate the formation, properties and significance of the alloys through different experiments.
BAEL404.2	Differentiate the types, advantages and applications of various NDT methods.
BAEL404.3	Practice general-purpose machine tools and manufacturing process.
BAEL404.4	Prepare physical models using different manufacturing processes

2021 Scheme (UG)

Course Outcomes of Second-Year Courses

Course Name	Transform Calculus, Fourier Series and Numerical Techniques
Course Code	21MAT31
Course outcomes (COs): At the end of the course the student will be able to:	
21MAT31.1	Illustrate the concepts of– Laplace, Fourier & Z transformation, Fourier series , Numerical solutions of PDE & ODE and Calculus of variation .
21MAT31.2	Apply the above acquired knowledge to solve the problems in engineering.
21MAT31.3	Analyze the solutions of the real-world problems using above techniques.
21MAT31.4	Interpret the overall knowledge gained to demonstrate the problems arising in practical situations.

Course Name	AIRCRAFT MATERIALS & PROCESSES
Course Code	21AE32
Course outcomes (COs): At the end of the course the student will be able to:	
21AE32.1	Adequate knowledge on various aerospace materials used & their properties
21AE32.2	Understand the process of Heat Treatment for aircraft metals and alloys.
21AE32.3	Understand the various features and Applications of different aircraft materials
21AE32.4	Understand the non-destructive testing methods and also machining of aircraft materials

Course Name	FLUID MECHANICS
Course Code	21AE33
Course outcomes (COs): At the end of the course the student will be able to:	
21AE33.1	Understand various fluid properties
21AE33.2	Understand governing laws of Fluid Mechanics
21AE33.3	Explain various types of fluid flow
21AE33.4	To analyze boundary layer phenomena and various thicknesses

Course Name	ELEMENTS OF AERONAUTICS
Course Code	21AE34
Course outcomes (COs): At the end of the course the student will be able to:	
21AE34.1	Appreciate and apply the basic principle of aviation.
21AE34.2	Apply the concepts of fundamentals of flight, basics of aircraft structures, aircraft propulsion.
21AE34.3	Apply the concepts of aircraft materials during the development of an aircraft .
21AE34.4	Comprehend the complexities involved during development of flight vehicles.

Course Name	Ethics, Technology and Engineering
Course Code	21AE382
Course outcomes (COs): At the end of the course the student will be able to:	
21AE382.1	Cultivate Ethics in living practices
21AE382.2	Adopt ethical practices
21AE382.3	Develop Ethical values in engineering and Technology
21AE382.4	Assimilate the ethics in Engineering and Technology

Course Name	COMPUTER AIDED AIRCRAFT DRAWING
Course Code	21AEL35
Course outcomes (COs): At the end of the course the student will be able to:	
21AEL35.1	Understand and interpret drawings of machine and aircraft components
21AEL35.2	Distinguish drawings of machine and aircraft components
21AEL35.3	Identify assembly drawings either manually or by using standard CAD packages.
21AEL35.4	Practice with standard components and their assembly of an aircraft.

Course Name	Complex Analysis, Probability and Linear Programming
Course Code	21MATME41
Course outcomes (COs): At the end of the course the student will be able to:	
21MATME41.1	Illustrate the concepts of– Complex functions, transformation, Probability distributions and Optimization techniques
21MATME41.2	Apply the above acquired knowledge to solve the problems in mechanical and allied branches of engineering.
21MATME41.3	Analyze the solutions of the real-world problems using above techniques.
21MATME41.4	Interpret the overall knowledge gained to demonstrate the problems arising in practical situations.

Course Name	AERODYNAMICS
Course Code	21AE42
Course outcomes (COs): At the end of the course the student will be able to:	
21AE42.1	Understand the basics of fluid mechanics as a prerequisite to Aerodynamics
21AE42.2	Evaluate typical airfoil characteristics and two-dimensional flows over airfoil
21AE42.3	Compute and analyze the incompressible flow over finite wings
21AE42.4	Apply finite wing theory and design high lift systems from the aerodynamics view point

Course Name	AERO ENGINEERING THERMODYNAMICS
Course Code	21AE43
Course outcomes (COs): At the end of the course the student will be able to:	
21AE43.1	Understand various concepts and definitions of thermodynamics.
21AE43.2	Apply the concepts and definitions of thermodynamics.
21AE43.3	Differentiate thermodynamic work and heat and apply I law and II law of thermodynamics to different process.
21AE43.4	Apply the principles of various gas cycles.

Course Name	MECHANICS OF MATERIALS
Course Code	21AE44
Course outcomes (COs): At the end of the course the student will be able to:	
21AE44.1	Understand the different failure theories.
21AE44.2	Apply the basic concepts of strength of materials.
21AE44.3	Compute stress, strain under different loadings.
21AE44.4	Distinguish the different failure theories.

Course Name	HYDRAULICS AND PNEUMATICS SYSTEM LAB
Course Code	21AEL46
Course outcomes (COs): At the end of the course the student will be able to:	
21AEL46.1	Analyse the performance of Four stroke and Multi cylinder engines
21AEL46.2	Operate the hydraulic and pneumatic components.
21AEL46.3	Apply the suitable cylinders according to the applications.
21AEL46.4	Appreciate the purpose of valves.

Course Name	Design Thinking for Innovation
Course Code	21AE482
Course outcomes (COs): At the end of the course the student will be able to:	
21AE482.1	Understand what design thinking is and when to use it
21AE482.2	Use design thinking for innovation
21AE482.3	Generate innovative ideas based upon design thinking
21AE482.4	Determine which ones are likely to produce specific, desired outcomes

Course Name	21UHV49
Course Code	UNIVERSAL HUMAN VALUES
Course outcomes (COs): At the end of the course the student will be able to:	
21UH49.1	Understand and analyze the essentials of human values and skills, self-exploration, happiness and prosperity.
21UH49.2	Evaluate coexistence of the “I” with the body.
21UH49.3	Identify and evaluate the role of harmony in family, society and universal order.
21UH49.4	Understand and associate the holistic perception of harmony at all levels of existence.

Course Outcomes of Third -Year Courses

Course Name	MECHANISM AND MACHINE THEORY
Course Code	21AE51
Course outcomes (COs): At the end of the course the student will be able to:	
21AE51.1	Apply the theory of velocity, acceleration and static force analysis to the design of mechanisms.
21AE51.2	Design spur gears, gear train, balancing of rotating and
21AE51.3	Design of reciprocating masses.
21AE51.4	Apply governors and gyroscopes.

Course Name	AIRCRAFT PROPULSION
Course Code	21AE52
Course outcomes (COs): At the end of the course the student will be able to:	
21AE52.1	Apply the basic principle and theory of aircraft propulsion.
21AE52.2	Explain the functions of centrifugal, axial compressors
21AE52.3	Explain the functions axial and radial turbines
21AE52.4	Analyze the performance of nozzles & inlets and combustion chamber.

Course Name	AERO STRUCTURES
Course Code	21AE53
Course outcomes (COs): At the end of the course the student will be able to:	
21AE53.1	Apply the basic concepts of stress and strain analysis.
21AE53.2	Compute the impact stress.
21AE53.3	Identify appropriate materials for suitable application based on properties.
21AE53.4	Understand the theory of elasticity.

Course Name	AIRCRAFT PERFORMANCE AND STABILITY
Course Code	21AE54
Course outcomes (COs): At the end of the course the student will be able to:	
21AE54.1	Apply the basic airplane performance parameters.
21AE54.2	Differentiate the aircraft performance in steady unaccelerated and accelerated flight.
21AE54.3	Apply the basic concepts of aircraft stability and control.
21AE54.3	Differentiate the static longitudinal and static directional stability

Course Name	ADVANCED AIRCRAFT STRUCTURES LAB
Course Code	21AEL55
Course outcomes (COs): At the end of the course the student will be able to:	
21AEL55.1	Understand the Maxwell's theorem and Poisson ratio
21AEL55.2	Compute the deflection of a simply supported beam and cantilever beam.
21AEL55.3	Verify Maxwell's theorem.
21AEL55.4	Differentiate the static longitudinal and static directional stability

Course Name	RESEARCH METHODOLOGY & INTELLECTUAL PROPERTY RIGHTS
Course Code	AEC21AE56
Course outcomes (COs): At the end of the course the student will be able to:	
21AEL55.1	Apply research methodology and IPR
21AEL55.2	Distinguish the types of intellectual property
21AEL55.3	Analyze options for protecting your creative innovations with copyright law
21AEL55.4	Analyze and interpret a patent document for a competing product

Course Outcomes of Third -Year Courses

Course Name	AVIATION MANAGEMENT
Course Code	21AE61
Course outcomes (COs): At the end of the course the student will be able to:	
21AE61.1	Apply the foundational knowledge of airline
21AE61.2	Apply the foundational knowledge of airport operation, scheduling and management
21AE61.3	Implement the general aviation management practices
21AE61.4	Prepare for the management at different levels of aviation industry

Course Name	AIRCRAFT SYSTEMS AND AVIONICS
Course Code	21AE62
Course outcomes (COs): At the end of the course the student will be able to:	
21AE61.1	Understand the aircraft control systems.
21AE61.2	Distinguish the conventional and modern control systems.
21AE61.3	Categorize different types of aircraft systems and instruments.
21AE61.4	Identify the use of avionics systems

Course Name	GAS TURBINE TECHNOLOGY
Course Code	21AE63
Course outcomes (COs): At the end of the course the student will be able to:	
21AE63.1	Select the suitable materials for engine manufacturing.
21AE63.2	Evaluate the performance of the engine.
21AE63.3	Test the engine using several types of engine testing methods.
21AE63.4	Comprehend the types of engines and its applications.

Course Name	FLIGHT MODELING, ANALYSIS AND SIMULATION LAB
Course Code	21AEL66
Course outcomes (COs): At the end of the course the student will be able to:	
21AEL66.1	Draw the geometric models of symmetric structures.
21AEL66.2	Draw the geometric models of cambered aerofoil, nozzle, wing and other structures.
21AEL66.3	Apply different types of meshing.
21AEL66.4	Perform the flow and stress analysis

Course Outcomes of Fourth -Year Courses

Course Name	CONJUGATE HEAT TRANSFER
Course Code	21AE71
Course outcomes (COs): At the end of the course the student will be able to:	
21AE71.1	Apply the basics principles of conjugate heat transfer phenomenon
21AE71.2	Analyze conjugate heat transfer problems
21AE71.3	Implement the knowledge of solving the conjugate heat transfer problem
21AE71.4	Understand what is conjugate heat transfer and its significance

Course Name	CONTROL ENGINEERING
Course Code	21AE72
Course outcomes (COs): At the end of the course the student will be able to:	
21AE72.1	Apply the concepts of control systems.
21AE72.2	Reduce the block diagrams and signal flow graphs.
21AE72.3	Determine the frequency response analysis by using various types of plots.
21AE72.4	Understand the basic concepts of control systems and mathematical models.

Course Name	FLIGHT TESTING
Course Code	21AE723
Course outcomes (COs): At the end of the course the student will be able to:	
21AE723.1	Measure the flight parameters.
21AE723.2	Estimate the performance of flight.
21AE723.3	Apply the FAR regulations.
21AE723.4	Comprehend the basic concepts of flight test instrumentation.

2018 Scheme (UG)

Course Outcomes of Second-Year Courses

Course Name	Transform Calculus, Fourier Series & Numerical Techniques
Course Code	18MAT31
Course outcomes (COs): At the end of the course the student will be able to:	
18MAT31.1	Illustrate the concepts of– Laplace, Fourier & Z transformation, Fourier series, Numerical solutions of ODE and Calculus of variation.
18MAT31.2	Apply the above acquired knowledge to solve the problems in engineering.
18MAT31.3	Analyze the solutions of the real-world problems using above techniques.
18MAT31.4	Interpret the overall knowledge gained to demonstrate the problems arising in practical situations.

Course Name	AERO THERMODYNAMICS
Course Code	18AE32
Course outcomes (COs): At the end of the course the student will be able to:	
18AE32.1	Apply the concepts and definitions of thermodynamics.
18AE32.2	Differentiate thermodynamic work and heat
18AE32.3	Apply I law and II law of thermodynamics to different processes.
18AE32.4	Apply the principles of various gas cycles.

Course Name	MECHANICS OF MATERIALS
Course Code	18AE33
Course outcomes (COs): At the end of the course the student will be able to:	
18AE33.1	Apply the basic concepts of strength of materials.
18AE33.2	Compute stress under different loadings.
18AE33.3	Compute strain under different loadings.
18AE34.4	Distinguish the properties of different materials.

Course Name	ELEMENTS OF AERONAUTICS
Course Code	18AE34
Course outcomes (COs): At the end of the course the student will be able to:	
18AE34.1	Appreciate and apply the basic principle of aviation
18AE34.2	Apply the concepts of fundamentals of flight, basics of aircraft structures, aircraft propulsion
18AE34.3	Select aircraft materials during the development of an aircraft
18AE34.4	Comprehend the complexities involved during development of flight vehicles.

Course Name	MECHANICS OF FLUIDS
Course Code	18AE35
Course outcomes (COs): At the end of the course the student will be able to:	
18AE35.1	Evaluate the effect of fluid properties.
18AE35..2	Apply the governing laws of fluid flow.
18AE35.3	Classify different types of fluid flows.
18AE35.4	Explain Compressible flow and Boundary Layers theory

Course Name	MEASUREMENT AND METROLOGY
Course Code	18AE36
Course outcomes (COs): At the end of the course the student will be able to:	
18AE36.1	Apply the standards of measurement, system of limits,
18AE36.2	Fits, tolerances and gauging.
18AE36.3	Identify and use appropriate measuring instruments.
18AE36.4	Acquire the knowledge on measurement and measurement systems

Course Name	MEASUREMENTS AND METROLOGY LAB
Course Code	18AEL37A
Course outcomes (COs): At the end of the course the student will be able to:	
18AE37A.1	Identify different measuring tools related to experiments.
18AE37.2	Classify different measuring tools related to experiments.
18AE37A.3	Identify, define, and explain accuracy, precision and some additional terminology
18AE37A.4	Conduct, Analyze, interpret, and present measurement data from measurements experiments.

Course Name	MACHINE SHOP LAB
Course Code	18AEL38
Course outcomes (COs): At the end of the course the student will be able to:	
18AEL38.1	Demonstrate the operation of general-purpose machine tools and manufacturing processes.
18AEL38.2	Identify different measuring tools related to experiments
18AEL38.3	Identify the special purpose machine tools for specific requirements
18AEL38.4	Develop physical models using different manufacturing processes.

Course Name	Complex Analysis, Probability and Statistical Methods
Course Code	18MAT41
Course outcomes (COs): At the end of the course the student will be able to:	
18MAT41.1	Illustrate the concepts of– complex functions, transformation, Probability distributions and Statistical methods.
18MAT41.2	Apply the above acquired knowledge to solve the problems in engineering.
18MAT41.3	Analyze the solutions of the real-world problems using above techniques.
18MAT41.4	Interpret the overall knowledge gained to demonstrate the problems arising in practical situations.

Course Name	AERODYNAMICS-I
Course Code	18AE42
Course outcomes (COs): At the end of the course the student will be able to:	
18AE42.1	Evaluate typical airfoil characteristics
18AE42.2	Compare two-dimensional flows over airfoil
18AE42.3	Compute and analyze the incompressible flow over finite wings
18AE42.4	Apply finite wing theory and design high lift systems from the aerodynamics view point

Course Name	18AE43
Course Code	AIRCRAFT PROPULSION
Course outcomes (COs): At the end of the course the student will be able to:	
18AE43.1	Use different material testing machines
18AE43.2	Apply the basic principle and theory of aircraft propulsion.
18AE43.3	Explain the functions of centrifugal, axial compressors, axial and radial turbines
18AE43.4	Analyze the performance of nozzles & inlets and combustion chamber

Course Name	18AE44
Course Code	MECHANISMS AND MACHINE THEORY
Course outcomes (COs): At the end of the course the student will be able to:	
18AE44.1	Apply the theory of velocity, acceleration
18AE44.2	Static force analysis to design mechanisms.
18AE44.3	Design spur gears, gear train, balancing of rotating and reciprocating masses.
18AE44.4	Apply governors and gyroscope

Course Name	AIRCRAFT MATERIAL SCIENCE
Course Code	18AE45
Course outcomes (COs): At the end of the course the student will be able to:	
18AE45.1	Adequate knowledge on various aerospace materials used & their properties
18AE45.2	Understand the process of Heat Treatment for aircraft metals and alloys.
18AE45.3	Understand the various features and Applications of different aircraft materials
18AE45.4	Understand the non-destructive testing methods and also machining of aircraft materials

Course Name	TURBOMACHINES
Course Code	18AE46
Course outcomes (COs): At the end of the course the student will be able to:	
18AE46.1	Understand the basics of turbo machines, the energy transfer and construct the velocity triangles for different types of turbo machines
18AE46.2	Analyze the compression and expansion process and compare various efficiencies.
18AE46.3	Evaluate the performance of Compressors and turbines with their constructions.
18AE46.4	Classify hydraulic pumps and hydraulic turbines and chose them for specific requirements

Course Name	MATERIAL TESTING LAB
Course Code	18AEL47A
Course outcomes (COs): At the end of the course the student will be able to:	
18AEL47A.1	Understand the significance, types and applications of various NDT methods
18AEL47A.2	Understand the material surface properties for different materials
18AEL47A.3	Understand the basic mechanical properties of aircraft materials
18AEL47A.4	Understand the fatigue and creep property of aircraft materials

Course Name	COMPUTER AIDED AIRCRAFT DRAWING
Course Code	18AEL48
Course outcomes (COs): At the end of the course the student will be able to:	
18AEL48.1	Distinguish drawings of machine and aircraft components
18AEL48.2	Identify assembly drawings either manually or by using standard CAD packages.
18AEL48.3	Practice with standard components and their assembly of an aircraft.
18AEL48.4	Identify different measuring tools related to experiments.

Third-Year Courses

Course Name	MANAGEMENT AND ENTREPRENEURSHIP
Course Code	18AE51
Course outcomes (COs): At the end of the course the student will be able to:	
18AE51.1	Explain about the management and planning.
18AE51.2	Apply the knowledge on planning, organizing, staffing, directing and controlling.
18AE51.3	Describe the requirements towards the small-scale industries
18AE51.4	Explain project preparation.

Course Name	AERODYNAMICS-II
Course Code	18AE52
Course outcomes (COs): At the end of the course the student will be able to:	
18AE52.1	Understand basics of compressible flow
18AE52.2	Understand the phenomenon of normal shock and oblique shocks
18AE52.3	Explain the working of wind tunnels and other measuring devices
18AE52.4	Explain basic potential flow equations and Go herts rule and Von Karman Rule

Course Name	AIRCRAFT STRUCTURES - I
Course Code	18AE53
Course outcomes (COs): At the end of the course the student will be able to:	
18AE53.1	Apply the basic concepts of stress and strain analysis.
18AE53.2	Compute the impact stress.
18AE53.3	Identify appropriate materials for suitable application
18AE53.4	Identify appropriate materials based on properties

Course Name	INTRODUCTION TO COMPOSITE MATERIALS
Course Code	18AE54
Course outcomes (COs): At the end of the course the student will be able to:	
18AE54.1	Understand the various types of composite materials and compare its applications, advantages and manufacturing methods
18AE54.2	Evaluate the properties of properties of polymer matrix composites with fiber reinforcements and develop A, B and D matrices for given laminate
18AE54.3	Analyze the micro and macro mechanical behavior of a lamina and recall various destructive and nondestructive testing methods
18AE54.4	Explain the various failure theories and compare thermosetting and thermoplastic polymers

Course Name	AIRCRAFT ELECTRICAL SYSTEMS & INSTRUMENTATION
Course Code	18AE55
Course outcomes (COs): At the end of the course the student will be able to:	
18AE55.1	Distinguish the conventional control systems
18AE55.2	Distinguish the modern control systems.
18AE55.3	Classify the aircraft systems.
18AE55.4	Categorize different types of aircraft instruments

Course Name	THEORY OF VIBRATIONS
Course Code	18AE56
Course outcomes (COs): At the end of the course the student will be able to:	
18AE56.1	Apply the principle of Simple Harmonic Motions.
18AE56.2	Calculate natural frequency, damping, logarithmic decrement and other parameters of single degree of freedom undamped / damped free vibration systems
18AE56.3	Analyze the multi-degree freedom systems.
18AE56.4	Determine the vibrations using vibration instruments

Course Name	AERODYNAMICS LAB
Course Code	18AEL57
Course outcomes (COs): At the end of the course the student will be able to:	
18AEL57.1	Acquainted with basic principles of aerodynamics using wind tunnel
18AEL57.2	Apply the flow visualization techniques.
18AEL57.3	Estimate the pressure distribution over the bodies.
18AEL57.4	Calculate the lift and drag.

Course Name	ENERGY CONVERSION AND FLUID MECHANICS LAB
Course Code	18AEL58
Course outcomes (COs): At the end of the course the student will be able to:	
18AEL58.1	Outline the Performance Test of Four stroke single cylinder and multi cylinder Engine, and estimate IP, BP, SFC, FP and Thermal efficiencies
18AEL58.2	Find the calorific value, flash point, fire point and viscosity of the given fuels
18AEL58.3	Understand the Valve Timing diagram of 4-stroke IC Engine and calibration of venturimeter
18AEL58.4	Demonstrate the Pipe friction apparatus and planimeter

Course Name	AIRCRAFT PERFORMANCE
Course Code	18AE61
Course outcomes (COs): At the end of the course the student will be able to:	
18AE61.1	Apply the basic airplane performance parameters
18AE61.2	Differentiate the aircraft performance in steady unaccelerated flight
18AE61.3	Differentiate the aircraft performance in accelerated flight.
18AE61.4	Explain the aircraft maneuver performance.

Course Name	AIRCRAFT STRUCTURES-II
Course Code	18AE62
Course outcomes (COs): At the end of the course the student will be able to:	
18AE62.1	Analyse the performance parameters through normal surface
18AE62.2	Utilize the concepts of thin-walled beams.
18AE62.3	Calculate the buckling of plates.
18AE62.4	Analysis of the stress in wings and fuselage frames.

Course Name	FINITE ELEMENT METHOD
Course Code	18AE63
Course outcomes (COs): At the end of the course the student will be able to:	
18AE63.1	Derive the structural correlation for load bearing materials using finite element method
18AE63.2	Develop element stiffness matrix for different types of materials through FEM.
18AE63.3	Illustrate different methods of deriving shape functions for various elements
18AE63.4	Thermal analysis of various structures through FEM.

Course Name	AIRCRAFT PROPULSION LAB
Course Code	18AEL66
Course outcomes (COs): At the end of the course the student will be able to:	
18AEL66.1	Explain the construction and working principle of aircraft piston engine and jet engines and Show the velocity profile of free jet at variable positions of pitot tube
18AEL66.2	Illustrate the forced convective heat transfer over flat plate
18AEL66.3	Find the nozzle flow and fuel injection characteristics
18AEL66.4	Experiment with the performance of a propeller and identify the heat release by combustion of fuel

Course Name	AIRCRAFT STRUCTURES LAB
Course Code	18AEL67
Course outcomes (COs): At the end of the course the student will be able to:	
18AEL67.1	Compute the deflection of a simply supported beam
18AEL67.2	Compute the deflection of a cantilever beam.
18AEL67.3	Verify the Maxwell's theorem.
18AEL67.4	Determine the buckling load, shear failure and shear centre

Fourth-Year Courses

Course Name	AIRCRAFT STABILITY AND CONTROL
Course Code	18AE71
Course outcomes (COs): At the end of the course the student will be able to:	
18AE71.1	Define the basic concepts of aircraft stability and control.
18AE71.2	Explain static longitudinal, directional and lateral stability and its effect on airframe components.
18AE71.3	Develop the dynamic derivatives involved in the aircraft stability and control.
18AE71.4	Solve for the dynamic longitudinal, directional and lateral stability of aircraft

Course Name	COMPUTATIONAL FLUID DYNAMICS
Course Code	18AE72
Course outcomes (COs): At the end of the course the student will be able to:	
18AE72.1	Differentiate the FDM, FVM and FEM
18AE72.2	Perform the flow, structural analysis.
18AE72.3	Perform the thermal analysis.
18AE72.4	Utilize the discretization methods according to the application.

Course Name	HYDRAULICS & PNEUMATICS
Course Code	18AE733
Course outcomes (COs): At the end of the course the student will be able to:	
18AE733.1	Introduce basics of Hydraulics and pneumatics
18AE733.2	Describe Various components of hydraulic system and maintenance of hydraulic system
18AE733.3	Design and analyze the hydraulic circuits layout
18AE733.4	Describe layout and details of pneumatic systems

Course Name	MODELING & ANALYSIS LAB
Course Code	18AEL76
Course outcomes (COs): At the end of the course the student will be able to:	
18AEL76.1	Draw the geometric models of symmetric, cambered aerofoil, nozzle, wing and other structures.
18AEL76.2	Apply different types of meshing.
18AEL76.3	Perform the flow and stress analysis
18AEL76.4	Perform the flow and stress analysis

Course Name	FLIGHT VEHICLE DESIGN
Course Code	18AE81
Course outcomes (COs): At the end of the course the student will be able to:	
18AE81.1	Knowledge of vehicle configuration and structural components.
18AE81.2	Calculate the thrust to weight ratio and wing loading.
18AE81.3	Compute the flight vehicle performance.
18AE81.4	Select the subsystems as per vehicle design.

Course Name	FLIGHT TESTING
Course Code	18AE824
Course outcomes (COs): At the end of the course the student will be able to:	
18AE824.1	Understand the flying qualities.
18AE824.2	Measure the flight parameters.
18AE824.3	Estimate the performance of flight.
18AE824.4	Apply the FAR regulations.