Deenbandhu Chhotu Ram University of Science & Technology, Murthal (Sonepat)
Scheme of Studies & Examinations under Choice Based Credit System
Programme: B. Tech. in Aeronautical Engineering; Year -2nd (Semester – III); Session: 2019-20

S. No.	Course Code	Course Title	Teaching Schedule			Marks of Class Work	Examination Marks		Total	Credit	Duration of Exam
			L	T	P		Theory	Practical			
1	MGT 201C	Engineering Economics (Common with ME, ECE, CSE & Auto)	3	0	0	25	75	-	100	3	3
2	MATH 210 C	Mathematics III (Common with ME, Auto)	3	1	0	25	75	-	100	4	3
3	BT 221C	Biology for Engineers (Common with ME, BT, CE & Auto)	3	0	0	25	75	-	100	3	3
4	ECE 211C	Basic Electronics Engineering (Common with ME)	3	1	0	25	75		100	4	3
5	AER 201C	Elements of Aerodynamics	3	0	0	25	75	-	100	3	3
6	ME 203 C	Thermodynamics (Common with ME)	3	1	0	25	75	-	100	4	3
7	AER 203C	Elements of Aerodynamics Lab	0	0	2	25	75	-	100	1	3
8	MC 203C / MC 201C	Constitution of India (Group A) / Environmental Studies (Group B)	3	0	0	25	-	75	100	0	3
Total			21	3	2	200	525	75	800	22	

L = Lecture, T = Tutorial, P = Practical, AUD = Audit Course, & C = Credits NOTE:

1. For student admitted in B. Tech. 1st Semester (C-Scheme) in 2019 and all trailing students, Examinations and evaluation of students shall be conducted as per guidelines AICTE Examinations Reforms covering the entire syllabus. The students shall be made aware about the reforms.

2. Students will be allowed to use non-programmable scientific calculator. However, sharing of calculators will not be permitted in the examinations

3. At the end of 4th Semester, the students have to undergo Professional Training (level-2) of atleast 4-weeks from Industry/Institute/Research Lab/Training Centre during summer vacation and its evaluation shall be carried out in the 5th semester.

4. For student admitted in B. Tech. 1st Semester (C-Scheme) in 2019 and all trailing students, Examinations and evaluation of students shall be conducted as per guidelines AICTE Examinations Reforms covering the entire syllabus. The students shall be made aware about the reforms

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And Technology, Murthal, Sonipat

Department – Aeronautical Engineering Semester – III

Subject: Engineering Economics (Theory)   **Subject Code: MGT201C**

Study Scheme				Evaluation Scheme			Total Marks
Lectures per week				Internal Assessment	External Assessment (Examination)		
L	T	P	Credits	Max. Marks	Max. Marks	Exam Duration	
3	-	-	3	25	75	3 hours	100

UNIT NO.1 Concept of Economics
Topic No. 1: Introduction to various definitions of Economic
Topic No. 2: Nature of Economic problem
Topic No. 3: Micro and macro economics- their feature and scope
Topic No. 4: Production possibility curve
Topic No. 5: Economic laws and their nature
Topic No. 6: Relation between Science
Topic No. 7: Engineering Technology and Economics
Topic No. 8: Concept and measurement of utility
Topic No. 9: Law of Diminishing Marginal Utility
Topic No.10: Law of equi-marginal utility – its practical application and importance

UNIT NO.2 Demand And Costs
Topic No. 11: Meaning of Demand, Individual and Market demand schedule
Topic No. 12: Law of demand, & shape of demand curve
Topic No. 13: Elasticity of demand & measurement of elasticity of demand
Topic No. 14: Factors effecting elasticity of demand
Topic No. 15: Practical importance & application of the concept of elasticity of demand
Topic No. 16: Various concepts of cost-Fixed cost
Topic No. 17: Variable cost, average cost
Topic No. 18: Marginal cost, Money cost, real cost
Topic No. 19: Opportunity cost.Shape of average cost
Topic No. 20: Marginal cost, total cost etc. in short run and long run.

UNIT NO.3 Production , Economy & Market
Topic No. 21: Meaning of production and factors of production
Topic No. 22: Law of variable proportions, & Law of Return to Scale
Topic No. 23: Lubrication principles, Bearing lubrication
Topic No. 24: Functions of lubricating system
Topic No. 25: Internet and External economics and diseconomies of scale
Topic No. 26: Meaning of Market, Type of Marker
Topic No. 27: Perfect Competition, Monopoly
Topic No. 28: Oligopoly, Monopolistic competition

UNIT NO.4 Supply , Economy and Globe
Topic No. 29: Supply and Law of Supply
Topic No. 30: Role of Demand & Supply in Price Determination
Topic No. 31: Effect of changes in Demand and supply on prices
Topic No. 32: Nature and characteristics of Indian economy
Topic No. 33: Privatization – meaning, merits and demerits
Topic No. 34: Globalization of India economy – meritsand demerits

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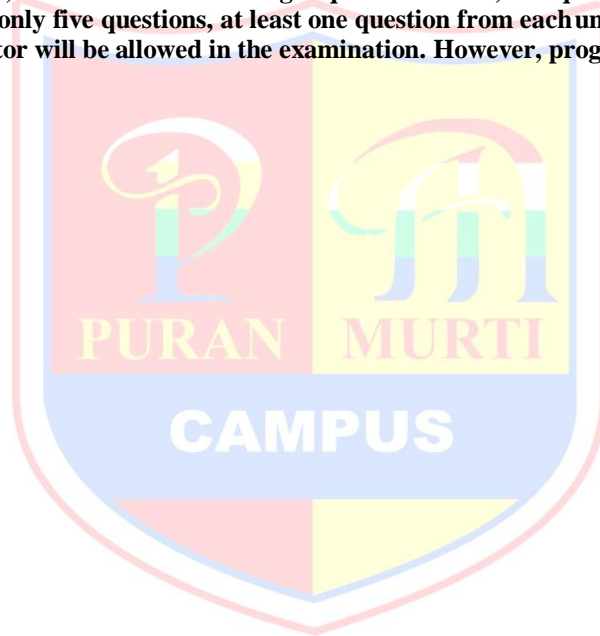E-mail: info@puranmurti.com

TEXT BOOKS:

1. Ahuja H.L"Micro Ecomomic Theory" S. Chand Publication, New Delhi
2. Dewett K.K "Modern Ecomomic Theory" S. Chand Publication, New Delhi
3. Jain T.R, Grover M.L, Ohri V.K Khanna O.P,"Economics for engineers" V.K .Publication ,New Delhi

SUGGESTED BOOKS:

1. Jhingan M.L"Micro Ecomomic Theory" S.Chand Publication ,New Delhi
2. Chopra P.N "Principle of Economics" Kalyani Publishers, Delhi
3. Mishra S.K "Modern Micro Economics" Pragati Publication Mumbai.
4. Dwivedi D.N "Micro Economics " Pearson Education, New Delhi.

NOTE:

1. **In the semester examination, the examiner will set eight questions in all; two question from each unit & students will be required to attempt only five questions, at least one question from each unit.**
2. **The use of scientific calculator will be allowed in the examination. However, programmable calculator and cellular phone will not be allowed.**

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Subject: Mathematics – III Subject Code: MATHS 210C

Study Scheme				Evaluation Scheme			Total Marks
Lectures per week				Internal Assessment	External Assessment (Examination)		
L	T	P	Credits	Max. Marks	Max. Marks	Exam Duration	
3	1	-	4	25	75	3 hours	100

UNIT NO.1 Partial Differential Equations

Topic No. 1: First order Partial Differential Equations
Topic No. 2: Solutions of First order Linear and Non-Linear PDEs
Topic No. 3: Solution to Homogenous and Non-Homogenous
Topic No. 4: Linear Partial Differential Equations of second and higher order
Topic No. 5: complimentary function and particular integral method

UNIT NO.2 Flows, Vibrations and Diffusions

Topic No. 6: Flows, Vibrations and Diffusions
Topic No. 7: Second-order Linear equations and their classification
Topic No. 8: Initial and, Boundary conditions
Topic No. 9: D'Alembert's solution of the Wave equation
Topic No.10: Duhamel's principle for One Dimensional Wave Equation
Topic No. 11: Separation of variables
Topic No. 12: Method to Simple Problems in Cartesian coordinates.

UNIT NO.3 Statistics

Topic No. 13: Basic Statistics
Topic No. 14: Measures of Central Tendency
Topic No. 15: Moments, Skewness and Kurtosis
Topic No. 16: Probability distributions- Binomial, Poisson and Normal
Topic No. 17: Evaluation of Statistical Parameters for Correlation and Regression, Rank Correlation
Topic No. 18: Curve fitting by the Method of Least Squares
Topic No. 19: Fitting of Straight Lines
Topic No. 20: Second Degree Parabolas and more general curves.

UNIT NO.4 Probability

Topic No 21 Probability spaces,
Topic No. 22 Conditional Probability,
Topic No. 24 Independence; Discrete random variables, Independent random variables,
Topic No. 25 the Multinomial Distribution,
Topic No. 26: Poisson Approximation to the Binomial Distribution,
Topic No. 27 Infinite sequences of Bernoulli Trials,
Topic No. 28: Sums of independent random variables;
Topic No. 29: Expectation of Discrete Random Variables
Topic No. 30 Moments, Variance of a sum, Correlation coefficient,
Topic No. 31 Chebyshev's Inequality

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REFERENCE BOOKS:

1. S. J. Farlow, Partial Differential Equations for Scientists and Engineers, Dover Publications, 1993.
2. R. Haberman; Elementary Applied Partial Differential equations with Fourier Series And Boundary Value Problem, 4th Ed., Prentice Hall, 1998.
3. Ian Sneddon, Elements of Partial Deferential Equation, McGraw Hill, 1964.
4. S.S. Sastry, Engineering Mathematics, PHI, Vol. I & II.

Note :

1. In Semester Examinations, the examiner will set two questions from each unit (total 8 questions in all) covering the entire syllabus. The students will be required to attend only five questions selecting atleast one question from each unit.

2. The use of scientific calculator will be allowed in the examination. However, programmable calculator and cellular phone will not be allowed.

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Subject: BIOLOGY FOR ENGINEERS
Subject Code: BT221C

Study Scheme				Evaluation Scheme			Total Marks
Lectures per week				Internal Assessment	External Assessment (Examination)		
L	T	P	Credits	Max. Marks	Max. Marks	Exam Duration	
3	-	-	3	25	75	3 hours	100

UNIT – I Introduction

Topic No 1 Significance of biology;

Topic No 2 Why study biology;

Topic No 3 Biological observations in history that led to the discovery of some major engineering basics

Topic No 4 Fundamental similarities

Topic No 5 differences between science and engineering- humans as the best machines,

Topic No 6 comparison between eye and camera, flying of a bird and aircraft etc.

Topic No 7 Classification based on Cellularity- unicellular or multicellular

Topic No 8 Ultrastructure- prokaryotes or eukaryotes (c)

Topic No 9 Energy and carbon utilization- autotrophs, heterotrophs and lithotrophs (d)

Topic No 10 Ammonia excretion- aminotelic, uricotelic, or ureotelic (e)

Topic No 11 Habitat- aquatic or terrestrial; Molecular taxonomy- three major kingdoms of life.

Topic No 12 Concept of- single-celled organisms, species & strains;

Topic No 13 Identification and classification of microorganisms;

Topic No 14 Ecological aspects of single-celled organisms; Microscopy.

UNIT – II Biomolecules and Proteins and Enzymes:

Topic No 15 Molecules of Life- Monomeric units and polymeric structures- sugars, starch and cellulose;

Topic No 16 Amino acids and proteins;

Topic No 17 Nucleotides and DNA/ RNA;

Topic No 18 Two carbon units and lipids.

Topic No 19 Proteins- structure and function;

Topic No 20 Hierarchy in protein structure- primary, secondary, tertiary and quarternary structure;

Topic No 21 Proteins as enzymes, transporters, receptors and structural elements;

Topic No 22 Enzymes: classification and mechanism of action; Enzyme catalyzed reactions;

Topic No 23 Enzyme kinetics and kinetic parameters;

Topic No 24 RNA catalysis.

UNIT – III Genetics and Genes, Chromosomes and Information transfer :

Topic No 25 Genetics is to biology what Newton's laws are to physics;

Topic No 26 Mendel's laws of genetics;

Topic No 27 Concept of- allele, recessiveness and dominance, segregation and independent assortment;

Topic No 28 Genetic material passes from parent to offspring;

Topic No 29 Epistasis; Mapping of phenotype to genes, gene/ linkage mapping;

Topic No 30 Single gene disorders in humans;

Topic No 34 Molecular basis of information transfer;

Topic No 35 Concept of genetic code;

Topic No 36 Universality and degeneracy of genetic code.

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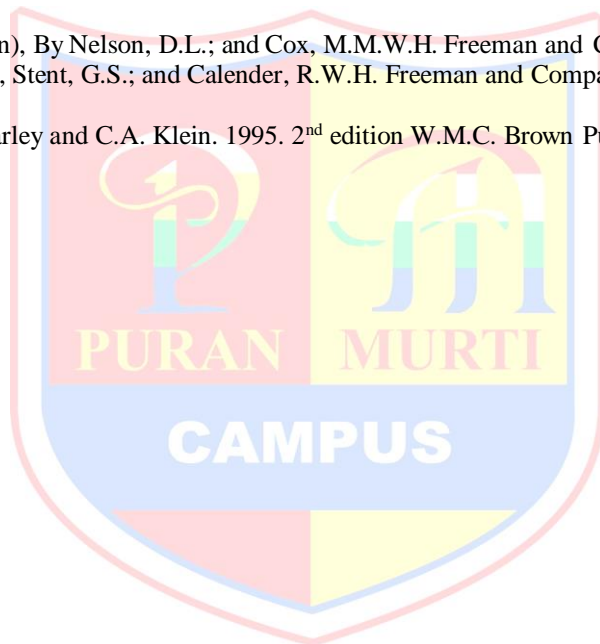E-mail: info@puranmurti.com

UNIT – IV Metabolism:

Topic No 37 Similarities between fundamental principles of energy transactions in physical and biological world;

Topic No 38 Thermodynamics as applied to biological systems;

Topic No 39 Exothermic and endothermic versus endergonic and exergonic reactions;

Topic No40 Concept of K_{eq} and its relation to standard free energy;

Topic No 41 Spontaneity; ATP as an energy currency;

Topic No 42 Glycolysis and Krebs cycle (breakdown of glucose to CO_2 to H_2O);

Topic No 43 Photosynthesis (synthesis of glucose from CO_2 and H_2O);

Topic No 44 Energy yielding and energy consuming reactions;

Topic No 45 Concept of energy change

TEXT BOOK:

1. Biology: A global approach: Campbell, N.A.; Reece, J.B.; Urry, Lisa; Cain. M.L.; Wasserman, S.A.; Minorsky, P.V.; Jackson, R. B. Pearson Education Ltd.
2. Outlines of Biochemistry, Conn, E.E.; Stumpf, P.K.; Bruening, G.; Doi, R.H.; John Wiley and Sons.

REFERENCE BOOKS:

1. Principles of Biochemistry (V Edition), By Nelson, D.L.; and Cox, M.M.W.H. Freeman and Company.
2. Molecular Genetics (Second edition), Stent, G.S.; and Calender, R.W.H. Freeman and Company. Distributed by Satish Kumar Jain for CBS Publisher.
3. Microbiology, Prescott, L.M.J.P.; Harley and C.A. Klein. 1995. 2nd edition W.M.C. Brown Publishers..

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Subject: Basic Electronics Engineering
Subject Code: ECE 211C

Study Scheme				Evaluation Scheme			Total Marks
Lectures per week				Internal Assessment	External Assessment (Examination)		
L	T	P	Credits	Max. Marks	Max. Marks	Exam Duration	
3	1	-	4	25	75	3 hours	100

UNIT- I Semiconductor Devices and Applications:
Topic No 1 Introduction to P-N junction Diode and V-I characteristics,
Topic No 2 Half wave and Full-wave rectifiers, capacitor filter.
Topic No 3 Zener diode and its characteristics,
Topic No 4 Zener diode as voltage regulator.
Topic No 5 Regulated power supply IC based on 78XX and 79XX series.
Topic No 6 Introduction to BJT, its input-output and transfer characteristics,
Topic No 7 BJT as a single stage CE amplifier, frequency response and bandwidth.
UNIT-II Operational amplifier and its applications:
Topic No 8 Introduction to operational amplifiers,
Topic No 9 Op-amp input modes and parameters,
Topic No 10 Op-amp in open loop configuration,
Topic No 11 op-amp with negative feedback,
Topic No 12 study of practical op-amp IC 741,
Topic No 13 inverting and non-inverting amplifier applications:
Topic No 14 summing and difference amplifier,
Topic No 15 unity gain buffer, comparator,
Topic No 16 integrator and differentiator.
Topic No 17 Timing Circuits and Oscillators:
Topic No 18 RC-timing circuits,
Topic No 19 IC 555 and its applications as table and mono stable multi-vibrators, positive feedback,
Topic No 20 Barkhausen's criteria for oscillation,
Topic No 21 R-C phase shift and Wein bridge oscillator.
UNIT-III Digital Electronics Fundamentals:
Topic No 22 Difference between analog and digital signals,
Topic No 23 Boolean algebra, Basic and Universal Gates, Symbols,
Topic No 24 Truth tables, logic expressions,
Topic No 25 Logic simplification using K- map,
Topic No 26 Half and full adder/subtractor, multiplexers,
Topic No 27 demultiplexers, flip-flops, shift registers, counters.
Topic No 28 Block diagram of microprocessor 8085,
Topic No 29 Instruction set, Interrupt structure
Topic No 30 Addressing modes, Simple programs.
UNIT-IV Electronic Communication Systems:
Topic No 31 The elements of communication system,
Topic No 32 Classification of signals
Topic No 33 Analog and Digital Communication,
Topic No 34 need of modulation,
Topic No 35 AM and FM (modulation and demodulation) schemes, modulation index.
Topic No 36 Mobile communication systems: wired and wireless,
Topic No 37 cellular concept and block diagram of GSM system.
TEXT/REFERENCE BOOKS:
1. Floyd ," Electronic Devices" Pearson Education 9th edition, 2012.
2. R.P. Jain , "Modern Digital Electronics", Tata Mc Graw Hill, 3rd Edition, 2007.
3. Manoj Duhan, "Communication Systems", I.K International, 2nd Edition, 2012.
4. Ramesh Gaonkar, "Microprocessor Architecture, Programming and Applications with the 8085", 6/e October 2013
   Ramakant A. Gayakwad, "Op-Amps and Linear Integrated Circuit", PHI, 1993.

Subject: Elements of Aerodynamics Subject

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Code: AER 201C

Study Scheme				Evaluation Scheme			Total Marks
Lectures per week				Internal Assessment	External Assessment (Examination)		
L	T	P	Credits	Max. Marks	Max. Marks	Exam Duration	
3	-	-	3	25	75	3 hours	100

UNIT – I

Introduction:
Topic No 1 Fluid statics, continuum and free molecular flows,
Topic No 2 inviscid and viscous flows, incompressible and compressible flows,
Topic No 3 newtonian and non-newtonian flows,
Topic No 4 streamlines, pathlines, streaklines,
Topic No 5 pitot static tube, easurement of air-speed,
Topic No 6 pressure coefficient, aerodynamic force and moments,
Topic No 7 dimensional analysis, non-dimensional parameters,
Topic No 8 mach number, reynolds number, flow similarity.

UNIT – II

Kinematics of Fluid Flow:
Topic No 9 Lagrangian and Eulerian methods,
Topic No 10 description of properties in a moving fluid,
Topic No 11 gradient of a scalar field, divergence and curl of a vector field, line,
Topic No 12 surface and volume integrals and their relationship,
Topic No 13 finite control volume and molecular approach,
Topic No 14 divergence of velocity

Dynamics of Fluid Flow:

Topic No 15 Equation of conservation of mass for control volume,
Topic No 16 special form of equation of conservation of mass,
Topic No 17 differential form of equation of conservation of mass,
Topic No 18 Euler's and Navier-Stoke equations.
Topic No 19 derivation of Bernoulli's equation for inviscid and viscous flow fields,
Topic No 20 momentum equation in integral form,
Topic No 21 application of momentum equation

UNIT – III

Invisid-Incompressible Flow:
Topic No 22 Incompressible flow in a duct,
Topic No. 23 condition on velocity for incompressible flow,
Topic No 24 Laplace's equations, vorticity and circulation,
Topic No 25 potential function, stream function.
Basic elementary flows:
Topic No 26 Uniform flows, source flow,
Topic No 27 doublet flow and vortex flow,
Topic No 28 superimposition of elementary flows,
Topic No 29 non lifting and lifting flow over a circular cylinder,
Topic No 30 comparison with real flow over circular cylinder,
Topic No 31 Kutta-Joukowski theorem, generation of lift.

UNIT – IV

Boundary Layer Theory:

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Topic No 32 Boundary layer concept, boundary layer properties,

Topic No 33 derivation of Prandtl's boundary layer equations,

Topic No 34 Blasius solution, Karman's Integral equation,

Topic No 35 turbulent boundary layer over a plate,

Topic No 36 skin friction drag, boundary layer control.

TEXT BOOKS:

1. Fundamentals of Aerodynamics, John D. Anderson (Jr.) 5th Ed., McGraw Hill Education (I) Pvt. Ltd.
2. Aerodynamics for Engineering Students, E. L. Houghton and P.W.Carpenter, 4th Ed., CBS Publishers, India.

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Subject: THERMODYNAMICS
Subject Code: ME 203C

Study Scheme				Evaluation Scheme			Total Marks
Lectures per week				Internal Assessment	External Assessment (Examination)		
L	T	P	Credits	Max. Marks	Max. Marks	Exam Duration	
3	1	-	4	25	75	3 hours	100

UNIT – I Basic Concepts:

Topic No1 Thermodynamic system and control volume,
Topic No2 properties, state & Process, cycle,
Topic No3 thermodynamic equilibrium;
Topic No4 Zeroth law and temperature scales;
Topic No5 Thermodynamic concept of energy;
Topic No6 displacement work,
Topic No7 Definition of heat; examples of heat/work interaction in systems
Topic No8 First Law of Thermodynamics:
Topic No9 First law for cyclic & con-cyclic processes;
Topic No10 concept of total energy;
Topic No11 energy as a property; different forms of stored energy,
Topic No12 Internal energy and Enthalpy; free expansion process.
Topic No13 First Law for Flow Processes - general energy equation for a control volume;
Topic No14 Steady state steady flow processes including throttling;
Topic No15 Examples of steady flow devices;
Topic No16 Unsteady processes; examples of steady and unsteady I law applications for system and control volume.

UNIT – II Pure Substance and Phase:

 Topic No17 Phase Transformation,
Topic No18 Solid-Liquid-Vapour Equilibrium,
Topic No19 Throttling and Measurement of Dryness Fraction of Steam,
Topic No20 Idea of a generalized chart and the law of corresponding states
Topic No21 Concept of ideal gases and their equations of state.Problems.
Topic No22 Second Law of Thermodynamics:
Topic No23 Definitions of direct and reverse heat engines;
Topic No24 Definitions of thermal efficiency and COP;
Topic No25 The directional constraints on natural processes;
Topic No26 Kelvin- Planck and Clausius Statements and their Equivalence;
Topic No27 Concept of reversibility;
Topic No28 Carnot principle; Absolute thermodynamic temperature scale;
Topic No29 Clausius Inequality,
Topic No30 entropy,
Topic No31 change in entropy in various thermodynamic processes,
Topic No32 T-dS relations, entropy balance for closed and open systems,
Topic No33 Principle of increase-in-Entropy, entropy generation,
Topic No34 Third Law of Thermodynamics. Problems

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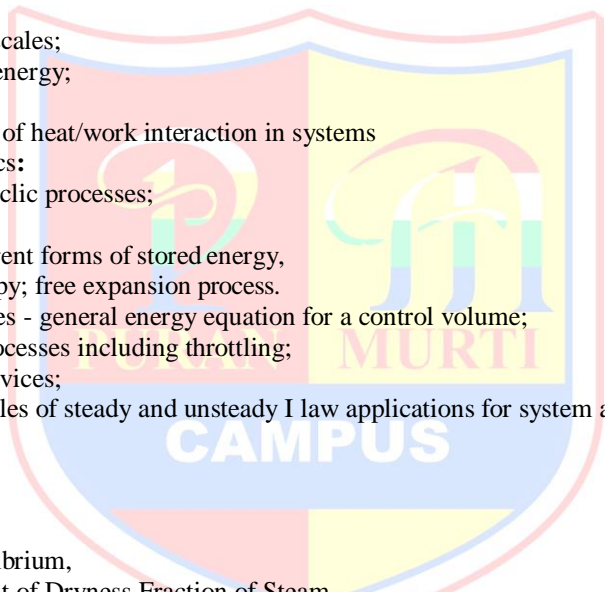
UNIT – III Energy and Introduction to Properties of Mixtures and Phases:

Topic No35 Concept of reversible work and irreversibility;
Topic No36 Second law efficiency;
Topic No37 Energy change of a system: closed and open systems
Topic No38 Energy transfer by heat, work and mass,
Topic No39 Energy destruction,
Topic No40 Energy balance in closed and open systems. Problems
Topic No41 Dalton's model,
Topic No42 Equation of state,
Topic No43 properties of ideal gas mixtures,
Topic No44 Change in entropy on mixing;
Topic No45 Law of corresponding states and introduction to real-gas mixtures;
Topic No46 Gibbs phase rule; Air/Water Mixtures,
Topic No47 Psychrometrics. Problems
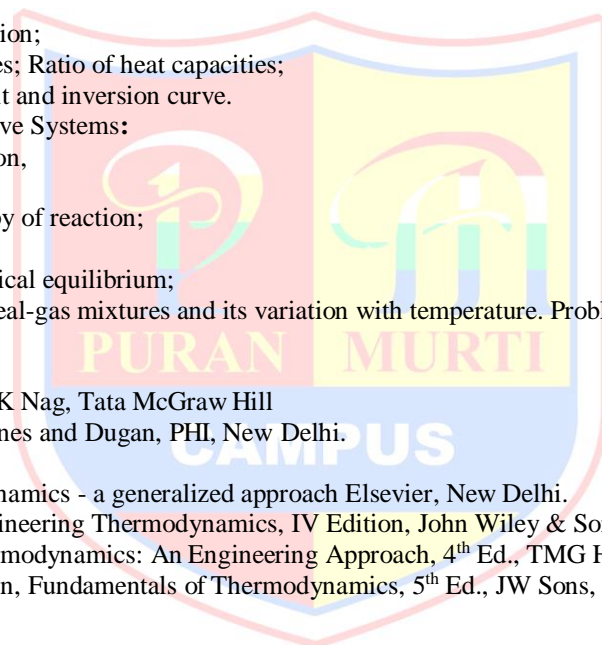
UNIT – IV Thermodynamic Property Relations:

Topic No48 Maxwell relations;
Topic No49 Clausius - Clapeyron equation;
Topic No50 Difference in heat capacities; Ratio of heat capacities;
Topic No51 Joule-Thompson coefficient and inversion curve.
Topic No52 Thermodynamics of Reactive Systems:
Topic No53 Stoichiometry of combustion,
Topic No54 First law analysis;
Topic No55 Internal energy and enthalpy of reaction;
Topic No56 Enthalpy of formation;
Topic No57 Second law analysis; chemical equilibrium;
Topic No58 equilibrium constant for ideal-gas mixtures and its variation with temperature. Problems

TEXT BOOK:
1. Engineering Thermodynamics – P K Nag, Tata McGraw Hill
2. Engineering Thermodynamics – Jones and Dugan, PHI, New Delhi.

REFERENCE BOOKS:
1. Dhar, P.L., Engineering Thermodynamics - a generalized approach Elsevier, New Delhi.
2. Moran M.J. and Shapiro H.N., Engineering Thermodynamics, IV Edition, John Wiley & Sons, Singapore.
3. Çengel Y.A. and Boles, M.A., Thermodynamics: An Engineering Approach, 4th Ed., TMG Hill, New Delhi.
4. Sonntag, Borgnakke and Van Wylen, Fundamentals of Thermodynamics, 5th Ed., JW Sons, Singapore.

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Subject: Constitution of India
Subject Code: MC203C

Study Scheme				Evaluation Scheme			Total Marks
Lectures per week				Internal Assessment	External Assessment (Examination)		
L	T	P	Credits	Max. Marks	Max. Marks	Exam Duration	
3	-	-	3	25	75	3 hours	100

Unit 1 Philosophy of Indian Constitution:
Topic No1 Ideological Basis and Salient Features of Indian Constitution,
Topic No2 Fundamental Rights & Duties of the Citizens,
Topic No3 Directive Principles of State Policy

Unit 2 Nature and Dynamics of Indian Federalism:
Topic No4 Federalism: Theory and Practice in India,
Topic No5 Federal Features of the Indian Constitution,Legislative,
Topic No6 Administrative and Financial Relations between the Union and the States.

Unit 3 Union and State Legislature :
Topic No7 Parliament: Composition, Functions and Working of the Parliamentary system
Topic No8 State Legislature:
Topic No9 Composition and Functions of Vidhan Sabha/ Vidhan Parishad

Unit 4 Centre and State: Executive and Judiciary:
Topic No10 President,
Topic No11 Prime Minister and Council of Ministers ,
Topic No12 Governor,
Topic No13 Chief Minister and Council of Ministers,Judiciary:
Topic No14 Supreme Court;
Topic No15 High Court

Text Books:
1. Austin G., The Indian Constitution: Corner Stone of a Nation, New Delhi: Oxford University Press, 196
2. Basu D.D., An Introduction to the Constitution of India, New Delhi: Prentice Hall, 1994
3. Kothari R., Politics in India, New Delhi: Orient Language, 1970
4. Siwach J.R., Dynamics of Indian Government and Politics, New Delhi: Sterling Publishers, 1985
5. Bhambhri C.P., The Indian State--Fifty Years, New Delhi: Shipra, 1997
6. Ghai U.R., Indian Political System, Jalandhar: New Academic Publishing Company, 2010

Course Outcomes: Upon successful completion of this course,students will be able:

1. To understand basic features of the constitution and rights and duties of Indian citizens
2. To understand the basic structure of Centre and State Government
3. To get acquainted with the nature of parliamentary form of Government
4. To have knowledge of the executive and judiciary powers in Indian democratic set-up

Scheme of End Semester Examinations (Major Test):

1. The duration of examinations will be three hours.
2. Nine questions of 15 marks each will be set out of which the students will have to attempt five questions in all.
3. First question of 15 marks will be compulsory. It will cover all the four units of the syllabus. The nature of the questions in each unit will depend upon the nature of content therein. The questions may have sub-parts with marks assigned against each.
4. Question No 02 to 09 of 15 marks each will be set from the four units of the syllabus --- two from each unit.
5. In addition to first compulsory question the students will have to attempt four more questions, selecting one from each unit.

Campus:
Puran Murti Campus
Kami Road, Sonepat (Delhi-NCR), Haryana - 131001, India
Contact no.:7438900900

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PURAN MURTI
CAMPUS

A Unit of Puran Murti Educational Society
Approved by AICTE ,Recognized Under Section 2 (f) by UGC
Affiliated to Deenbandhu Chhotu Ram University of Science
And Technology, Murthal, Sonipat

Subject: Environmental Studies
Subject Code: MC201C

Study Scheme				Evaluation Scheme			Total Marks
Lectures per week				Internal Assessment	External Assessment (Examination)		
L	T	P	Credits	Max. Marks	Max. Marks	Exam Duration	
3	-	-	3	25	75	3 hours	100

UNIT – I Environmental Studies and Environmental Pollution
Topic No1 The Multidisciplinary Nature of Environmental Studies,
Topic No2 Introduction to Environment:
Topic No3 Definition, Scope, and importance of environmental studies;
Topic No4 need for public awareness.
Topic No5 Environmental Pollution: Definition, Cause and effects
Topic No6 Air pollution,
Topic No7 Water pollution,
Topic No8 Soil pollution,
Topic No9 Marine pollution,
Topic No10 Noise pollution,
Topic No11 Role of an individual in prevention of pollution,
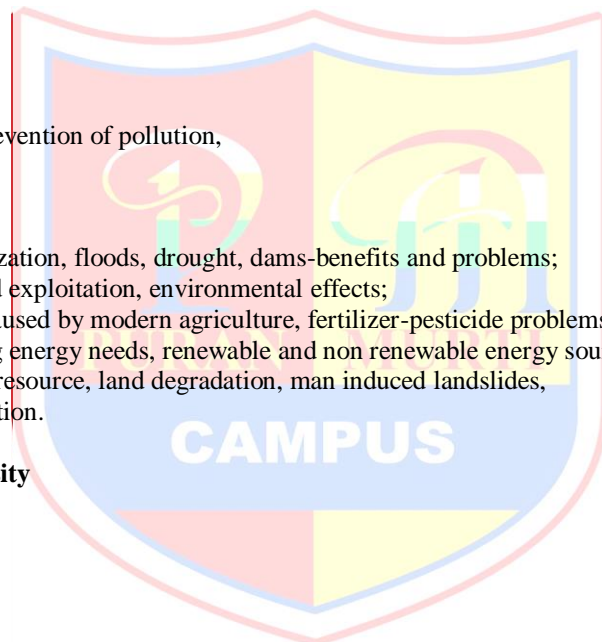Topic No12 Pollution case studies

UNIT – II Natural Resources:
Topic No13 Water resources: over-utilization, floods, drought, dams-benefits and problems;
Topic No14 Mineral resources: Use and exploitation, environmental effects;
Topic No15 Food resources: changes caused by modern agriculture, fertilizer-pesticide problems, water logging,
Topic No16 Energy resources: Growing energy needs, renewable and non renewable energy sources;
Topic No17 Land resources: Land as a resource, land degradation, man induced landslides,
Topic No18 soil erosion and desertification.

UNIT – III Ecosystems and Biodiversity
Topic No19 Concept of an ecosystem,
Topic No20 Structure and function,
Topic No21 Energy flow,
Topic No22 Ecological succession,
Topic No23 ecological pyramids.
Topic No24 Concept of Biodiversity, definition and types,
Topic No25 Hot-spots of biodiversity; threats to biodiversity,
Topic No26 Endangered and endemic species of India, Conservation of biodiversity.

UNIT - IV Social Issues and Environment
Topic No27 Water conservation,
Topic No28 rain water harvesting,
Topic No29 Environmental ethics: Issues and possible solutions.
Topic No30 Climate change, global warming,
Topic No31 acid rain,
Topic No32 ozone layer depletion,
Topic No33 Public awareness.
Topic No34 Population growth, variation among nations,
Topic No35 Family Welfare Programme.
Topic No36 Human Population and the Environment
Topic No37 Population growth,
Topic No38 Population explosion,
Topic No39 Women and Child Welfare.

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Field Work –

1. Visit to a local area to document environmental assets—river/forest/grassland/hill/ mountain.
2. Visit to a local polluted site—Urban/Rural/Industrial/Agricultural.
3. Study of common plants, insects, birds.
4. Study of simple ecosystems—pond, river, hill slopes, etc

REFERNCE BOOKS:

1. A Textbook of Environmental Studies by Asthana D.K. and Asthana Meera
2. Fundamental Concepts in Environmental Studies by Mishra D.D.
3. Environmental Studies by S.C Sharma M.P Poonia
4. Textbook of Environmental Studies for Undergraduate by Erach Bharucha
5. Environmental Studies: Third Edition by R. Rajagopalan

Subject: Elements of Aerodynamics Lab

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Subject Code: AER 203C

Study Scheme				Evaluation Scheme			Total Marks
Lectures per week				Internal Assessment	External Assessment (Examination)		
L	T	P	Credits	Max. Marks	Max. Marks	Exam Duration	
-	-	2	1	25	75	3 hours	100

S. No.	LIST OF EXPERIMENTS
1.	Flow visualization on symmetrical airfoil at various angles of attack
2.	Flow visualization on flapped aerofoil at various angles of attack
3.	Flow visualization on cylinder at various angles of attack
4.	Flow visualization on cambered airfoil at various angles of attack
5.	Flow visualization on delta wing at various angles of attack
6.	Determination of lift for the given airfoil section.
7.	To find airspeed in the low speed wind tunnel
8.	To find pressure coefficient distribution on symmetrical airfoil
9.	To find pressure coefficient distribution on cambered airfoil
10.	To determine the pressure distribution over a flat plate
11.	To determine boundary layer thickness over a flat plate at various locations

NOTE:
1. At least ten experiments are to be performed in the semester.

At least eight experiments should be performed from the above list. Remaining two experiments may either be performed from the above list or designed & set by the department as per the scope of the syllabus

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