ANNASAHEB DANGE COLLEGE OF ENGINEERING AND TECHNOLOGY, ASHTA

AN AUTONOMOUS INSTITUTE

(Affiliated to Shivaji University, Kolhapur)

SECOND REVISION CURRICULUM

BACHELOR OF TECHNOLOGY IN

AERONAUTICAL ENGINEERING

DOCUMENT NUMBER: ADCET/ACAD/5, Rev:00, 01/01/2020

Annasaheb Dange College of Engineering and Technology Ashta

Department of Aeronautical Engineering

Teaching and Evaluation Scheme

S. Y. B. Tech Semester III

Course Code	Course Name	Teaching Scheme				THEORY							PRACTICAL						GRAND TOTAL
						ISE		MSE + ESE			Total	Min	ISE		MSE + ESE		Total	Min	
		L	T	P	Credits	Max	Min	MSE	ESE	Min			Max	Min	Max	Min			
2AEPC201	Mathematical Modeling and Problem Solving	2	1	-	3	40	16	30	30	24	100	40	-	-	-	-	-	-	100
2AEPC202	Solid Mechanics	2	1	2	4	40	16	30	30	24	100	40	50	20	-	-	50	20	150
2AEPC203	Fluid Mechanics	2	1	2	4	40	16	30	30	24	100	40	50	20	-	-	50	20	150
2AEPC204	Applied Thermodynamics	2	1	2	4	40	16	30	30	24	100	40	50	20	-	-	50	20	150
2AEPC205	Introduction to Aeronautical Engineering	1	-	2	2	-	-	-	-	-	-	-	50	20	-	-	50	20	50
2AEVS206	Parametric Modeling & Assembly	-	-	2	1	-	-	-	-	-	-	-	25	10	25	10	50	20	50
2AEVS207	Python Programing for Engineers	-	-	2	1	-	-	-	-	-	-	-	25	10	25	10	50	20	50
2AEHS208	Environmental Studies	2	-	-	2	-	-	-	-	-	-	-	50	20	-	-	50	20	50
2AEHS209	Constitution of India	1	-	-	1	-	-	-	-	-	-	-	50	20	-	-	50	20	50
2AECC210	Aptitude and Reasoning Part - I	-	-	2	1	-	-	-	-	-	-	-	50	20	-	-	50	20	50
		12	4	14	23														850
	Total Contact Hours/Week	30																	

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Course Details:

Class	S.Y B.Tech., Sem - III
Course Code and Course Name	**2AEPC201 - Mathematical Modeling and Problem Solving**
Prerequisite	• 2AEBS101 - Applied Mathematics - I • 2AEBS110 - Applied Mathematics - II
Teaching Scheme: Lecture/Tutorial/Practical	02/01/00
Credits	03
Evaluation Scheme : ISE/MSE/ESE	40/30/30

Course Objectives:

1. Introduce the use of mathematics for solving engineering problems
2. Make them aware of mathematical modeling and problem solving techniques
3. Enhance the ability of the students to apply mathematics to solve engineering problems

Course Outcomes (CO's):

After successful completion of this course, the student will be able to,

2AEPC201_1	Apply mathematical techniques such as linear algebra, numerical methods, statistical analysis to model and solve simple engineering problems
2AEPC201_2	Identify, formulate, solve and validate real world engineering problems using the principles of mathematics, basic science and engineering fundamentals
2AEPC201_3	Use appropriate modern engineering tools such as Excel, MATLAB or Python for solving engineering problems
2AEPC201_4	Effectively document and present the results of mathematical modeling and problem solving

Course Contents:

Unit 1	**Introduction to Mathematical Modeling**	**04 + 02**
Real world problem to equivalent mathematical model, Concept of variable in mathematical modeling, Stages of mathematical modeling : Formulation, Solution, Interpretation and Validation. Choice of mathematical tools, techniques and its applications in engineering		

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Unit 2	**Graphical Methods for Problem Solving**	**04 + 02**
Introduction to use of graphical methods for problem solving, Linear programming problems, Simple optimization problems with two variables		
Unit 3	**Numerical Differentiation Methods**	**05 + 02**
Basic concepts of numerical methods, Rounding errors, Truncation errors, and Convergence. Numerical differentiation techniques - Forward difference method, Backward difference method, Central difference method for First and Second Order		
Unit 4	**Numerical Integration Methods**	**04 + 02**
Numerical integration techniques - The midpoint rule, The trapezoidal rule, Simpson's rule: ⅓ & ⅜		
Unit 5	**Statistical Analysis**	**04 + 02**
Applications of statistical analysis, Steps in using statistical analysis to solve problems, Regression analysis, Time series analysis, Cluster analysis		
Unit 6	**Introduction to Optimization**	**05 + 02**
Key concepts of optimization, Classical optimization methods, Linear programming method, Gradient descent method, Newton's method		

Text Books:

Sl.No	Title	Author	Publisher	Edition	Year
1	Mathematical Modeling	J. N. Kapur	New Age International Publishers	3rd	2023
2	Numerical Methods	B. S. Grewal	Khanna Publishers	7th	2005
3	Engineering Optimization Theory and Practice	Singiresu S. Rao	John Wiley & Sons, INC	4th	2009

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Reference Books:

Sl.No	Title	Author	Publisher	Edition	Year
1	Mathematical Modeling : Application, Issues and Analysis	Bimal K. Mishra Dipak K. Satpathi	Ane Books Pvt. Ltd.	1st	2009
2	Mathematical Modeling : Classroom Notes in Applied Mathematics	Murray S. Klamkin	University City Science Center, Philadelphia	3rd	1995
3	Mathematical Modeling: Models, Analysis and Applications	Sandip Banerjee	CRC Press	1st	2014

Assessment Modes:

Sl. No	Method/ Technique	Course Outcomes				Marks		Weightage
		1	2	3	4	Max	Min	
1	ISE : ABA	☑	☑	☑	☑	40	16	40 %
2	ISE : TA	☑	☑	☑	☑			
4	MSE	☑	☑	☐	☐	60	24	60 %
5	ESE	☑	☑	☐	☐			

- ISE - In-Semester Examination, MSE - Mid-Semester Examination, ESE - End-Semester Examination
- ABA - Activity Based Assessment, TA - Tutorial Assessment

CO's - PO's & PSO's Mapping: (Low - 1, Medium - 2, High -3, No Correlation - "-")

CO's	PO's												PSO's	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
1	3	-	-	-	-	-	-	-	-	-	-	-	-	-
2	3	3	-	-	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	1	-	-	1	-	-	-	-	-	-
4	-	-	-	-	-	-	-	1	-	2	-	-	-	-
Avg	**3**	**3**	**-**	**-**	**1**	**-**	**-**	**1**	**-**	**2**	**-**	**-**	**-**	**-**

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Course Details:

Class	S.Y B.Tech., Sem - III
Course Code and Course Name	**2AEPC202 - Solid Mechanics**
Prerequisite	• 2AEES103 - Engineering Mechanics • 2AEPC104 - Basic Mechanical Engineering • 2AEPC113 - Material Science and Engineering
Teaching Scheme: Lecture/Tutorial/Practical	02/01/02
Credits	04
Evaluation Scheme : ISE/MSE/ESE	40/30/30

Course Objectives:

1. To provide students with a strong foundation in the principles of solid mechanics.
2. To enhance the ability of students to apply their knowledge of solid mechanics for design of structural systems.
3. Motivate students to develop design thinking skills by considering factors such as safety, reliability, efficiency, and cost-effectiveness in the design of structural systems.
4. To conduct experiments on the materials for understanding behavior, testing durability and sustainability used in aerospace industries.

Course Outcomes (CO's):

After successful completion of this course, the student will be able to,

2AEPC202_1	Calculate stresses and strains in simple structures subjected to different loading conditions.
2AEPC202_2	Apply principles of engineering mechanics and equilibrium equations to calculate stresses, strains, and displacements in structural elements and construct Mohr's circle to find principal stresses for two-dimensional state stresses
2AEPC202_3	Analyze the behavior of using appropriate techniques beams, columns and trusses under different loading and boundary conditions.
2AEPC202_4	Develop solutions for engineering problems to bear the given loads using the knowledge of solid mechanics
2AEPC202_5	Carry out experimental studies/investigations as a team to study, understand, discuss and document the results to validate the concepts and principles of solid mechanics
2AEPC202_6	Use the appropriate engineering tools such as metallurgical microscopes, strain gauges, load cells, and dial gauges to experimentally study and validate principles of solid mechanics

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Course Contents:

Unit 1	**Statically Determinate Structures**	**4 + 2 + 4**
Statically determinate beams – Shear force and Bending moment of beams for different loading conditions – Theory of pure bending – Bending stress and shear stress distribution for various symmetrical cross sections. Principal of superposition of bars - Bending stresses in composite sections. Shear testing.		
Unit 2	**Analysis of stresses in 2-D element**	**5 + 2 + 4**
Biaxial state of stresses at a point – Stresses on inclined plane – Principal Plane and Stresses – Mohr's circle and its construction for different cases. Determination of principal stresses and shear stresses using Graphical methods. Demonstration of forces, moments and stress using a model.		
Unit 3	**Deflection of beams**	**4 + 2 + 4**
Double integration method – Method of superposition on cantilever and Simply Supported Beam with various loading conditions, Conjugate beam method, Macaulay's Method on cantilever and Simply Supported Beam with various loading conditions, Deflection of Cantilever & Simply supported beams by experimental.		
Unit 4	**Trusses and columns**	**5 + 3 + 6**
Strain energy due to axial, bending, torsion and shear loadings – Castigliano's theorem – Maxwell's reciprocal theorem – Unit load method, Energy method on Trusses and columns, Impact testing, Experimentally prove Maxwell's reciprocal theorem and method of superposition of cantilever and simply supported beam beam. Torsion formula – Solid and Hollow circular shafts – Stress, deformation and angle of twist of a shaft, Composite shafts - Torsion testing.		
Unit 5	**Microstructural analysis and Hardness**	**4 + 2 + 4**
Material Specimen Preparation using Grinding & Polishing, Microstructure inspection, Material Fabrication Introduction to hardness treating - Macroindentation hardness testing - Microindentation hardness testing - Surface treatment process, Hardness Testing - Rockwell, Brinell, Vickers, Shore-D.		
Unit 6	**Theories of Failures**	**4 + 2 + 4**
Maximum principal stress theory – Maximum principal strain theory – Maximum Shear stress theory – Maximum strain energy theory – Maximum shear strain energy theory - Coulomb Mohr's theory - Introduction to Fracture Mechanics, Octahedral shear stress theory – Tsai Hill theory, Tension testing on ductile material		

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Text Books:

Sl.No	Title	Author	Publisher	Edition	Year
1	Strength of materials	S. Ramamrutham, R. Narayanan	Dhanpat Rai publishing Co.	18th	2011
2	Mechanics of Materials	Gere and Timoshenko	CBS Publisher	2nd	2000
3	A Textbook of Strength of Materials	R.K. Rajput	S. Chand	6th	2015

Reference Books:

Sl.No	Title	Author	Publisher	Edition	Year
1	Aircraft Structures for Engineering Students	T H G Megson	Elsevier	5th	-
2	Mechanics of Materials	F.B. Beer and E.R. Johnston	Tata McGraw Hill	-	2008
3	Shigley's Mechanical Engineering Design	Richard D Budynas J Keith Nisbett	Tata McGraw Hill	10th	2015

Assessment Modes:

Sl. No	Method/ Technique	Course Outcomes						Marks		Weightage
		1	2	3	4	5	6	Max	Min	
1	ISE : ABA	☑	☑	☑	☑	☐	☐	20	16	40 %
2	ISE : TA	☑	☑	☑	☑	☐	☐	20		
3	ISE : PA	☐	☐	☐	☐	☑	☑	50	20	
4	MSE	☑	☑	☐	☐	☐	☐	30	24	60 %
5	ESE	☐	☐	☑	☑	☐	☐	30		

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CO's - PO's & PSO's Mapping: (Low - 1, Medium - 2, High -3, No Correlation - "-")

CO's	PO's												PSO's	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
1	3	-	-	-	-	-	-	-	-	-	-	-	-	-
2	3	2	-	-	-	-	-	-	-	-	-	-	-	-
3	3	2	-	-	-	-	-	-	-	-	-	-	-	-
4	3	2	2	-	-	-	-	-	-	-	-	-	-	-
5	3	2	2	2	-	-	-	1	2	2	-	-	-	-
6	-	-	-	-	2	-	-	1	-	-	-	-	-	-
Avg	**3**	**2**	**2**	**2**	**2**	**-**	**-**	**1**	**2**	**2**	**-**	**-**	**-**	**-**

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Course Details:

Class	S.Y B.Tech., Sem - III
Course Code and Course Name	**2AEPC203 - Fluid Mechanics**
Prerequisite	• 2AEES103 - Engineering Mechanics • 2AEPC104 - Basic Mechanical Engineering
Teaching Scheme: Lecture/Tutorial/Practical	02/01/02
Credits	04
Evaluation Scheme : ISE/MSE/ESE	40/30/30

Course Objectives:

1. To understand the basic principles of fluid mechanics and to be familiar with the different types of fluid flows and their characteristics.
2. To enable students to apply these principles to solve problems in fluid statics and dynamics.
3. To use mathematical and computational tools for analyzing fluid flow problems.

Course Outcomes (CO's):

After successful completion of this course, the student will be able to,

2AEPC203_1	Apply the basic engineering fundamentals and principles of fluid mechanics to solve engineering problems related to fluid statics, fluid dynamics and turbomachinery
2AEPC203_2	Calculate and analyze the frictional losses that occur when a fluid flow through closed conduits
2AEPC203_3	Determine the forces acting on bodies such as cylinder, sphere and aerofoils due to the external fluid flow over the bodies
2AEPC203_4	Analyze the design variables used in design of aircraft wings, wind turbines, and turbo-machinery by methods of similitude
2AEPC203_5	Carry out experimental studies/investigations as a team to study, verify and validate the principles of fluid statics, fluid dynamics , turbomachinery and their applications to internal and external flows
2AEPC203_6	Use the appropriate engineering tools such as manometers, pressure gauges, wind tunnel, and numerical simulations to experimentally study and validate principles of fluid mechanics

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Course Contents:

Unit 1	**Fluid Statics**	**4 + 2 + 4**
Review of fluid properties - Pressure, Buoyancy, Archimedes principle, Hydrostatics, Pascals laws, Stability of floating and immersed bodies, Manometers - application of manometers in fluid measurements		
Unit 2	**Fluid Kinematics**	**5 + 2 + 4**
Flow Regimes and Characteristics, Reynolds Number, Velocity and Acceleration Equations, Equation Of Streamlines- Flow Visualization, Deformation of Fluids, Conservation of Mass- Continuity Equation, Velocity Potential and Stream, Vortex Flow Functions, Reynolds Transport Theorem		
Unit 3	**Fluid Dynamics**	**4 + 2 +4**
Equation of Motion, Energy Equation, and Bernoulli's Equation and Its Applications- Orifice, Venturi, Pitot-Tube, Dimensional Analysis, Similitude and Scale Factor		
Unit 4	**Internal fluid flows**	**4 + 2 +4**
Developing and fully developed flow between two flat plates, Flow through pipe, Flow through annulus, Flow rate measurements in pipes, Major and minor losses in pipe flows, Flow through convergent and divergent sections		
Unit 5	**External fluid flows**	**4 + 2 + 4**
Flow over flat plates, Laminar and turbulent boundary layers, Wall shear stress and skin friction coefficient, Flow over a cylinder and sphere, Flow over an aerofoil, Lift, drag forces and coefficients		
Unit 6	**Hydraulics and Turbomachinery**	**5 + 2 + 4**
Introduction to rotary pumps and turbines, Centrifugal pumps, Impulse and Reaction turbines, Kaplan and Francis turbines, Wind turbines, One-dimensional Momentum Theory and the Betz Limit- Blade elements momentum theory (BEM)		

Text Books:

Sl.No	Title	Author	Publisher	Edition	Year
1	Fluid Mechanics	Yunus A. Cengel, John M. Cimbala	McGraw Hill Education (India) Pvt. Ltd	3rd	2016
2	Introduction to Fluid Mechanics and Fluid Machines	S. K. Som, Gautam Biswas, Suman Chakraborthy	Tata McGraw Hill	3rd	2012
3	Fluid Mechanics	K. L. Kumar	Tata McGraw Hill	2nd	2000

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Reference Books:

Sl.No	Title	Author	Publisher	Edition	Year
1	Introduction to Fluid Mechanics	Robert W. Fox, Alan T. McDonald	Wiley and Sons, Inc	5th	1998
2	Fluid Mechanics	Frank M. White	McGraw Hill Education (India) Pvt. Ltd	SIE	2011

Assessment Modes:

Sl. No	Method/ Technique	Course Outcomes						Marks		Weightage
		1	2	3	4	5	6	Max	Min	
1	ISE : ABA	☑	☑	☑	☑	☑	☑	20	16	40 %
2	ISE : TA	☑	☑	☑	☑	☐	☑	20		
3	ISE : PA	☐	☐	☐	☐	☑	☑	50	20	
4	MSE	☑	☑	☑	☐	☐	☐	30	24	60 %
5	ESE	☑	☑	☑	☐	☐	☐	30		

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CO's - PO's & PSO's Mapping: (Low - 1, Medium - 2, High -3, No Correlation - "-")

CO's	PO's												PSO's	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
1	3	-	-	-	-	-	-	-	-	-	-	-	-	-
2	3	2	-	-	-	-	-	-	-	-	-	-	-	-
3	3	2	-	-	-	-	-	-	-	-	-	-	2	-
4	3	2	1	-	-	-	-	-	-	-	-	-	2	-
5	3	2	2	2	-	-	-	1	2	2	-	-	-	-
6	-	-	-	-	2	-	-	1	-	-	-	-	-	-
Avg	**3**	**2**	**2**	**2**	**2**	**-**	**-**	**1**	**2**	**2**	**-**	**-**	**2**	**-**

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Course Details:

Class	S.Y B.Tech., Sem - III
Course Code and Course Name	**2AEPC204 - Applied Thermodynamics**
Prerequisite	• 2AEPC104 - Basic Mechanical Engineering • 2AEBS111 - Applied Chemistry
Teaching Scheme: Lecture/Tutorial/Practical	02/01/02
Credits	04
Evaluation Scheme : ISE/MSE/ESE	40/30/30

Course Objectives:

1. To provide a strong foundation to the students in the principles of thermodynamics theoretically and experimentally.
2. To enhance the ability of students to apply their knowledge of thermodynamics for the design of thermal systems.

Course Outcomes (CO's):

After successful completion of this course, the student will be able to,

2AEPC204_1	Discuss the utility of fuel cells and combustion systems for engineering applications by using the basics of thermodynamics
2AEPC204_2	Apply the basic engineering fundamentals and principles of thermodynamics to solve engineering problems using the laws of thermodynamics
2AEPC204_3	Analyze and select the appropriate thermodynamic cycles to calculate performance of the various engines using principles of mathematics and engineering
2AEPC204_4	Analyze the transfer of thermal energy between different medium for a given boundary conditions
2AEPC204_5	Conduct experimental studies as a team to study, understand and validate the principles of Laws of thermodynamics, thermodynamic cycles and thermal energy transfer

Course Contents:

Unit 1	**Introduction to Applied Thermodynamics**	**4 + 2 + 4**
Ideal Gas Law; Processes-Reversible, Irreversible, Adiabatic and isentropic, constant pressure, constant volume; Enthalpy, Boyle's Law and Charles' Law		

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Unit 2	**Applications of First Law of Thermodynamics**	**4 + 2 + 4**
Equations of First Law of Thermodynamics, steady flow process, mass and energy balance equations, steady flow- nozzle and diffuser, heat exchanger, variable flow process, charging and discharging of tank		
Unit 3	**Applications of the Second Law of Thermodynamics**	**5 + 2 + 4**
Equations of the Second Law of Thermodynamics, Thermal energy reservoirs, Heat Engines, Refrigerators, Air conditioners, heat pumps, Exergy and second law efficiency, Entropy - Clausius inequality, Entropy change of pure substances		
Unit 4	**Thermodynamic cycles**	**4 + 2 + 4**
Two stroke engine, Four stroke engine, petrol engine, diesel engine, Carnot cycle, Otto cycle, Diesel Cycle, Cycle, Rankine Cycle, Valve Timing and Port Timing diagram of IC engine.		
Unit 5	**Introduction to Heat Transfer**	**5 + 2 + 4**
Heat Transfer, Specific Heat, Latent heat, sensible heat, modes of Heat Transfer, Conduction- thermal conductivity of materials, General heat conduction equation, Free and Forced Convection, Radiation-Emission of Radiation.		
Unit 6	**Combustion and Fuel Cell Systems**	**4 + 2 + 4**
Fuel, Oxidiser, Calorific Value, Combustion, Stoichiometric combustion, Adiabatic flame Temperature, Air Fuel Ratio, injector, igniter. Fuel Cells - Types of Fuel Cells and Working Principles		

Text Books:

Sl.No	Title	Author	Publisher	Edition	Year
1	Engineering Thermodynamics	P.K. Nag	McGraw Hill	6th	2022
2	Thermodynamics: An Engineering Approach	Yunus A. Cengel and Michael A. Boles	McGraw Hill	8th	-
3	Fuels And Combustion	Samir Sarkar	Chaukhamba Auriyantaliya	3rd	2015
4	Fuel Cell Fundamentals	Ohayre Ryan R	John Wiley & Sons Inc	1st	2016

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Reference Books:

Sl.No	Title	Author	Publisher	Edition	Year
1	Basic Refrigeration and Air Conditioning	Ananthanarayanan P.N.	Tata McGraw-Hill	4th	2013
2	Fundamentals of Engineering Thermodynamics	E. Rathakrishnan	PHI Publisher	4th	2021
3	Textbook of Refrigeration and Air Conditioning	R.S Khurmi, J.K. Gupta	S Chand	Revised	2019

Assessment Modes:

Sl. No	Method/ Technique	Course Outcomes					Marks		Weightage
		1	2	3	4	5	Max	Min	
1	ISE : ABA	☑	☑	☑	☑	☑	20	16	40 %
2	ISE : TA	☑	☑	☑	☑	☑	20		
3	ISE : PA	☐	☐	☐	☐	☑	50	20	
4	MSE	☐	☑	☐	☐	☐	30	24	60 %
5	ESE	☑	☐	☑	☑	☐	30		

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- ABA - Activity Based Assessment, TA - Tutorial Assessment, PA - Practical Assessment

CO's - PO's & PSO's Mapping: (Low - 1, Medium - 2, High -3, No Correlation - "-")

CO's	PO's												PSO's	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
3	3	2	-	-	-	-	-	-	-	-	-	-	-	-
4	3	2	-	-	1	-	-	-	-	-	-	-	-	-
5	3	2	-	-	-	-	-	1	2	2	-	-	-	-
Avg	**3**	**2**	**-**	**-**	**1**	**-**	**-**	**1**	**2**	**2**		**-**	**-**	**-**

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Course Details:

Class	S.Y B.Tech., Sem - III
Course Code and Course Name	**2AEPC205 - Introduction to Aeronautical Engineering**
Prerequisite	Nil
Teaching Scheme: Lecture/Tutorial/Practical	00/00/02
Credits	01
Evaluation Scheme : ISE/MSE/ESE	50/00/00

Course Objectives:

1. To understand the unconventional and advanced manufacturing techniques used in aerospace industries.
2. To identify aircraft components or systems and its functions
3. To be aware of Aircraft and Airport Rules and regulations in worldwide

Course Outcomes (CO's):

After successful completion of this course, the student will be able to,

2AEPC205_1	Describe and explain the classification of flying vehicles, basic components and their principal functions of an aircraft
2AEPC205_2	Carry out practical studies in the aircraft hangar as a team to have a detailed understanding and record the studies of the aircraft components, systems and subsystems
2AEPC205_3	Experiment the aircraft components/part manufactured using conventional manufacturing techniques to generate/extract testing results
2AEPC205_4	Use the aircraft maintenance tools on airplane components and systems by following manuals

Course Contents:

Sl.No	List of Exercises
1	**Introduction and Basic Anatomy of an aircraft -** • History of aviation, early concepts and modern developments, • Classification of flying vehicles • Study of Cessna 152 Aircraft
2	**Aircraft Flight Deck Instruments and Functions** • Airspeed and Altitude Indicators - Pitot Static Tube • Attitude Indicators

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Sl.No	List of Exercises
3	**Aircraft Wings** • Types of Wing configurations • Aerofoils and Nomenclature • Components and sub-assemblies of wings
4	**Aircraft Powerplants - Piston Engines** • Principle of operations • Components of piston engines • Engine disassembly and assembly
5	**Aircraft Powerplants - Gas Turbine Engines** • Principle of operations • Components of gas turbine engines • Study of gas turbine engines
6	**Aircraft Structures and Materials - Wings** • Basic loads acting on aircraft structures • Structural members of wings & materials
7	**Aircraft Structures and Materials - Fuselage** • Structural members of fuselage & materials • Structural members of Landing gear & materials
8	**Aircraft General Maintenance** • A, B, C, D Checks • Flight inspection procedures • Tools used in aircraft maintenance
9	**Manufacturing techniques - Conventional** • Casting • Machining • Welding
10	**Manufacturing techniques - Unconventional** • 3D printing • Electric Discharge Machining • CNC Machining
11	**Aircraft Component Testing and Analysis** • Hands-on Testing of Aircraft Components • Analysis of Aircraft Parts Testing Results

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Reference Books:

Sl.No	Title	Author	Publisher	Edition	Year
1	Introduction to Aerospace Engineering with a Flight Test Perspective	Stephen Corda	John Wiley & Sons	-	2017
2	Aircraft Inspection, Repair and Alterations	federal Aviation Administration (FAA)	Aviation Supplies & Academics, Inc.	-	2020
3	Aviation Maintenance Technician Handbook - General	Federal Aviation Administration (FAA)	Aviation Supplies & Academics, Inc.	-	2018

Assessment Modes:

Sl. No	Method/ Technique	Course Outcomes				Marks		Weightage
		1	2	3	4	Max	Min	
1	ISE : ABA	☑	☑	☐	☐	25	20	50 %
2	ISE : PA	☐	☑	☑	☑	25		50 %

- ISE - In-Semester Examination
- ABA - Activity Based Assessment, PA - Practical Assessment

CO's - PO's & PSO's Mapping: (Low - 1, Medium - 2, High -3, No Correlation - "-")

CO's	PO's												PSO's	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
1	2	-	-	-	-	-	-	-	-	-	-	-	3	2
2	-	-	-	-	-	-	-	-	3	3	-	-	3	3
3	-	-	-	-	2	-	-	1	-	-	-	-	-	3
4	-	-	-	-	2	-	-	1	-	3	-	-	-	3
Avg	**2**	**-**	**-**	**-**	**2**	**-**	**-**	**1**	**3**	**3**	**-**	**-**	**3**	**3**

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Course Details:

Class	S.Y B.Tech., Sem - III
Course Code and Course Name	**2AEVS206 - Parametric Modeling & Assembly**
Prerequisite	• 2AEPC105 - Engineering Graphics
Teaching Scheme: Lecture/Tutorial/Practical	00/00/02
Credits	01
Evaluation Scheme : ISE/MSE/ESE	25/00/25

Course Objectives:

1. The students should able to understand the manufacturing drawings of aircraft components and assembly
2. The student should able to prepare the manufacturing drawings according to the requirement of aerospace industries
3. The students should able to create the 3D model and simulation of the part / assembly for various industrial aspects

Course Outcomes (CO's):

After successful completion of this course, the student will be able to,

2AEVS206_1	Identify the dimensions and datum references from the part/assembly drawings by using engineering graphics knowledge
2AEVS206_2	Select appropriate tools/features in the 3D modeling software for sketching the aerospace components by following the user manual of the respective 3D modeling software
2AEVS206_3	Illustrate the 3D component and Organize the parts in the assembly model of the complex aerospace system geometry by using the modeling software, user manual and engineering graphic skill
2AEVS206_4	Develop the orthogonal views of the complex part and assembly model with the complete bill of materials of the complete system assembly by considering manufacturing techniques and assembly sequence

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Course Contents:

Sl.No	List of Exercises
1	Understanding the user interference and exploring the tools and features available in sketcher of the 3D modeling software
2	Creating the 3D solid model of the simple engineering components
3	Assembling the 3D solid model of the simple engineering components
4	Preparing drafting drawing for the created 3D models and assembly of engineering components
5	Importing appropriate airfoil coordinates into the 2D sketcher and create 1:1 scaled sketch for different aircraft parts like wing, tail, compressor/turbine blade
6	Creating the 3D part models of Major aircraft systems like Wing / Engine Compressor blade Landing gear ,Missiles,Satellites.
7	Assembling the 3D part models of Major aircraft system like Wing, Tail, Engine, Landing gear
8	Preparing drafting drawing for the created 3D models and assembly for the aircraft system

Reference Books:

Sl.No	Title	Author	Publisher	Edition	Year
1	Parametric Modeling with SOLIDWORKS 2022	Paul J. Schilling, Randy H. Shih	SDC Publications	-	2022

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Assessment Modes:

Sl. No	Method/ Technique	Course Outcomes				Marks		Weightage
		1	2	3	4	Max	Min	
1	ISE : PA	☑	☑	☑	☑	15	10	50 %
2	ISE : VCC	☑	☑	☑	☑	10		
3	MSE : OE	☑	☑	☑	☑	15	10	50 %
4	ESE : OE	☑	☑	☑	☑			
5	MSE : PE	☑	☑	☑	☑	10		
6	ESE : PE	☑	☑	☑	☑			

- ISE - In-Semester Examination, MSE - Mid-Semester Examination, ESE - End-Semester Examination
- PA - Pactical Assessment, VCC - Vocational Course Certification
- OE - Oral Examination, PE - Practical Examination

CO's - PO's & PSO's Mapping:

CO's	PO's												PSO's	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
1	3	-	-	-	-	-	-	-	-	2	-	2	-	-
2	-	-	-	-	3	-	-	2	-	-	-	2	-	-
3	-	-	-	-	3	-	-	2	-	-	-	2	3	-
4	-	-	-	-	3			2	-	3	-	2	-	-
Avg	**3**	-	-	-	**3**	-	-	**2**	-	**2**	-	**2**	**3**	-

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Course Details:

Class	S.Y B.Tech., Sem - III
Course Code and Course Name	**2AEVS207 - Python Programing for Engineers**
Prerequisite	Nil
Teaching Scheme: Lecture/Tutorial/Practical	00/00/02
Credits	01
Evaluation Scheme : ISE/MSE/ESE	25/00/25

Course Objectives:

1. To introduce the basic syntax of the python programming language, data types, and the basic control flow.
2. To make students able to write python scripts to solve engineering problems.

Course Outcomes (CO's):
After successful completion of this course, the student will be able to,

2AEVS207_1	Apply the knowledge of mathematical modeling and engineering fundamentals to solve simple engineering problems using python programming language
2AEVS207_2	Identify, formulate and solve complex engineering problems using python programming language
2AEVS207_3	Use python programing language and libraries such as NumPy, Pandas, SciPy to simulate the behavior of physical systems of simple and complex engineering problems
2AEVS207_4	Work effectively as a individual member in a team to collaboratively learn, discuss, debate and solve engineering problems using python programming language
2AEVS207_5	Adapt markdown language and post processing tools in Python IDE for effective documentation and presentation of solutions to analyze engineering problems

Course Contents:

Sl.No	List of Exercises
1	**Introduction to Python Programing using Google Colab** • Introduction and Features of Google Colab • Opening, saving and sharing Colab Notebook • Documenting Python code using Markdown syntax • Basic Python syntax and comments

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Sl.No	List of Exercises
2	**Visualizing the data using Matplotlib** • Introduction to Matplotlib, Installation of matplotlib library and importing • Simple single line and multiple line plots • Bar chart and Pie charts • Three-dimensional plotting
3	**Variables, Data Types and Operators** • Creating, printing and deleting variables • Multiple assignment values to variables • Rules for variable names, Local and global variables • Data Types and Operators in Python
4	**Decision Making and Loops** • If, If….else, nested if statements • Single statement suites • while, for and nested loops • Loop control statements
5	**Numbers, Strings, and Lists** • Numbers, Mathematical functions and constants • Strings - Accessing values, updating strings and Escape characters • String special operators and functions • Lists - Accessing, updating and deleting list elements • Basic list operators, Indexing, Slicing and Matrixes • Built-in List functions and methods
6	**Tuples and Dictionary** • Tuples - Accessing, updating and deleting Tuple elements • Basic Tuple operators, Indexing, Slicing and Matrixes • Built-in Tuple functions • Dictionary - Accessing, updating and deleting Dictionary elements • Built-in Dictionary functions and methods
7	**Date & Time, Functions, Modules and File I/O** • Time Tuple, and Built-in time functions • Defining, and Calling a function • Modules and Packages in Python • Opening and Closing Files • Reading and Writing Files
8	**Error Handling and Debugging** • Types of Errors : Syntax, Type, Run-Time and Logical • Placing controls in code • Debugging code, Use of Python Debugger

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Sl.No	List of Exercises
9	**Numerical Computing with NumPy** • Working with Arrays • Linear Algebra with NumPy
10	**Data handling and analysis with Pandas** • Supported file formats • Accessing data with DataFrames • Analyzing Data with DataFrames • Presenting Data in DataFrames
11	**Scientific Computing with SciPy** • Clustering • Interpolation • Linear Algebra • Optimization
12	**Case Studies** • Solution to laplace equation in 2D cartesian coordinates for heat equation • HASI balloon trajectory computation and validation

Reference Books:

Sl.No	Title	Author	Publisher	Edition	Year
1	An Introduction To Python Programming For Scientists And Engineers	Johnny Wei-Bing Lin	Cambridge University Press	1st	2022
2	Python: The Complete Reference	Martin C. Brown	McGraw Hill Education	4th	2018
3	Introduction To Python For Engineers And Scientists	Sandeep Nagar	APress	1st	2018
4	Python Programming And Numerical Methods: A Guide For Engineers And Scientists	Qingkai Kong, Timmy Siauw, Alexandre Bayen	APress	1st	2020

Online Reference Materials:

Sl.No	Source/Platform	Link to contents
1	Tutorials Point	https://www.tutorialspoint.com/python/index.htm
2	NPTEL Course	The Joy of Computing using Python, IIT Ropar

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Assessment Modes:

Sl. No	Method/ Technique	Course Outcomes					Marks		Weightage
		1	2	3	4	5	Max	Min	
1	ISE : PA	☑	☑	☑	☑	☑	15	10	50 %
3	ISE : VCC	☐	☑	☑	☑	☐	10		
3	MSE : OE	☑	☑	☑	☑	☑	15	10	50 %
4	ESE : OE	☑	☑	☑	☑	☑			
5	MSE : PE	☑	☑	☑	☑	☑	10		
6	ESE : PE	☑	☑	☐	☐	☐			

- ISE - In-Semester Examination, MSE - Mid-Semester Examination, ESE - End-Semester Examination
- PA - Pactical Assessment, VCC - Vocational Course Certification
- OE - Oral Examination, PE - Practical Examination

CO's - PO's & PSO's Mapping: (Low - 1, Medium - 2, High -3, No Correlation - "-")

CO's	PO's												PSO's	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
1	3	-	-	-	1	-	-	-	-	-	-	-	-	-
2	3	2	-	-	1	-	-	-	-	-	-	-	-	-
3	-	-	-	-	3	-	-	-	-	-	-	1	-	-
4	-	-	-	-	-	-	-	2	3	-	-	-	-	-
5	-	-	-	-	-		-	2	-	3	-	-	-	-
Avg	**3**	**2**	**-**	**-**	**2**	**-**	**-**	**2**	**3**	**3**	**-**	**1**	**-**	**-**

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Course Details:

Class	S.Y B.Tech., Sem - III
Course Code and Course Name	**2AEHS208 - Environmental Studies**
Prerequisite	Nil
Teaching Scheme: Lecture/Tutorial/Practical	02/00/00
Credits	02
Evaluation Scheme : ISE/MSE/ESE	50/00/00

Course Objectives:

1. The main objective of the course is to infuse an understanding of the various environmental concepts on a scientific basis in the functional area of Engineering and technology.
2. The course will provide a foundation to critically assess the approaches to pollution control, environmental and resource management, sustainable development, cleaner technologies, Environmental Legislation based on an understanding of the fundamental, environmental dimensions.
3. The course will help to explore the modern concept of green industry and the impact of excess human population, globalization, and climate change on the environment.

Course Outcomes (CO's):

After successful completion of this course, the student will be able to,

2AEHS208_1	Comprehend the concepts and principles of sustainable development and its importance in environmental preservation
2AEHS208_2	Explain ethical and legal responsibility of an engineer and his role in effective implementation of sustainable activities through EIA and EMS in the corporate sector
2AEHS208_3	Predict impact of contemporary issues (Population Explosion, Climate change, Environmental pollution) on the environment
2AEHS208_4	Classify and analyze different types of environmental pollution, understand their causes and effects, and propose control measures.
2AEHS208_5	Prepare a technical report highlighting importance of environment in human life by using techniques like survey, case studies, mini project

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Course Contents:

Unit 1	**Introduction to Environment and concept of Sustainable development**	**4**
Natural and Built Environment, Environmental Education: Definition, Scope, Objectives and importance. Components of the Environment: Atmosphere, Hydrosphere, Lithosphere and Biosphere. Biological Diversity: Introduction, Values of biodiversity, Threats to biodiversity, Conservation of biodiversity. Sustainable development goals, pillars of sustainable development.		
Unit 2	**Energy and Natural Resource**	**5**
Energy Scenario: Future projections of Energy Demand, Utilization of various Energy Sources, Conventional Energy Sources and Non- Conventional Energy Sources, Urban problems related to energy. Natural Resources: Food, Water, Forest, Geological, Equitable Use of Resources for Sustainable lifestyle. Concept of life cycle analysis, Case studies.		
Unit 3	**Introduction to global environmental issues, Impact of modernization**	**4**
Climate change: Global warming, Ozone depletion, Acid Rain etc. Environmental Impact: Impact of Modern agriculture on the Environment, Impact of Mining on the Environment, Impact of Large dams on the Environment. Environmental pollution: Air, Water, Soil, Noise, Marine, classification of pollutants, their causes, effects and control measures. Case studies.		
Unit 4	**Environmental Pollution**	**4**
Definition: Causes, effects and control measures of: Air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Solid waste Management: Causes, effects and control measures of urban and industrial wastes. E waste management. Role of an individual in prevention of pollution.		
Unit 5	**Environmental Management and Legislation**	**5**
Environmental ethics: Introduction, Ethical responsibility, issues and possible solutions. Environmental Management: Introduction to Environmental Impact Assessment, Environmental Management System: ISO 14001 Standard, Environmental Auditing, National and International Environmental protection agencies pertaining to Environmental Protection. Introduction to Environmental Legislation.		
Unit 6	**Cleaner technology**	**6**
Consumerism and Waste Products, Green buildings, Green products, Minimization of Hazardous Products, Reuse of Waste, By-products, Rainwater Harvesting, Translocation of trees. Some Success Stories. Role of Information Technology in Environment protection.		

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Text Books:

Sl.No	Title	Author	Publisher	Edition	Year
1	Environmental Studies	Anindita Basak	PEARSON	1st	2017
2	Environmental Studies	N.K Uberoi	Excel Books Publications New Delhi	1st	2005
3	Environmental Studies from crisis to cure	R. Rajagopalan	Oxford university press	2nd	2011

Reference Books:

Sl.No	Title	Author	Publisher	Edition	Year
01	Environmental Science: A Global Concern	William Cunningham and Barbara Woodworth Saigo	WCB/McGraw Hill publication	5th	1999
02	Peter. H. Raven, Linda. R. Berg, George. B. Johnson	Environment	McGraw Hill publication	2nd	1998
03	"Adaptive Environmental Management	Catherine Allan & George H. Stanley (Editors),	Springer Publications.	--	2009
04	Elements of Environmental Science and Engineering	P. Meenakshi	Prentice Hall of India Private Limited, New Delhi	-	2006

Assessment Modes:

Sl. No	Method/ Technique	Course Outcomes					Marks		Weightage
		1	2	3	4	5	Max	Min	
1	ISE : ABA	☑	☑	☑	☑	☑	25	20	50 %
2	ISE : MP	☑	☑	☑	☑	☑	25		50 %

- ISE - In-Semester Examination
- ABA - Activity Based Assessment, MP - Micro Project

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CO's - PO's & PSO's Mapping: (Low - 1, Medium - 2, High -3, No Correlation - "-")

CO's	PO's												PSO's	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
1	1	-	-	-	-	3	3	-	-	-	-	-	-	-
2	-	-	-	-	-	-	3	2	-	-	-	-	-	-
3	-	-	-	-	-	-	3	-	-	-	-	-	-	-
4	-	-	-	-	-	-	3	-	-	-	-	-	-	-
5	-	-	-	-	1	-	-	-	-	3	-	-	-	-
Avg	**1**	**-**	**-**	**-**	**1**	**3**	**3**	**2**	**-**	**3**	**-**	**-**	**-**	**-**

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Course Details:

Class	S.Y B.Tech., Sem - III
Course Code and Course Name	**2AEHS209 - Constitution of India**
Prerequisite	Nil
Teaching Scheme: Lecture/Tutorial/Practical	01/00/00
Credits	01
Evaluation Scheme : ISE/MSE/ESE	50/00/00

Course Outcomes (CO's):

After successful completion of this course, the student will be able to,

2AEHS209_1	Explain the meaning of important acts and history related to the Indian constitution
2AEHS209_2	Illustrate the features of the Indian constitution and interpretation of the Preamble
2AEHS209_3	Interpret fundamental rights and duties of the Indian Citizen to inculcate morality and their social responsibilities.
2AEHS209_4	Identify different laws and regulations based upon Information Acts.
2AEHS209_5	Distinguish the functioning of the Indian parliamentary system and legislative system at the center and state level.

Course Contents:

Unit 1	**Constitution: Basic Structure**	**02**
Meaning of the constitution law and constitutionalism, Historical perspective of the constitution of India, Government of India Act of 1935 and Indian Independence Act of 1947.		
Unit 2	**Making of Indian Constitution**	**02**
Enforcement of the Constitution, Meaning and importance of Constitution, Making of Indian Constitution – Sources, Salient features of Indian Constitution, Preamble.		

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Unit 3	**Fundamental Rights**	**02**
Fundamental Rights – Features and characteristics, Right to Equality, Right to Freedom, Right against Exploitation, Right to Freedom of Religion, Cultural and Educational Rights, Right to Constitutional Remedies.		
Unit 4	**Fundamental Duties**	**02**
Directive Principles-Definition and Meaning, 42nd Constitutional Amendment Act, List and Importance of Fundamental Duties.		
Unit 5	**Regulation to Information**	**02**
Introduction, Right to Information Act:2005, Information Technology Act 2000, Electronic Governance in India, Secure Electronic Records and Digital Signatures, Digital Signature Certificates, Cyber Regulations Appellate Tribunal, Limitations of an Information Technology Act		
Unit 6	**Government of The Union and States**	**02**
President of India – Election and Powers, Prime Minister of India - Election and Powers, Loksabha - Structure, Rajyasabha – Structure, Governor of State, Chief Minister and Council of Ministers in a state.		

Text Books:

Sl.No	Title	Author	Publisher	Edition	Year
1	Indian Polity	M.Laxmikanth	Mc Graw Hill Publications Delhi	7th	2023
2	The Constitution of India	P.M. Bakshi	Lexis Nexis	19th	2023
3	Introduction to the Constitution of India	Durga Das Basu	Lexis Nexis	26th	2022
4	Governance in India	M. Laxmikanth	Mc Graw Hill Publications Delhi	3rd	2021

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Reference Books:

Sl.No	Title	Author	Publisher	Edition	Year
1	Constitution of India	V.N.Shukla	EBC	14th	2022
2	The Constitutional Law of India,	J.N. Pandey	Allahabad; Central Law Agency	59th	2022
3	Constitution of India	V.N.Tripathi	Premier Publishing Company	9th	2021
4	India's Constitution	M.V.Pylee	S. Chand Publications New Delhi	18th	2020

Assessment Modes:

Sl. No	Method/ Technique	Course Outcomes					Marks		Weightage
		1	2	3	4	5	Max	Min	
1	ISE : ABA	☑	☑	☑	☑	☑	25	20	50 %
2	ISE : Seminar	☑	☑	☑	☑	☑	25		50 %

- ISE - In-Semester Examination
- ABA - Activity Based Assessment, Seminar

CO's - PO's & PSO's Mapping: (Low - 1, Medium - 2, High -3, No Correlation - "-")

CO's	PO's												PSO's	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
1	-	-	-	-	-	-	-	1	-	3	-	-	-	-
2	-	-	-	-	-	-	-	1	-	3	-	-	-	-
3	-	-	-	-	-	-	-	1	-	3	-	-	-	-
4	-	-	-	-	-	-	-	1	-	3	-	-	-	-
5	-	-	-	-	-	-	-	1	-	3	-	-	-	-
Avg	-	-	-	-	-	-	-	**1**	-	**3**	-	-	-	-

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Course Details:

Class	S.Y B.Tech., Sem - III
Course Code and Course Name	**2AECC210 - Aptitude and Reasoning Part - I**
Prerequisite	Nil
Teaching Scheme: Lecture/Tutorial/Practical	00/00/02
Credits	01
Evaluation Scheme : ISE/MSE/ESE	50/00/00

Course Objectives:

1. To develop students' quantitative reasoning skills, such as the ability to solve mathematical problems, interpret data, and make predictions.
2. To enhance students' verbal reasoning skills, such as the ability to understand and interpret written text, and to communicate effectively in writing.
3. To prepare students for various competitive exams and job interviews that require aptitude and reasoning skills.

Course Outcomes (CO's):

After successful completion of this course, the student will be able to,

2AECC210_1	Solve problems based on Vedic Mathematics, Calendar, Average, Age
2AECC210_2	Solve problems based on Speed Time distance and equations
2AECC210_3	Solve problems based on Blood Relations, Directions, Time Rate Work, Pipes and Tanks, Percentage, Profit and Loss
2AECC210_4	Solve Problems based on Spot the Error and Jumbled Para

Course Contents:

Unit 1	Vedic Mathematics and Calendar	4
Unit 2	Average, Ages	4
Unit 3	Speed, Time, Distance and Equations	4
Unit 4	Blood Relations, Directions, Time Rate Work, Pipes and Tanks	4
Unit 5	Percentage, Profit and Loss	4
Unit 6	Spot the Error, Jumbled Para, Self-Study Module	6

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Text Books:

Sl.No	Title	Author	Publisher	Edition	Year
1	Quantitative Aptitude	R. S. Agarwal	S. Chand	-	2019
2	Verbal and Non-Verbal Reasoning	R. S. Agarwal	S. Chand	-	2019
3	Verbal, Grammar	P. C. Wren	S. Chand	-	2017

Reference Books:

Sl.No	Title	Author	Publisher	Edition	Year
1	Quantitative, Logical, Verbal Aptitude	Face	Wiley	-	2017
2	Quantitative Aptitude	P. A. Anand	Maestro	-	2015
3	Verbal Ability	Meenaksi Upadhay	McGraw Hill	-	2020

Assessment Modes:

Sl. No	Method/ Technique	Course Outcomes					Marks		Weightage
		1	2	3	4	5	Max	Min	
1	ISE : CAS	☑	☑	☑	☑	☑	25	20	50 %
2	ISE : Quiz	☑	☑	☑	☑	☑	25		50 %

- ISE - In-Semester Examination
- CAS - Continuous Assessment

CO's - PO's & PSO's Mapping: (Low - 1, Medium - 2, High -3, No Correlation - "-")

CO's	PO's												PSO's	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
1	2	2	-	-	-	-	-	-	-	-	-	-	-	-
2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
3	2	2	-	-	-	-	-	-	-	-	-	-	-	-
4	2	2	-	-	-	-	-	-	-	-	-	-	-	-
Avg	**2**	**2**	-	-	-	-	-	-	-	-	-	-	-	-

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Member Secratory-BoS | Chairman-BoS | Member Secratory-AC | Chairman-AC

Sant Dnyaneshwar Shikshan Sanstha's
Annasaheb Dange College of Engineering and Technology, Ashta
DEPARTMENT OF AERONAUTICAL ENGINEERING

ADCET
An Autonomous Institute

Program Articulation Matrix for S.Y B.Tech., Sem - III

Sl. No	Course		PO's												PSO's	
	Code	Name	1	2	3	4	5	6	7	8	9	10	11	12	1	2
1	2AEPC201	Mathematical Modeling and Problem Solving	3	3	-	-	1	-	-	1	-	2	-	-	-	-
2	2AEPC202	Solid Mechanics	3	2	2	2	2	-	-	1	2	2	-	-	-	-
3	2AEPC203	Fluid Mechanics	3	2	2	2	2	-	-	1	2	2	-	-	2	-
4	2AEPC204	Applied Thermodynamics	3	2	-	-	1	-	-	1	2	2	-	-	-	-
5	2AEPC205	Introduction to Aeronautical Engineering	2	-	-	-	2	-	-	1	3	3	-	-	3	3
6	2AEVS206	Parametric Modeling and Assembly	3	-	-	-	3	-	-	2	-	2	-	2	3	-
7	2AEVS207	Python Programing for Engineers	3	2	-	-	2	-	-	2	3	3	-	2	-	-
8	2AEHS208	Environmental Studies	1	-	-	-	1	3	3	2	-	3	-	-	-	-
9	2AEHS209	Constitution of India	-	-	-	-	-	-	-	1	-	3	-	-	-	-
10	2AECC210	Aptitude and Reasoning Part - I	2	2	-	-	-	-	-	-	-	-	-	-	-	-
Average			**2.55**	**2.16**	**2**	**2**	**1.75**	**3**	**3**	**1.33**	**2.4**	**2**	**-**	**2**	**2.66**	**3**
No of Courses Mapped			**9**	**6**	**2**	**2**	**8**	**1**	**1**	**9**	**5**	**9**	**-**	**2**	**3**	**1**
Weighted Average			**2.29**	**1.29**	**0.4**	**0.4**	**1.4**	**0.3**	**0.3**	**1.19**	**1.2**	**2.19**	**-**	**0.4**	**0.79**	**0.3**

(Low - 1, Medium - 2, High -3, No Correlation - "-")

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