REGULATION: 2017

S.NO	COURSE NAME	COURSE OUT COMES	
1	C101 - Communicative English	C101.1	Understand the basics of English Grammar
		C101.2	Able to read articles in Magazines and News papers
		C101.3	Participate effectively and confidently in Technical discussions and conversations
		C101.4	Able to write Technical, Personal letters and E - Mails
		C101.5	Able to write Technical essays and write-ups.
2	C102 - Engineering Mathematics – I	C102.1	Use limit definition and rules of differentiation to differentiate functions.
		C102.2	Apply differentiation to solve maxima and minima problems
		C102.3	Evaluate integral problems by using techniques of integration.
		C102.4	Apply integration concepts to compute multiple integrals.
		C102.5	Apply various techniques in solving differential equations.
3	C103 - Engineering Physics	C103.1	Gain knowledge on the properties of matter and its application.
		C103.2	Acquire knowledge on the concepts of waves and optical devices and their application in fibre optics.
		C103.3	Explain the thermal properties of materials like thermal conductivity and thermal expansion and its application in heat exchangers.
		C103.4	Understand the concepts of quantum theory and its application in tunneling microscopes.
		C103.5	Able to classify various crystal structures, parameters and defects.
4	C104 - Engineering Chemistry	C104.1	Understand the types of water and water treatment techniques.
		C104.2	Utilize the various adsorbent in industries.
		C104.3	Classify the types of alloys and understand the component present in the alloys.
		C104.4	Explain the types of fuels and manufacturing of secondary fuels.
		C104.5	Illustrate the types of energy resources.
5	5 - Problem Solving & ython Programming	C105.1	Develop algorithmic solutions for simple computational problems
		C105.2	Demonstrate programs using simple Python statements and expressions
		C105.3	Explain control flow and functions concept in Python for solving problems
		C105.4	Use Python data structures – lists, tuples & dictionaries for representing compound data

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	C10 P	C105.5	Explain files, exception, modules and packages in Python for solving problems
6	C106 - Engineering Graphics	C106.1	Discuss about conics and orthographic views of engineering components
		C106.2	Draw the projection of points, lines and planes
		C106.3	Classify solids and projection of solids at different positions
		C106.4	Show sectioned view of solids and development of surface
		C106.5	Draw isometric projection and perspective views of an object/solid
7	C107 - Problem Solving and Python Programming Laboratory	C107.1	Develop solutions to simple computational problems using Python programs
		C107.2	Solve problems using conditionals and loops in Python.
		C107.3	Develop Python programs by defining functions and calling them.
		C107.4	Use Python lists, tuples & dictionaries for representing compound data.
		C107.5	Develop Python programs using files.
8	C108 - Engineering Physics & Chemistry Lab	C108.1	Analyze the various modulus of elasticity of different types of materials.
		C108.2	Able to find the velocity of ultrasonic waves in different liquid.
		C108.3	Understand the various parameter affecting the thermal conductivity of poor conductor
		C108.4	Understand the concept of Laser and its diffraction for different usage
		C108.5	Analyze the acceptance angle and numerical aperture of optical fibers.
		C108.6	Understand the method of determine the strength of a pure acid and mixture of acids by using conductivity meter.
		C108.7	Understand the method of estimate the amount of iron content present in a given solution by means of potentiometric titration.
9	C109 - Technical English	C109.1	Read technical texts and write area specific texts effortlessly
		C109.2	Write formal letters / emails using vocabulary.
		C109.3	Speak appropriately and effectively in varies formal and informal contexts.
		C109.4	Prepare reports and winning job applications.
		C109.5	Listen and comprehend lectures in the area of specialization successfully.
10	ngineering matics - II	C110.1	Understand the Concepts of Diagonalization of matrices.
		C110.2	Understand the concepts of Vector Calculus and their applications.
		C110.3	Interpret the Concepts of analytic functions and Conformal mapping.

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	C110 - E Mathe	C110.4	Understand the integration concepts on Complex integration
		C110.5	Demonstrate the concepts of Laplace transformations and their applications
11	C111 - Materials Science	C111.1	Understand the various phase diagrams and their applications.
		C111.2	Acquire knowledge on Fe-Fe3C phase diagram, various microstructures and alloys.
		C111.3	Acquire the knowledge on mechanical properties of materials and their measurement
		C111.4	Understand the properties on magnetic, dielectric and superconducting properties of materials.
		C111.5	Understand the basics of ceramics, composites and nano materials
12	C112 - Basic Electrical, Electronics and Instrumentation Engineering	C112.1	Applying the fundamentals ofDC electric circuits and theorems
		C112.2	Applying the fundamentals ofAC electric circuits and wiring
		C112.3	Understanding the concepts of electrical machines
		C112.4	Understand the concepts of various electronic devices
		C112.5	Acquire knowledge on various electrical measuring instruments
13	C113 - Environmental Science & Engg	C113.1	Understand the types, characteristics of Ecosystem & Biodiversity.
		C113.2	Understand the types of pollution & its causes.
		C113.3	Understand the importance of Natural Resources.
		C113.4	Understand the Environmental problems.
		C113.5	Explain the importance of women, child education and HIV /AIDS.
14	C114 - Engineering Mechanics	C114.1	Illustrate the vectorial and scalar representation of forces and moments.
		C114.2	Analyse the rigid body in equilibrium.
		C114.3	Evaluate the properties of surfaces and solids.
		C114.4	Calculate dynamic forces exerted in rigid body.
		C114.5	Determine the friction and the effects by the laws of friction.
15	ineering Practices boratory	C115.1	Apply the knowledge of pipeline connections to household fittings and industrial buildings.
		C115.2	Prepare the different joints in roofs, doors, windows and furniture.
		C115.3	Perform step turning operation in a lathe.

S.NO	COURSE NAME	COURSE OUT COMES	
	C115 - Eng La	C115.4	Perform the various welding processes and know about its applications.
		C115.5	Produce a funnel using sheet metal.
16	C116 - Basic Electrical, Electronics and Instrumentation Engineering Lab	C116.1	Able to determine the performance characteristic of different electrical machines
		C116.2	Design simple electric circuits using basic laws and theorems
		C116.3	Design simple electronics circuits using diodes and transistors
		C116.4	Understand the concepts of measurement of AC signals
		C116.5	Analysis the measurements of displacement and temperature
17	C201- TRANSFORMS AND PARTIAL DIFFERENTIAL EQUATIONS	C201.1	Understand how to solve the given standard partial differential equations.
		C201.2	Solve differential equations using Fourier series analysis which plays a vital role in engineering applications.
		C201.3	Appreciate the physical significance of Fourier series techniques in solving one and two dimensional heat flow problems and one dimensional wave equations.
		C201.4	Understand the mathematical principles on transforms and partial differential equations would provide them the ability to formulate and solve some of the physical problems of engineering.
		C201.5	Use the effective mathematical tools for the solutions of partial differential equations by using Z transform techniques for discrete time systems.
18	C202-MANUFACTURING TECHNOLOGY	C202.1	The Students can able to apply different casting process and use this in industry for component production
		C202.2	The Students can able to use different welding process and use this in industry for component production
		C202.3	The Students can able to use machining process and use this in industry for component production
		C202.4	The Students can able to apply forming and shaping process and use this in industry for component production
		C202.5	The Students can able to apply powder metallurgy process and use this in industry for component production
19	C203-AERO ENGINEERING THERMODYNAMICS	C203.1	Able to relate laws of thermodynamics to jet engine components.
		C203.2	Understands principle operation of piston engine and jet engines.
		C203.3	Able to identify efficient cycle of air and jet engines.
		C203.4	Capable to illustrate condition of working medium.
		C203.5	Eligible to recognize and calculate heat transfer in complex systems involving several heat transfer mechanisms.

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20	C204-FLUID MECHANICS AND MACHINERY	C204.1	Apply mathematical knowledge to predict the properties and characteristics of a fluid.
		C204.2	Can analyse and calculate major and minor losses associated with pipe flow in piping networks.
		C204.3	Can mathematically predict the nature of physical quantities
		C204.4	Can critically analyse the performance of pumps
		C204.5	Can critically analyse the performance of turbines.
21	C205-STRENGTH OF MATERIALS FOR MECHANICAL	C205.1	Understand the concepts of stress and strain in simple and compound bars, the importance of principal stresses and principal planes.
		C205.2	Understand the load transferring mechanism in beams and stress distribution due to shearing force and bending moment.
		C205.3	Apply basic equation of simple torsion in designing of shafts and helical spring
		C205.4	Calculate the slope and deflection in beams using different methods.
		C205.5	Analyze and design thin and thick shells for the applied internal and external pressures.
22	C206-ELEMENTS OF AERONAUTICAL ENGINEERING	C206.1	Learn the history of aircraft & developments over the years
		C206.2	Ability to identify the types & classifications of components and control systems
		C206.3	Understand the basic concepts of flight & Physical properties of Atmosphere
		C206.4	An ability to differentiate the types of fuselage and constructions.
		C206.5	Different types of Engines and principles of Rocket
23	C207-Strength of Materials and Fluid Mechanics & Machinery	C207.1	Perform Tension, Torsion, Hardness, Compression, and Deformation test on Solid materials.
		C207.2	Use the measurement equipments for flow measurement.
		C207.3	Perform test on different fluid machinery
24	C208-Thermodynamics Laboratory	C208.1	Ability to perform test on diesel/petrol engine
		C208.2	Ability to explain the characteristics of the diesel/Petrol engine
		C208.3	Ability to determine the properties of the fuels.
		C208.4	Participate confidently and appropriately in conversations both formal and informal
25	C209-terpersonal s/Listening & Speaking	C209.1	Listen and respond appropriately.
		C209.2	Participate in group discussions

S.NO	COURSE NAME	COURSE OUT COMES	
	Int Skill	C209.3	Make effective presentations
26	C210-NUMERICAL METHODS	C210.1	Understand the basic concepts and techniques of solving algebraic and transcendental equations.
		C210.2	Appreciate the numerical techniques of interpolation and error approximations in various intervals in real life situations
		C210.3	Apply the numerical techniques of differentiation and integration for engineering problems.
		C210.4	Understand the knowledge of various techniques and methods for solving first and second order ordinary differential equations.
		C210.5	Solve the partial and ordinary differential equations with initial and boundary conditions by using certain techniques with engineering applications.
27	C211- AERODYNAMICS - I	C211.1	An ability to apply airfoil theory to predict airfoil performance
		C211.2	Analyze and optimize wing performance
		C211.3	A knowledge of incompressible flow
		C211.4	A knowledge of subsonic wing theory
		C211.5	An exposure to Boundary layer theory
28	C212-AIRCRAFT SYSTEMS AND INSTRUMENTS	C212.1	Compare the features of various flight control systems.
		C212.2	Describe the principle and working of different aircraft systems.
		C212.3	Analyze the performance of various aircraft engine systems.
		C212.4	Acquire and interpret data from various aircraft instruments.
		C212.5	Identify the various cockpit controls.
29	C213-MECHANICS OF MACHINES	C213.1	Understand the principles in the formation of mechanisms and their kinematics.
		C213.2	Understand the construction features of Gears and Gear Trains.
		C213.3	Understand the effect of friction in different machine elements.
		C213.4	Understand the importance of balancing
		C213.5	Understand the importance of vibration.
30	C214-AIRCRAFT STRUCTURES - I	C214.1	Ability to perform linear static analysis of determinate and indeterminate aircraft structural components
		C214.2	Calculate the reactions of structures using strain energy concept.
		C214.3	Create a structure to carry the given load.
		C214.4	Ability to design the component using different theories of failure
		C214.5	calculate the response of structures by analysing stress acting on the structure

S.NO	COURSE NAME	COURSE OUT COMES	
31	C215-PROPULSION – I	C215.1	To be able to apply control volume and momentum equation to estimate the forces produced by aircraft propulsion systems
		C215.2	To be able to describe the principal figures of merit for aircraft engine
		C215.3	To be able to describe the principal design parameters and constraints that set the performance of gas turbine engines.
		C215.4	To apply ideal and actual cycle analysis to a gas turbine engine to relate thrust and fuel burn to component performance parameters.
		C215.5	Understanding the workings of multistage compressor or turbine, and to be able to use velocity triangles and the Euler Turbine Equation to estimate the performance of a compressor or turbine stage.
32	C216-Computer Aided Machine	C216.1	Follow the drawing standards, Fits and Tolerances
		C216.2	Re-create part drawings, sectional views and assembly drawings as per standards
33	C217-Aerodynamics Laboratory	C217.1	Describe the fundamental aerodynamic and geometrical properties related to external flows over airfoils, wings, and bluff bodies.
		C217.2	Calculate the aerodynamic forces and moments experienced by airfoils, wings and bluff bodies.
		C217.3	Use thin aerofoil theory to evaluate the performance of thin airfoils and the effects of angle of attack and camber
		C217.4	Use wind tunnel instrumentation to measure flow velocity and lift and drag.
		C217.5	Visualize the flow and pressure distribution over 2D and 3D bodies by water flow and smoke methods
34	C301-FLIGHT DYNAMICS	C301.1	Know about the forces and moments that are acting on an aircraft, the different types of drag, drag polar, ISA, variation of thrust, power, SFC with velocity and altitude.
		C301.2	Have understanding about performance in level flight, minimum drag and power required, climbing, gliding and turning flight, v-n diagram and load factor.
		C301.3	Knowledge about degrees of stability, stick fixed and stick free stability, stability criteria, effect of fuselage and CG location, stick forces, aerodynamic balancing.
		C301.4	Understanding about lateral control, rolling and yawing moments, static directional stability, rudder and aileron control requirements and rudder lock.
		C301.5	Understanding about dynamic longitudinal stability, stability derivatives, modes and stability criterion, lateral and directional dynamic stability.
35	C302-AIRCRAFT STRUCTURES - II	C302.1	Ability to understand loads acting an aircraft.
		C302.2	Ability to identify& resolve the structural design& its limitations
		C302.3	Ability to improvise distribution their loads on aircraft member with safer limits.
		C302.4	Ability to understand the design of low weight to high strength panel member.
		C302.5	Ability to analyze the aircraft real structural components such as wings and fuselage.

S.NO	COURSE NAME	COURSE OUT COMES	
36	C303-AERODYNAMICS – II	C303.1	Calculate the compressible flow through a duct of varying cross section.
		C303.2	Use quasi one-dimensional theory to analyze compressible flow problems.
		C303.3	Estimate fluid properties in Rayleigh and Fanno type flows.
		C303.4	Estimate the properties across normal and oblique shock waves.
		C303.5	Predict the properties of hypersonic flows.
37	C304-PROPULSION – II	C304.1	Understanding ramjet and hypersonic air breathing propulsion systems.
		C304.2	To get familiarity in rocket propulsion systems.
		C304.3	Knowing the applications and principles of liquid and solid-liquid propulsion systems.
		C304.4	To gain knowledge about the advanced propulsion technique used for interplanetary mission.
38	C305-CONTROL ENGINEERING	C305.1	Ability to apply mathematical knowledge to model the systems and analyse the frequency domain
		C305.2	Ability to check the stability of the both time and frequency domain
		C305.3	Ability to solve simple pneumatic, hydraulic and thermal systems, Mechanical and electrical component analogies based problems.
		C305.4	Ability to solve the Block diagram representation of control systems, Reduction of block diagrams, Signal flow graph and problems based on it.
		C305.5	Ability to understand the digital control system, Digital Controllers and Digital PID Controllers.
39	C306-INTERNAL COMBUSTION ENGINE	C306.1	Able to relate laws of thermodynamics to jet engine components.
		C306.2	Understands principle operation of piston engine and jet engines.
		C306.3	Able to identify efficient cycle of air and jet engines.
		C306.4	Capable to illustrate condition of working medium.
		C306.5	Eligible to recognize and calculate heat transfer in complex systems involving several heat transfer mechanisms.
40	C307-Aircraft Structures Laboratory	C307.1	students can understand the behavior of materials subjected to various types of loadings
		C307.2	Students will be in a position to fabricate a composite laminates.
	Laboratory	C308.1	Capable to identify components and information of piston and gas turbine engine.
		C308.2	Able to analyze behavior of flow through ducts and jet engine components.

S.NO	COURSE NAME	COURSE OUT COMES	
41	C308-Propulsion	C308.3	Ability to visualize flow phenomenon in supersonic flow.
		C308.4	Recognizes performance parameters of rocket propellants.
		C308.5	To be able to distinguish subsonic and supersonic flow characteristics
42	C309-Professional Communication	C309.1	Make effective presentations
		C309.2	Participate confidently in Group Discussions
		C309.3	Attend job interviews and be successful in them.
		C309.4	Develop adequate Soft Skills required for the workplace
43	C310-Finite Element Methods	C310.1	Write flow chart of finite element steps and understand the convergence of the problem
		C310.2	Solve stiffness matrix for bar, beam and frame problems using suitable boundary condition.
		C310.3	Plane stress and plane strain condition are used to understand 2d structures.
		C310.4	Modelling of 2d and 3d structures using isoparametric elements
		C310.5	Modelling of 2d and 3d structures using isoparametric elements
44	C311 - Experimental Aerodynamics	C311.1	Knowledge on measurement techniques in aerodynamic flow.
		C311.2	Acquiring basics of wind tunnel measurement systems
		C311.3	Analyze the model measurements, Lift and drag measurements through various techniques and testing of different model
		C311.4	Specific instruments for flow parameter measurement like pressure, velocity.
		C311.5	Apply the Wind tunnel boundary corrections and Scale effects
45	C312 - Composite Materials and Structures	C312.1	Understanding the mechanics of composite materials
		C312.2	Ability to analyse the laminated composites for various loading eases
		C312.3	Knowledge gained in manufacture of composites.
		C312.4	Should analyze sandwich and laminated plates
		C312.5	Should be able to construct and analysis different composite technique
46	C313 - Aircraft Design	C313.1	Initiate the preliminary design of an aircraft starting from data collection to satisfy mission specifications;
		C313.2	To get familiarized with the estimation of geometric and design parameters of an airplane
		C313.3	Understanding the procedure involved in weight estimation, power plant selection, estimation of the performance parameters, stability aspects, design of structural components of the airplane, stability of structural elements, estimation of critical loads etc.
		C313.4	Initiate the design of a system, component, or process to meet requirements for aircraft systems;

S.NO	COURSE NAME	COURSE OUT COMES	
		C313.5	Work in a multidisciplinary environment involving the integration of engineering practices in such subjects as aerodynamics, structures, propulsion, and flight mechanics
47	C314 - Experimental Stress Analysis	C314.1	Knowledge of stress and strain measurements in loaded components.
		C314.2	Acquiring information's the usage of strain gauges and photo elastic techniques of measurement
		C314.3	Formulate and solve general three dimensional problems of stress-strain analysis especially fundamental problems of elasticity.
		C314.4	Analyze the strain gauge data under various loading condition by using gauge rosette method.
		C314.5	Experimentally evaluate the location and size of defect in solid and composite materials by using various Non-destructive Testing methods.
48	C315 - Aircraft General Engineering and Maintenance Practices	C315.1	Knowledge in various ground support system for aircraft operations
		C315.2	Ability to carryout ground servicing of critical aircraft systems
		C315.3	Grasp the ground handling procedures and types of equipments with special maintenance Ability to do shop safety, Environment cleanliness in an aircraft materials shop
		C315.4	Understand the FAA airworthiness regulations and the checklist involved in each inspection of aircraft
		C315.5	Knowledge in specifications standards of aircraft hardware systems.
49	C316 - Aero Engine and Airframe Laboratory	C316.1	Ability to maintain and repair the aero engines
		C316.2	Ability to repair the aero engines
50	C317 - Computer Aided Simulation Laboratory	C317.1	Ability to Mesh various geometries and to do grid independence study.
		C317.2	Simulate and analyze fluid flow for internal and external flow problems.
		C317.3	Analyze the basic mechanism of different structural elements behavior.
		C317.4	Analyze the variation of mechanical properties over a composite beam
		C317.5	Analyze the apparent stress distribution over structural component
51	C318 - Aircraft Design Project - I	C318.1	students will be in a position to design aircraft
		C318.2	students will be in a position to demonstrate the performance of the design.